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Columbia Falls Aluminum Company

Draft Baseline Human Health Risk Assessment Work Plan

Columbia Falls, Montana

Preliminary Under EPA and MDEQ Review

Prepared For:
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ACRONYMS

ACM	asbestos containing material
bgs	below ground surface
BHHRA	Baseline Human Health Risk Assessment
BTEX	benzene, toluene, ethylbenzene, xylene
BTV	background threshold value
CEM	conceptual exposure model
CERCLA	Comprehensive Environmental Response and Liability Act
CFAC	Columbia Falls Aluminum Company LLC
COPC	constituent of potential concern
CSF	carcinogenic slope factor
CSM	Conceptual Site Model
CTE	central tendency exposure
DNRC	Department of Natural Resources and Conservation
DU	Decision Unit
EHS Support	EHS Support LLC
EPC	exposure point concentration
FS	Feasibility Study
ft	foot/feet
ft-amsl	feet above mean sea level
GWC-IAC	Groundwater Concentration to Indoor Air Concentration
HHRA	Human Health Risk Assessment
HI	hazard index
HQ	hazard quotient
IRIS	Integrated Risk Information System
LADI	lifetime average daily intake
MBMG	Montana Bureau of Mines and Geology
MCL	maximum contaminant level
MDEQ	Montana Department of Environmental Quality
mi^2	square miles
NOAEL	no observed adverse effect level
ORNL	Oak Ridge National Library
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PPRTV	provisional peer-reviewed reference toxicity values
RAGS	Risk Assessment Guidance for Superfund
RBSL	risk-based screening level
RBSSL	risk-based soil screening level
RfCs	reference concentration
RfDs	reference dose
RI/FS	Remedial Investigation/Feasibility Study
RME	reasonable maximum exposure

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RSLs	regional screening levels
SAP	Sampling and Analysis Plan
TCE	trichloroethene
THQ	target hazard quotient
UCL	upper confidence level
URF	unit risk factor
USEPA	United State Environmental Protection Agency
USGS	United States Geological Survey
VISL	Vapor Intrusion Screening Level
VOC	volatile organic compound

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1.0 INTRODUCTION

EHS Support, LLC (EHS Support), on behalf of Roux Associates, Inc, (Roux) and Columbia Falls Aluminum Company LLC (CFAC), is providing this Baseline Human Health Risk Assessment Work Plan (BHHRA Work Plan) as part of the ongoing Remedial Investigation/Feasibility Study (RI/FS) for the property in Columbia Falls, Montana (Site). The RI/FS is being conducted pursuant to the Administrative Settlement Agreement and Order on Consent dated November 30, 2015, between CFAC and the United States Environmental Protection Agency (USEPA) (Comprehensive Environmental Response and Liability Act [CERCLA] Docket No. 08-2016-0002). The BHHRA Work Plan was developed in accordance with the scope of work included with the RI/FS Work Plan for the Site (Roux Associates, 2015); and relied on background information and data collected during the Phase I Site Characterization. As part of that investigation, samples of soil, sediment, groundwater, and surface water were collected and analyzed for a variety of chemicals. The results of the Phase I Site Characterization are provided under separate cover in the Phase I Site Characterization Data Summary Report (Roux Associates, 2017a).

1.1 Objective

The objective of the BHHRA is to characterize the potential risks to support the Feasibility Study (FS) in the evaluation of remedial alternatives to prevent, mitigate, or otherwise respond to (control) any unacceptable current or future risk from exposure to constituents of potential concern (COPCs) by human receptors.

1.2 Framework

The proposed format for the BHHRA will follow the USEPA Risk Assessment Guidance for Superfund (RAGS) Part D (USEPA, 2001). The regulatory guidance for conducting the BHHRA includes RAGS Parts A through F (USEPA 1989, 1991a, 1991b, 2001, 2004, and 2009), and the guidances and procedures that USEPA has issued in addition to the RAGS guidance. The additional guidance and procedures will be referenced, as applicable, in the BHHRA Work Plan.

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2.0 CONCEPTUAL EXPOSURE MODEL

The conceptual exposure model (CEM) provides a means of documenting and periodically updating general facility information and data regarding potential releases to the environment and exposure of receptors. The CEM also provides a framework for problem definition and aids in the identification of data gaps. The CEM defines the potentially complete exposure pathways, and notes the elimination of incomplete exposure pathways by institutional and engineering controls. The CEM updates the Conceptual Site Model (CSM) developed for the Site in the RI/FS Work Plan (Roux Associates, 2015) including the identification of complete exposure pathways based on current and future land use at the Site. In addition, it provides a Site background including Site location, history, and hydrogeology.

2.1 Site Background

Site background for the Columbia Falls aluminum reduction facility is provided below. This section describes the information about the site location and a summary of the operational history of the facility.

2.1.1 Site Location

The Site is located at 2000 Aluminum Drive in Columbia Falls, Montana (**Figure 1**). The Site is situated in the central portion of Flathead County, approximately two miles northeast of the City of Columbia Falls. According to the 2013 Census (www.census.gov), the total population of Columbia Falls is 4,796. The Site is accessed by Aluminum Drive via North Fork Road (County Road 486). The Site is generally bounded by the Cedar Creek Reservoir to the north, Teakettle Mountain to the east, Flathead River to the south, and Cedar Creek to the west (**Figure 1**).

2.1.2 Operational History

The Site was operated as a primary aluminum reduction facility (commonly referred to as an aluminum smelter) from 1955 until 2009. The facility began with two potlines in 1955 and an annual capacity of 67,500 tons per year (using 120 pots per potline). A third potline was added in 1965, and the fourth and fifth potline were added in 1968, increasing total aluminum production capacity at the Site to 180,000 tons per year. Aluminum production at the Site was suspended in 2009 and CFAC announced the permanent closure of the facility in March 2015. A detailed description of the operational history at the Site is provided in Section 2.7.2 of the RI/FS Work Plan (Roux Associates, 2015).

Buildings and industrial facilities remaining at the Site at the start of the Phase I Site Characterization program included offices, warehouses, laboratories, mechanical shops, the Paste Plant, coal tar pitch tanks, pump houses, the Casting Garage, and the Potline Facility. The Site also includes seven closed landfills, one inactive but not closed landfill, material loading and unloading areas, two closed leachate ponds, and several wastewater percolation ponds. By October 2017, many structures on Site had been removed as part of ongoing decommissioning efforts. Structures removed include: the West Rectifier, Rod Mill Building, Paste Plant, Quonset Hut, West Aluminum Unloader, Compressor Building, Laboratory, Pot Rooms 1 and 2 of Main Plant, and Change House. **Figure 2** illustrates the locations of historical site features.

2.2 Environmental Setting

The BHHRA study area consists of approximately 1,340 acres, which includes the former aluminum reduction facility (operational area) and the surrounding area. The nearest residences are located adjacent to the southwest Site boundary, approximately 0.80 miles west of historic footprint of Site operations, in a neighborhood referred to as Aluminum City. The nearest groundwater wells used for drinking water are

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located within the Aluminum City neighborhood. Several production wells historically pumped groundwater that was used for industrial operations and for potable water. However, electric power to these wells has been terminated. Therefore, existing onsite wells are non-operational and are not currently used for potable water.

The non-operational areas of the Site have been previously used for recreational purposes such as hunting and fishing; in these areas, the vegetation was described by Weston (2014) as consisting of coniferous forest and grasses characteristic of the Montana mountain environment. This section includes descriptions of the regional climatic conditions and a description of the localized hydrogeology at the Site.

2.2.1 Regional Climatic Conditions

The Site is located at a latitude of 48º 23' N. The elevation of the Site ranges from approximately 3,008 ft-amsl along the Flathead River to the south to 3,270 ft-amsl at the base of Teakettle Mountain to the east. Its mid-hemisphere latitude and intermontane setting results in wide seasonal climatic swings. Average annual precipitation in the region ranges from about 14 inches (in) to 25 in depending on the year. Greater precipitation at higher elevations is common; much of the precipitation is stored as snow. The regional climate is considered modified maritime. This means much of the precipitation regime is influenced by moist air masses from the Pacific Ocean traveling from west to east. Dry, cold air masses often move in the north to south direction from Canada. Mean annual temperature for nearby Kalispell, Montana is 43.25 ºF (6.25 ºC).

2.2.2 Localized Hydrogeology

The following section describes the regional and site-specific features that influence surface water and groundwater flow in the region and the Site.

2.2.2.1 Surface Water Hydrology and Watershed Characteristics

The Site is located within the Flathead River watershed. As discussed above the Site is bordered by surface water features of varying hydrology on each side, including the Flathead River to the south, Cedar Creek to the west, Cedar Creek Reservoir to the north, and intermittent Cedar Creek Reservoir Overflow Ditch to the east (**Figure 2**).

The Flathead River is a tributary to the Columbia River, which flows into the Pacific Ocean. The North Fork of the Flathead River originates in the province of British Columbia, Canada. The Middle Fork of the Flathead River originates in the Bob Marshall Wilderness located south of Glacier National Park. The confluence of the North Fork and Middle Fork of the Flathead River is approximately 10 miles upstream of the Site, north of Coram, Montana. The South Fork joins the main stem of the Flathead River at the entrance of Badrock Canyon located approximately two miles upstream of the Site. The Flathead River flows west through Badrock Canyon towards the City of Columbia Falls where its course is then southerly toward Flathead Lake. At the Site, the drainage area of the Flathead River is approximately 4,470 square miles (mi^2), which includes the drainage area of Cedar Creek to the west.

The United States Geological Survey (USGS) maintains three gauging stations on the Flathead River in the general vicinity of the Site. The closest station is located approximately three miles southwest of the Site near Columbia Falls (USGS Station #12363000). Two stations are located approximately 10 miles north/northeast of the Site: the north fork station on the Flathead River and the middle fork station immediately west of Glacier National Park (USGS Station #s 12355500 and 12358500, respectively). For the period of record at the Columbia Falls USGS station, October 1951 to September 2016, mean monthly

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discharge was lowest in August with an average flow rate of 151 m^3/s (5,340 ft^3/s). Mean monthly discharge was greatest in June with an average flow rate of 705 m^3/s (24,900 ft^3/s). The increased discharge in June corresponds to the period when average precipitation in the region is greatest. Meltwater from high elevation snowpack also contributes to the increased discharge in May and June.

Cedar Creek originates north of the Site in the area contributing to the Cedar Creek Reservoir. At the outlet of the Cedar Creek Reservoir, the upgradient catchment area is 12.5 mi^2. From the reservoir outlet, Cedar Creek flows approximately 3 miles southwest towards the City of Columbia Falls. The elevation of Cedar Creek is higher than groundwater elevations within the Site, indicating that Cedar Creek is a losing stream rather than a gaining stream. According to the USGS National Hydrology Dataset, a tributary to Cedar Creek may have historically flowed in the northern area of the Site. This feature was situated along the eastern side of the Industrial Landfill and joined Cedar Creek approximately 0.5 miles to the southwest of the Industrial Landfill. This feature was not observed during Site reconnaissance; however, surface water ponding and wetland type grasses were observed to be present in the area south and southeast of the Industrial Landfill. Based on field observations, the source of the ponding seemed to be from the nearby cliff. This feature was generally mapped by Roux Associates field personnel and is identified on **Figure 3** as the Northern Surface Water Feature. At the western Site boundary, Cedar Creek drains an additional 1.5 mi^2, predominately from the western two-thirds of the Site.

The Cedar Creek Reservoir Overflow Drainage Ditch flows intermittently in the spring and regulates flow for Cedar Creek and the Cedar Creek Reservoir (Hydrometrics, 1985). Based upon proximity and land surface topography, some surface water runoff from the eastern side of the Site, originating from the East and Sanitary Landfills, as well as runoff from western flank of Teakettle Mountain, flows to the Cedar Creek Reservoir Overflow Drainage Ditch (**Figure 2**). Excluding potential upgradient contributions from the Cedar Creek Reservoir, the Overflow Drainage has a catchment area of approximately 2.0 mi^2. About 20 percent of this catchment area originates on-Site and the remaining catchment extends to the peak of Teakettle Mountain to the east. Like Cedar Creek, the elevation of Cedar Creek Overflow Drainage is higher than surrounding groundwater elevations within the Site, indicating that the Cedar Creek Overflow drainage is a losing stream.

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2.2.2.2 Site Hydrogeological Units

The stratigraphic units underlying the Site form a complex hydrogeologic framework that influences groundwater elevations, groundwater flow and potential COPC migration beneath the Site. Three major stratigraphic units were identified during the Phase I Site Characterization and are described in the Phase I Site Characterization Data Summary Report (Roux Associates, 2017a). The three stratigraphic units consist primarily, from land surface down, of:

- A layer of glaciofluvial and alluvial coarse-grained soils, varying in vertical extent and grain size depending on vicinity to Site features (i.e., Teakettle Mountain, Flathead River, etc.);
- A layer of dense, poorly sorted glacial till with interbedded deposits of glaciolacustrine clays and silts; and
- Bedrock

The coarse grained glacial outwash and alluvium deposits that are found above the glacial till are collectively referred to as the "upper hydrogeologic unit" at the Site (Roux Associates, 2017a). The coarse grained glacial deposits that comprise the upper hydrogeologic unit account for the main water bearing unit beneath the Site. The glacial tills found below the upper hydrogeologic unit were typically characterized as containing a higher percentage of fines, denser, and drier than the overlying outwash and alluvium deposits. The till deposits were often characterized as stiff and, moist or dry. These observations indicate that the till deposits likely have a lower hydraulic conductivity than the overlying outwash and alluvium deposits in the upper hydrogeologic unit. The bedrock beneath the till has been metamorphosed over time, resulting

in a tightly compacted, low porosity and low permeability unit. Based upon the conceptual Site model, bedrock is considered to define the bottom of the hydrogeologic system beneath the Site.

2.2.2.3 Groundwater Occurrence and Flow

Groundwater flow in the region tends to follow surface topography. Groundwater is typically recharged from direct infiltration and surface water sources, which includes reservoirs, ponds, streams, and lakes (LaFave et al. 2004). Groundwater in the region may also discharge to surface water bodies, depending on the season and localized conditions.

Groundwater occurrence and movement was evaluated during the Phase I Site Characterization and is described in the Phase I Site Characterization Data Summary Report (Roux Associates, 2017a) and the Groundwater and Surface Water Data Summary Report (Roux Associates, 2017b). Sixty-four monitoring wells were visited on August 30, 2016, November 29, 2016, March 14/15, 2017, and June 16, 2017 to measure depth to groundwater across the Site. Pressure transducers were also installed in selected wells at the beginning of the Phase I Site Characterization to monitor groundwater elevations throughout the Phase I Site Characterization. The elevation data collected from gauging and with the pressure transducers indicate that groundwater elevations fluctuate seasonally at varying magnitudes depending on the area of the Site and what hydrogeologic unit the well is screened within. Additionally, groundwater elevations measured in monitoring well clusters, where there is a well screened within the upper hydrogeologic unit and an adjacent deep well screened below the upper hydrogeologic unit, indicates a downward vertical gradient exists. However, the differences in elevations between the glacial till and the upper hydrogeologic unit is typically greater than 25 ft, and in some cases, exceed 50 ft. This large difference is indicative of limited (if any) hydraulic connectivity between the two water bearing zones.

The groundwater elevations from monitoring wells screened in the upper hydrogeologic unit were utilized to evaluate groundwater flow. Groundwater flow across the Site in the upper hydrogeologic unit is generally in the south-southwest direction towards the Flathead River. While the southerly flow direction is consistent across the Site, the discussion of the hydraulic gradient can be divided into three distinct areas:

1. Near Teakettle Mountain and in the landfill area of the Site, the groundwater hydraulic gradient is steep (approximately 0.059 ft/ft) and generally mirrors the steeper topography in that portion of the Site.
2. Groundwater elevations in the center of the Site (near the North Percolation Ponds, former Operational Area, and northern half of the Main Plant Area) are consistent over long distances (typically within 1 foot over distances greater than 1,000 feet), indicating a relatively flat groundwater hydraulic gradient (approximately 0.0045 ft/ft) across the center of the Site.
3. The gradient then increases in the southern area of the Site between the Main Plant Area and the Flathead River (approximately 0.031 ft/ft), which is also consistent with the steep drop in topography between the Railroad and the River.

The gradients above and the elevations measured in the Flathead River generally indicate that the groundwater in the upper hydrogeologic unit appears to discharge to the Flathead River.

2.3 Site and Regional Groundwater Usage

Regional groundwater resources and uses were presented in the RI/FS Work Plan for the Site (Roux Associates, 2015). The depth to groundwater within the Main Plant Area and the landfill areas to the north ranges from approximately 40 feet below land surface (ft-bls) to more than 125 ft-bls based on the

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groundwater elevation data collected during the Phase I Site Characterization. The depth to groundwater was also observed to vary by more than 50 feet around the landfill area in response to seasonal fluctuations. Near the Flathead River, the depth to groundwater is typically less than 20 ft-bls.

There is no current or planned future use of groundwater as a potable resource at the Site. In addition, based upon the depth to groundwater and current and future Site use, there is no potential for direct exposure of humans (ie., construction workers) to groundwater at the Site.

Groundwater is used as the primary source of drinking water for the residential community referred to as Aluminum City located immediately west of the Site. Groundwater is also used in the City of Columbia Falls, which is located further west of the Site. Therefore, the people who regularly obtain their drinking water from wells that are in the vicinity of the Site are potential receptors in the event that groundwater contamination migrates offsite into these areas. According to the Site Reassessment Report (Weston, 2014), a query of the Montana Bureau of Mines and Geology (MBMG) Montana Groundwater Information Center database indicated that 533 wells were reported within a roughly four-mile radius of the Site within Flathead County (Department of Natural Resources and Conservation [DNRC], 2013). Of the 533 wells, depth to water was ranged between 12 to 620 ft-bls with an average depth to water of approximately 164 ft-bls (DNRC, 2013). As noted in Section 2.3.2.3 above, groundwater elevation data collected during the Phase I Site Characterization indicates groundwater flow across the Site in the upper hydrogeologic unit is to the south/southwest direction towards the Flathead River and generally not towards Aluminum City.

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2.4 Nature and Extent of Affected Media

In 2013, Weston Solutions, Inc. (Weston) completed an investigation at the Site on behalf of the USEPA Region 8. The results were summarized in the April 2014 report Site Reassessment for Columbia Falls Aluminum Company (Weston, 2014). As part of the investigation, a total of 68 groundwater, surface water, sediment and soil samples were collected at the Site during the investigation. Results were utilized by the USEPA to establish if an observed release had occurred at the Site as that term is defined in the USEPA Hazardous Ranking System Guidance Manual. The data collected during the Weston investigation was considered when developing the Scope of Work for the Phase I Site Characterization that was completed by Roux Associates, on behalf of CFAC, in 2016 and 2017. The Phase 1 Site Characterization program was designed to identify and/or confirm source areas and broadly characterize the nature and extent of associated chemicals of concern across the Site and around site features. Site features that were investigated by Weston were reinvestigated during the Phase I Site Characterization, and additional Site features were investigated based on the based on the preliminary CSM presented in the RI/FS Work Plan. The nature and extent of contamination was evaluated from the following site features identified as potential source areas (**Figure 2**):

- Landfills (including the closed Wet Scrubber Sludge Pond and the closed leachate ponds)
- Former Drum Storage Area
- Percolation ponds
- Waste and raw materials storage and handling areas
- Plant drainage system including drywells and associated discharge points
- Underground storage tanks and above ground storage tanks

The results of the Phase 1 Site Characterization program indicated that cyanide, fluoride, and polynuclear aromatic hydrocarbons (PAHs) are the primary COPCs identified within the potential source areas and site features (Roux Associates, 2017a). A summary of key findings regarding the nature and extent of contaminants as it relates to the CEM include:

- Elevated cyanide and fluoride concentrations in groundwater within the upper hydrogeologic unit appear to originate immediately to the west of the Wet Scrubber Sludge Pond, with maximum

concentrations immediately downgradient of the West Landfill and Wet Scrubber Sludge Pond; cyanide and fluoride concentrations in groundwater to the east and northeast of these site features, and downgradient of other site landfills are generally orders of magnitude lower.

- Soils adjacent to the West Landfill contained elevated concentrations of cyanide, fluoride, and PAHs.
- Elevated cyanide and fluoride concentrations were observed in soil and groundwater in the Former Drum Storage Area, located immediately to the west of the West Scrubber Sludge Pond and West Landfill.
- Concentrations of PAHs and cyanide in the Percolation Ponds were typically greatest in soil and sediment in the Northeast Pond and its influent ditch, followed by the effluent ditch, Northwest Pond, and West Pond; concentrations of COPCs decreased with increasing depth in the Percolation Ponds.
- COPC concentrations in soil and sediment in the South Percolation Pond was similar to the other percolation ponds, but were generally much lower than the northern ponds.
- Cyanide, fluoride, and PAHs were the primary COPCs detected in soils throughout the Main Plant Area.
- Low level detections of benzene, toulene, ethylbenzene, and xylene (BTEX) were the primary volatile organic compounds (VOCs) in soils across the Site. The presence of BTEX may be related to petroleum coke and pitch materials used at the Site.
- Naturally-occurring metals were detected in soil and sediment samples across the Site. Concentrations of some metals are consistent with regional estimates of background concentrations; however, the areal distribution and magnitude of metals concentrations around certain site features (e.g., North Percolation Ponds and associated ditches) indicate that some metals may be present as a result of site operations.
- Pesticides and polychlorinated biphenyls (PCBs) were not detected in any soil samples collected during the Phase 1 Site Characterization; however, mean and median minimum detection levels for some pesticides and most PCBs exceeded lowest screening criteria.
- Low-level dioxin and furan detections were observed in soil samples from the Rectifier Yard; however, concentrations were below USEPA Residential Regional Screening Levels (RSLs).
- Consistent with the preliminary CSM, soil and groundwater results from the Phase 1 Site Characterization indicate low potential for soil vapor exposure based on low VOC concentrations detected in soil and groundwater.

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2.4.1 Aluminum City Groundwater Quality

The Phase I Site Characterization Data Summary Report (Roux Associates, 2017a) included results from sampling events of water supply wells located in the residential area (also referred to as Aluminum City) located immediately west of the Site boundary, which were completed by the USEPA and CFAC since 2013. The sampling of groundwater from water supply wells in the residential areas near the Site was not part of the Scope of Work outlined in the RI/FS Work Plan and Phase I Site Characterization Sampling and Analysis Plan. However, the data was included as part of the Phase I Site Characterization Data Summary Report because the data is valuable to understanding the groundwater conditions immediately west of the Site, and for evaluating potential exposure pathways in the residential area (closest area to the Site where permanent residents are present) as part of the BHHRA.

The first residential well sampling event occurred in 2013 as part of the investigation activities completed by Weston on behalf of the USEPA. The data from this sampling was summarized in the USEPA Site Reassessment Report (Weston, 2014) and included four residential well locations. During the 2013 sampling event, cyanide was detected in one well at a concentration of 111 µg/L; which was less than the USEPA maximum contaminant level (MCL)/Montana Department of Environmental Quality (MDEQ)

Circular-7 Numeric Water Quality Standard of 200 µg/L but exceeded the USEPA Tapwater regional screening levels (RSL) of 0.15 µg/L. Additionally, a residential water supply well located north of the Site at a residence on the north shore of Cedar Creek Reservoir was sampled and cyanide was detected at a concentration of 18.5 µg/L. After the 2013 sampling event, two additional rounds of sampling were completed by Weston on behalf of the USEPA - April 2014 (20 wells sampled) and November 2014 (10 wells sampled). Following those sampling events, CFAC offered to conduct quarterly sampling of water supply wells for any Aluminum City residents that desired additional sampling of their well locations. As a result, sampling events have been completed quarterly by Hydrometrics on behalf of CFAC since June 2015. The quarterly events included June 2015 (nine wells sampled), September 2015 (ten wells sampled), December 2015 (10 wells sampled), March 2016 (10 wells sampled), June 2016 (10 wells sampled), September 2016 (12 wells sampled), December 2016 (13 wells sampled) and March 2017 (13 wells sampled). Cyanide has not been detected in any of the wells during any of the ten sampling events completed by USEPA and/or CFAC since the cyanide was detected in the 2013 sampling, indicating that cyanide is not present in the groundwater beneath Aluminum City.

During the Aluminum City sampling since 2013, fluoride has been detected in the residential wells at concentrations ranging from non-detect to 280 µg/L. The detected concentrations of fluoride were all below the USEPA MCL and MDEQ Circular-7 Numeric Water Quality Standard of 4,000 µg/L, but exceed the USEPA Tapwater RSL of 80 µg/L in some sampling events. The concentrations of fluoride observed in Aluminum City wells are consistent with background concentrations of fluoride that are reported within the Flathead county of Montana by the Montana Department of Environmental Quality (MDEQ, 2017) (https://dphhs.mt.gov/publichealth/oralhealth/OHFluoride.aspx).

With the exception of manganese in one residential well location, all other analytes evaluated as part of the residential well sampling, including VOCs, semi-volatile organic compounds (SVOCs), metals, pesticides and PCBs, were either not detected or detected at concentrations that do not exceed the screening criteria evaluated throughout this Phase I Site Characterization Data Summary Report (i.e., USEPA MCLs/DEQ Circular-7 Numeric Water Quality Standards/USEPA Tapwater RSLs).

The results of the groundwater monitoring programs described above indicate that groundwater beneath Aluminum City has not been affected by Site-related COPCs. This finding is consistent with the results of four rounds of monitoring that show the groundwater flow direction beneath the Site is directed towards the Flathead River, not towards Aluminum City.

2.4.2 Soil Vapor

The preliminary CSM in the RI/FS Work Plan indicted there was low potential for soil vapor concerns at the Site based upon the limited detections of VOCs, and the low concentrations detected in groundwater during prior investigations. In addition, Site groundwater within the Main Plant Area and areas to the north ranges from approximately 40 feet below land surface (ft-bls) to 125 ft-bls. To confirm this initial finding, the Phase I Site Characterization Data Summary Report assessed the potential for soil vapor intrusion. The maximum concentrations of each VOC detected in groundwater within the upper hydrogeologic unit were entered into the USEPA Vapor Intrusion Screening Level (VISL) Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5.1 (USEPA, 2016) (see Appendix U of the Phase I Site Characterization Data Summary Report). The results indicate that all estimated vapor intrusion carcinogenic risks were less than $1x\ 10^{-6}$. The results also indicate that only trichloroethene (TCE), based upon a detected value of 0.76 µg/L at one location, is above the hazard quotient (HQ) of 0.1. It is noted that the groundwater average temperature used in this evaluation was 25°C. A review of the field datasheets (see Appendix C of the Phase I Site Characterization Data Summary Report) indicates that the average

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groundwater temperature is less than 15°C. Based on a site-specific groundwater temperature, the HQ for TCE at a groundwater concentration of 0.76 µg/L using the VISL calculator is less than 0.1 (**Appendix A**).

2.4.3 Asbestos

Surficial soil sampling was conducted in the Asbestos Landfills as part of the Phase I Site Characterization program (Roux Associates, 2017c); the methods and findings of the sampling program are presented in **Appendix B**. As described in the RI/FS Work Plan, two areas were identified as being former asbestos landfills based on historic information (**Figure 2**). The areas are referred to as the North Asbestos Landfills and the South Asbestos Landfills. The North Asbestos Landfills are located north of the West Landfill and consist of two separate areas (i.e., North-West and North-East Asbestos Landfills); the South Asbestos Landfills are located south of the East Landfill, near the eastern boundary of the Site, and consist of two separate areas (i.e., South-West and South-East Asbestos Landfills). Together, the four landfills are referred to as the Asbestos Landfills. The Asbestos Landfills were constructed as early as the late 1970s or early 1980s, and were in use from 1993 to 2009. Details regarding landfill construction are unknown; however, based on the Phase I observations during field reconnaissance and test pitting activities, the landfills have a natural soil cover that overlies the asbestos materials within the landfills. There is no evidence of an engineered cap or liner. The approximate boundaries of the landfills and the sampling locations are presented on Plate 1 of the sampling report (Roux Associates, 2017c). Asbestos containing material, including asbestos pipe and asbestos bags, were observed at depth during test pitting. No samples were collected during this investigation. The historical knowledge of asbestos landfill operations at the Site and previous Site reconnaissance and test pitting activities indicated that asbestos containing materials were buried in the landfills underneath a soil cover. However, it could not be determined from visual field inspection if asbestos is present in the surface soil. Therefore, the surficial soil sampling was conducted to determine the presence, or lack thereof, of asbestos in the surface soil, and the extent of the asbestos, if present.

Surficial soil samples were analyzed via the California Air Resources Board 435 method using polarized light microscopy. The laboratory analytical data for 56 surficial soil samples collected from the 56 grids across the Asbestos Landfills was summarized in Table 1 of the sampling report (Roux Associates, 2017b). Analytical data for surficial soils were compared to the laboratory method detection limit. The surficial soil sampling results from the Asbestos Landfills indicate the following:

- Surficial soil was non-detect for asbestos in 55 of the 56 surficial soil samples collected from the Asbestos Landfills based upon the asbestos concentration. Point counting was not performed on these samples because no asbestos fibers were detected.
- One surficial soil sample, CFAS-03-SO-0-0.5, had a chrysotile asbestos concentration less than 0.25 percent but there were no asbestos fibers identified for counting during the point count. This sample was collected from grid CFAS-03 located in the northeast corner of the South-West Asbestos Landfill.
- One potential asbestos containing material (ACM) sample, CFAS-55-Wire, had an asbestos concentration of 90 percent chrysotile asbestos. The surficial soil sample collected from the same grid cell, CFAS-55-SO-0-0.5, was determined to be non-detect for asbestos.

Based on the lack of asbestos in the surface soil, and the current and future use of the Site, there is no potential for exposure to asbestos by human receptor activity in the Asbestos Landfills.

2.4.4 Dioxins and Dibenzofurans

Soil samples were collected within the Rectifier Yards were analyzed for dibenzo-p-dioxins and polychlorinated dibenzofurans. The Toxicity Equivalency Factors were used for the concentrations dioxins

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and furans on the basis of how toxic they were in comparison with the toxicity of 2,3,7,8-tetrachlorodibenzodioxin. The results of this screening were presented in Table L7 – Appendix L in the Phase I Site Characterization Data Summary Report. A comparison of these data indicate the following:

- All individual DLC concentrations for detected samples were below their respective USEPA Residential and Industrial RSLs.
- TCDD was detected in less than 11% of the samples. Detections of TCDD included four samples within the Rectifier Yards, three of which were surface soil samples. The sample concentrations for TCDD did not exceed the calculated USEPA Residential or Industrial RSLs at any sampling interval. The detected concentrations of TCDD exceeded the USEPA Protection of Groundwater Risk Based Soil Screening Level in ten surface soil samples, three shallow soil samples, and one intermediate-depth sample.
- Total TEQ values were compared to the USEPA RSLs for TCDD. Total TEQ did not exceed USEPA Industrial RSLs, and exceeded USEPA Residential RSLs in the surficial sample collected from CFMW-040 located in the West Rectifier Yard and the shallow sample collected from CFSB-080 located in the East Rectifier Yard. Total TEQ exceeded USEPA Protection of Groundwater Risk Based Soil Screening Levels in 36 of 38 soil sample intervals.

Although dioxin and dibenzofuran type compounds were detected, the evaluations indicate that none of the individual Toxicity Equivalency Factor concentrations exceed the calculated USEPA Residential or Industrial RSLs at any sampling interval, but a limited number of samples (23 percent of surface samples, 8 percent of shallow samples, and none in intermediate depth samples) exceed the calculated USEPA Protection of Groundwater Risk-Based Soil Screening Levels. Total Toxicity Equivalency Factor concentrations did not exceed USEPA Industrial RSLs, but they did exceed USEPA Residential RSLs in two surficial samples collected from the Rectifier Yard.

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2.5 Potentially Complete Exposure Pathways

An exposure pathway is comprised of the following:

- A source and mechanism of constituent release to the environment
- A transport or exposure medium containing the constituent
- An exposure point where receptors (humans) can contact the exposure medium
- An exposure route (e.g., inhalation, ingestion, direct contact).

All four elements of an exposure pathway must be present for an exposure to occur. The potential completeness of exposure pathways was evaluated based on available Site investigation data, and current and potential future landuse scenarios. Mitigating factors are also considered in evaluation of the completeness of an exposure pathway using logical and scientifically defensible reasoning based on understanding of site-specific conditions and operations. Mitigating factors also may include covers that minimize the potential for direct contact, water use restrictions, other institutional controls established to minimize worker exposure, and/or the nature of COPCs.

2.5.1 Migration Pathways

The fate and transport of Site-related COPCs released into the environment depends on the physicochemical properties of the constituent and environmental media, and the physical characteristics of the migration pathway. Constituents may partition in various environmental media, such as surface water, sediment, and soil, which affects the potential risks posed to human receptors.

Based on the chemical and physical properties of the COPCs, and the known physical, topographic, meteorological, hydrologic conditions at the Site, migration and transport of COPCs from the source areas is limited to the following potential pathways:

- Airborne transport of dust (particulates) from Site surface soils (if disturbed) and subsurface soils (during intrusive activities) resulting from wind erosion or physical disturbance of soils
- Leaching of COPCs in surface soils to subsurface soils; and leaching of COPCs in subsurface soils to groundwater
- Migration of COPCs in surface soil to surface water via storm water runoff from Site
- Volatilization of VOCs in subsurface soils and groundwater to soil gas
- Volatilization of COPCs in sub-slab or shallow soil gas to enclosed spaces, including indoor air of occupied structures
- Volatilization of COPCs in shallow zone groundwater to construction trench air
- Migration of COPCs in groundwater
- Discharge of COPCs in groundwater to surface water and sediments

The potential pathways will be evaluated to determine which pathways are complete exposure pathways that have the four elements of an exposure pathway for an exposure to a receptor to occur, and which pathways are not complete exposure pathways because they lack one of the four elements.

2.5.2 Potential Receptors

Potential receptors are defined as human populations or individuals and environmental systems susceptible to COPC exposure from the Site. Both current and future landuse conditions are considered in identifying potential receptors and exposure scenarios.

The Site's current use consists of the former aluminum reduction facility (operational area and associated infrastructure) and the surrounding area previously used for recreational hunting and fishing. The Site is currently being decommissioned, and many of the former structures have been removed. Current activities at the Site include decommissioning activity, site assessment (e.g., Phase II sampling program) as part of the ongoing RI/FS activities, and potential recreational hunting and fishing. In addition, the Flathead River is a designated wild and scenic river that includes boating, floating, kayaking, hunting, fishing, and bird watching water activities.

A definitive future landuse plan has not been developed for the Site. However, it is CFACs intent that the future use of the Main Plant Area, as well as the surrounding historical operational areas and undeveloped areas to the north and east of the Main Plant Area, be restricted to industrial or commercial landuse. The western portion of the Site, where there have been no industrial or waste disposal activities, may be considered for future residential and recreational uses. It is CFAC's intent to prohibit the future use of groundwater as a potable water source at the Site.

Based on the current and reasonable foreseeable future use of the Site, and the potential for exposure to affected soil, groundwater, surface water, and sediment, the following are the potential receptors within the overall Site boundary and associated Flathead River. Site assessment workers are excluded from the list of potential receptors because they conduct their assessment activities in adherence to the Occupational Safety and Health Administration's Hazardous Waste Operations and Emergency Response Standard. It is noted that the potential receptors will vary by specific area as further described below in Section 2.6.3:

- Current receptors would include:
  - Decommissioning workers exposed to soils, surface water, and sediments
  - Trespassers exposed to soil, surface water, and sediments
  - Recreational users exposed to biota, soil, surface water, and sediments

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- Future receptors would include:
  - Industrial or commercial workers exposed to soils and groundwater
  - Construction workers exposed to soils and groundwater
  - Residents exposed to soils and groundwater
  - Trespassers exposed to soil, surface water, and sediments
  - Recreational users exposed to biota, soil, surface water, and sediments

2.5.3 Exposure Pathways

Exposure areas were defined to characterize risks to potential human receptors within the different exposure scenarios based on the multiple landuses for the Site. Areas designated for future industrial development would be expected to have different exposure scenarios and potential receptors than those areas designated for residential or recreational use. The RI/FS Work Plan presented preliminary exposure areas that were refined based on the results of the Phase I Site Characterization program. The spatial extents of the refined exposure areas are illustrated in **Figure 3**. The potential exposure pathways evaluated in each exposure area include exposure to Site soils, groundwater via vapor intrusion, surface water, and sediment, as applicable. The potential Site groundwater exposure pathway from potable water use will be evaluated on a Site-wide exposure-area basis based on potential future use of groundwater.

The following discusses the exposure areas that will be assessed in the BHHRA, and the potential complete exposure pathways and receptors that will be assessed for each exposure area in the BHHRA. Incomplete exposure pathways also are identified that will not be assessed further in the BHHRA. **Table 1** presents the potential media-specific and route-specific exposure pathways for each receptor and exposure area, and provides the rationale for selection or exclusion of the exposure pathway in the BHHRA.

2.5.3.1 Main Plant Area

The Main Plant Area (exposure area 1) is the area of historical manufacturing operations, and is undergoing decommissioning. The Main Plant Area is covered by remaining infrastructure (e.g., buildings, parking areas, rail spurs), by impervious surfaces (e.g., concrete, asphalt), or by crushed stone, gravel, and rubble. There are no areas of significant vegetation other than weeds common to roadsides and disturbed areas. Also included in the Main Plant Area are some undeveloped lands to the east and west that include roadways and storage areas, and are otherwise vegetated with grassland and deciduous shrubland. The foreseeable future use of this area is industrial or commercial.

Based on the potential migration pathways and receptors that may be exposed to COPCs at the Main Plant Area, the following current and future potential exposure pathways are considered complete in the CEM:

- Direct contact (incidental ingestion, inhalation, and dermal contact) with COPCs in soil
  - Decommissioning worker
  - Industrial or commercial worker
  - Construction worker
  - Trespasser

The following potential exposure pathways for receptors in the Main Plant Area are considered incomplete for the CEM:

- Exposure of human receptors (incidental ingestion and dermal contact) with COPCs in surface water and sediment
  - There are no surface waters within the Main Plant Area
- Exposure of human receptors (inhalation) to COPCs in Site groundwater via volatilization of COPCs

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- Assessment of groundwater using the VISL calculator showed no unacceptable concentrations of groundwater
- Exposure of human receptors (ingestion) with COPCs in biota
  - There are no recreational use areas within the Main Plant Area that have been or will be used for hunting

2.5.3.2 North Percolation Pond Area

The North Percolation Pond Area (exposure area 2) is an area of historical waste water discharge, and consists of two ponds (North-East and North-West) connected by an approximately 1,440-foot-long unlined ditch. The North-East and North-West ponds are approximately 2-acres and 8-acres in size, respectively. During historic manufacturing operation, these ponds were open water areas due to the continuous discharge of process water as well as periodic stormwater. Since manufacturing has ceased, these areas only receive stormwater. Standing water has not been observed in the North-West pond during the course of the RI; and in the North-East ponds only during limited time periods following precipitation or snow melt. The foreseeable future use of this area is industrial stormwater management.

Based on the potential migration pathways and receptors that may be exposed to COPCs at the North Percolation Pond Area, the following current and future potential exposure pathways are considered complete in the CEM:

- Direct contact (incidental ingestion, inhalation, and dermal contact) with COPCs in soil
  - Industrial worker
  - Trespasser
- Direct contact (incidental ingestion and dermal contact) with COPCs in surface water and sediment
  - Industrial worker
  - Trespasser

The following potential exposure pathways for receptors in the North Percolation Pond Area are considered incomplete for the CEM:

- Exposure of human receptors (inhalation) to COPCs in Site groundwater via volatilization of COPCs
  - Assessment of groundwater using the VISL calculator showed no unacceptable concentrations of groundwater
- Exposure of human receptors (ingestion) with COPCs in biota
  - There are no recreational use areas within the North Percolation Pond Area

2.5.3.3 Central Landfill Area

The Central Landfill Area (exposure area 3) consists of 12 distinct site features (**Figure 2**) that are associated with waste management and disposal activities, including the following:

- West Landfill
- Wet Scrubber Sludge Pond / Landfill
- Center Landfill
- East Landfill
- North Leachate Pond
- South Leachate Pond
- Northwest Asbestos Landfill
- Northeast Asbestos Landfill
- Southwest Asbestos Landfill
- Southeast Asbestos Landfill
- Sanitary Landfill
- Former Hazardous Waste Drum Storage Area

Each of the landfills and the two leachate ponds are currently closed, with either an engineered cap or soil cover. Details regarding the construction and use of each landfill, as well as capping details, are provided

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within the RI/FS Work Plan. The Central Landfill Area also includes the lands between these features and historical operational area between the Main Plant Area and the landfills.

The Central Landfill Area is approximately 124 acres in area. The area also includes roadways and open areas between and around the landfill. The area is vegetated primarily with grassland with deciduous shrubland and forest on the eastern border of the area. The Cedar Creek Reservoir Overflow transects the eastern half of the Central Landfill Area, and flows from north to south thru the area.

The foreseeable future use of the Central Landfill Area is industrial (i.e., landfill management and maintenance activities).

Based on the potential migration pathways and receptors that may be exposed to COPCs at the Central Landfill Area, the following current and future potential exposure pathways are considered complete in the CEM:

- Direct contact (incidental ingestion, inhalation, and dermal contact) with COPCs in soil
  - Industrial worker
  - Trespasser
- Direct contact (incidental ingestion and dermal contact) with COPCs in surface water and sediment within the Cedar Creek Reservoir Overflow
  - Industrial worker
  - Trespasser

The following potential exposure pathways for receptors in the Central Landfill Area are considered incomplete for the CEM:

- Exposure of human receptors (inhalation) to COPCs in Site groundwater via volatilization of COPCs
  - Assessment of groundwater using the VISL calculator showed no unacceptable concentrations of groundwater
- Exposure of human receptors (ingestion) with COPCs in biota
  - There are no recreational use areas within the Central Landfill Area

2.5.3.4 Industrial Landfill Area

The Industrial Landfill Area (exposure area 4) began operations in the 1980s. It is an inactive, uncapped landfill in the northern part of the Site, encompassing approximately 12.4 acres. The aerial dimensions of the landfill are approximately 720 feet by 800 feet, though the shape is irregular. The Industrial Landfill Area received non-hazardous waste and debris (CFAC, 2013). The area includes roadways and the landfill, and is otherwise vegetated primarily with grassland with deciduous shrubland and forest on the borders of the area. The foreseeable future use of this area is industrial (i.e., landfill management and maintenance).

Based on the potential migration pathways and receptors that may be exposed to COPCs at the Industrial Landfill Area, the following current and future potential exposure pathways are considered complete in the CEM:

- Direct contact (incidental ingestion, inhalation, and dermal contact) with COPCs in soil
  - Industrial worker
  - Trespasser

The following potential exposure pathways for receptors in the Industrial Landfill Area are considered incomplete for the CEM:

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- Exposure of human receptors (incidental ingestion and dermal contact) with COPCs in surface water and sediment
  - There are no surface waters within the Industrial Landfill Area
- Exposure of human receptors (inhalation) to COPCs in Site groundwater via volatilization of COPCs
  - Assessment of groundwater using the VISL calculator showed no unacceptable concentrations of groundwater
- Exposure of human receptors (ingestion) with COPCs in biota
  - There are no recreational use areas within the Industrial Landfill Area

2.5.3.5 Eastern Undeveloped Area

The Eastern Undeveloped Area (exposure area 5) is undeveloped and vegetated with forest and shrubland, except for the area that includes the Borrow Pit Area. There were no operational activities conducted within this area. The Cedar Creek Reservoir Overflow transects the Eastern Undeveloped Area from north to south. The foreseeable future use of this area is industrial or undeveloped.

Based on the potential migration pathways and receptors that may be exposed to COPCs at the Eastern Undeveloped Area, the following current and future potential exposure pathways are considered complete in the CEM:

- Direct contact (incidental ingestion, inhalation, and dermal contact) with COPCs in soil
  - Industrial or commercial worker
  - Construction worker
  - Trespasser
- Direct contact (incidental ingestion and dermal contact) with COPCs in surface water and sediment
  - Trespasser

The following potential exposure pathways for receptors in the Eastern Undeveloped Area are considered incomplete for the CEM:

- Exposure of human receptors (inhalation) to COPCs in Site groundwater via volatilization of COPCs
  - Assessment of groundwater using the VISL calculator showed no unacceptable concentrations of groundwater
- Exposure of human receptors (ingestion) with COPCs in biota
  - There are no recreational use areas within the Eastern Undeveloped Area that have been or will be used for hunting; it is also noted that these areas are inaccessible.

2.5.3.6 North-Central Undeveloped Area

The North-Central Undeveloped Area (exposure area 6) includes roadways and a mixed vegetation of grassland, deciduous shrubland, and forest. The Cedar Creek Reservoir Overflow transects the northeastern portion of the area from north to south. In addition, a surface water drainageway exists that originates east of the Industrial Landfill and flows south to a shallow ponded area between the Industrial Landfill and the North-West Percolation Pond (referred to as the Northern Surface Water Feature on Figure 2 of the Phase I Site Characterization Data Summary Report). The foreseeable future use of this area is industrial or undeveloped.

Based on the potential migration pathways and receptors that may be exposed to COPCs at the North-Central Undeveloped Area, the following current and future potential exposure pathways are considered complete in the CEM:

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- Direct contact (incidental ingestion, inhalation, and dermal contact) with COPCs in soil
  - Industrial or commercial worker
  - Construction worker
  - Trespasser
- Direct contact (incidental ingestion and dermal contact) with COPCs in surface water and sediment
  - Trespasser

The following potential exposure pathways for receptors in the North-Central Undeveloped Area are considered incomplete for the CEM:

- Exposure of human receptors (inhalation) to COPCs in Site groundwater via volatilization of COPCs
  - Assessment of groundwater using the VISL calculator showed no unacceptable concentrations of groundwater
- Exposure of human receptors (ingestion) with COPCs in biota
  - There are no recreational use areas within the Eastern Undeveloped Area that have been or will be used for hunting.

2.5.3.7 Western Undeveloped Area

The Western Undeveloped Area (exposure area 7) includes roadways and a mixed vegetation of grassland, deciduous shrubland, and forest. Cedar Creek transects the area along the northwestern border from north to south. The southwestern portion of this area is adjacent to the off-site residential area referred to as Aluminum City. The foreseeable future use of this area could be industrial, commercial, residential, or undeveloped for recreational use.

Based on the potential migration pathways and receptors that may be exposed to COPCs at the Western Undeveloped Area, the following current and future potential exposure pathways are considered complete in the CEM:

- Direct contact (incidental ingestion, inhalation, and dermal contact) with COPCs in soil
  - Resident
  - Industrial or commercial worker
  - Construction worker
  - Recreationist
  - Trespasser
- Direct contact (incidental ingestion and dermal contact) with COPCs in surface water and sediment
  - Recreationist
  - Trespasser
- Direct contact (ingestion) with COPCs in biota
  - Recreationist

The following potential exposure pathways for receptors in the North-Central Undeveloped Area are considered incomplete for the CEM:

- Exposure of human receptors (inhalation) to COPCs in Site groundwater via volatilization of COPCs
  - Assessment of groundwater using the VISL calculator showed no unacceptable concentrations of groundwater.

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2.5.3.8 South Percolation Pond Area

The South Percolation Pond Area (exposure area 8) includes a series of three ponds located on the south end of the Site, adjacent to the Flathead River. The ponds are 2.4, 1.2, and 6.6 acres (from west to east) forming a total of 10.2 acres. Wastewater enters the South Percolation Pond system from a concrete pipe located on the west end of the pond system. From the pipe, water flows into the ponds through an unlined ditch. In addition to the ponds, this area includes riparian forest vegetation. The foreseeable future use of this area is industrial or undeveloped.

Based on the potential migration pathways and receptors that may be exposed to COPCs at the South Percolation Pond Area, the following current and future potential exposure pathways are considered complete in the CEM:

- Direct contact (incidental ingestion, inhalation, and dermal contact) with COPCs in soil
  - Industrial worker
  - Recreationist
  - Trespasser
- Direct contact (incidental ingestion and dermal contact) with COPCs in surface water and sediment
  - Industrial worker
  - Recreationist
  - Trespasser
- Direct contact (ingestion) with COPCs in biota
  - Recreationist

The following potential exposure pathways for receptors in the South Percolation Pond Area are considered incomplete for the CEM:

- Exposure of human receptors (inhalation) to COPCs in Site groundwater via volatilization of COPCs
  - Assessment of groundwater using the VISL calculator showed no unacceptable concentrations of groundwater.

2.5.3.9 Flathead River Area

The Flathead River Area (exposure area 9) runs along the southern border of the Site. In addition to the main river, this area includes riparian forest vegetation. Groundwater from the Upper Hydrogeologic Unit at the Site discharges to the Flathead River.

The current and future use of the Flathead River is recreational. As noted previously, the Flathead River is a designated wild and scenic river that includes boating, floating, kayaking, hunting, fishing, and bird watching water activities.

Based on the potential migration pathways and receptors that may be exposed to COPCs at the Flathead River Area, the following current and future potential exposure pathways are considered complete in the CEM:

- Direct contact (incidental ingestion and dermal contact) with COPCs in surface water and sediment
  - Recreationist
- Direct contact (ingestion) with COPCs in biota
  - Recreationist

There were no potential exposure pathways for receptors in the Flathead River Area that are considered incomplete for the CEM.

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2.5.3.10 Backwater Seep Area

The Backwater Seep Area (exposure area 9a) is a backwater area of the Flathead River that is west of the South Percolation Pond Area along the southern border of the Site. The backwater area connects to the main river, and includes riparian forest vegetation. Groundwater from the Site discharges to the Backwater Seep Area. Site groundwater discharges from the base of the cliffs adjacent to this area, and flows overland into the Backwater Seep Area. It is foreseeable that this area will remain undeveloped; however, recreational users of the Flathead River may use area for recreational purposes.

Based on the potential migration pathways and receptors that may be exposed to COPCs at the Backwater Seep Area, the following current and future potential exposure pathways are considered complete in the CEM:

- Direct contact (incidental ingestion and dermal contact) with COPCs in surface water and sediment
  - Recreationist
- Direct contact (ingestion) with COPCs in biota
  - Recreationist

There were no potential exposure pathways for receptors in the Backwater Seep Area that are considered incomplete for the CEM.

2.5.3.11 Site-wide Groundwater

The potential Site groundwater exposure pathway from direct contact (potable water use) is considered incomplete for the CEM. There is no current or planned future use of groundwater as a potable resource that has been affected by Site activities. It is CFAC's intent to implement institutional controls to prevent the future use of groundwater that has been affected by Site activities. In addition, groundwater monitoring at the Site has shown that groundwater beneath Aluminum City has not been affected by the Site; and, that the affected groundwater beneath the Site is migrating toward the Flathead River, not Aluminum City.

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3.0 HUMAN HEALTH RISK ASSESSMENT

3.1 Introduction

The BHHRA will be conducted to evaluate the potential threat posed by exposure to affected environmental media at the Site in the absence of any remedial action. The BHHRA will provide the basis for determining whether remedial action is necessary in the various exposure areas identified at the Site, as well as the extent of remedial action required.

The BHHRA Work Plan includes the methodologies for implementing the components of the BHHRA including:

- Hazard identification – data usability, statistical evaluation of data, and selection of COPCs
- Exposure assessment – calculations of the exposure point concentration (EPC) of COPCs in each medium, identification of the exposure assumptions, and presentation of the equations for calculation of the daily intake dose based on magnitude, frequency, and duration of exposures over a specified exposure period of time
- Toxicity assessment – the relationship between the potential extent of exposure and toxicological effects of the exposure for each COPC-specific toxicity criteria are presented, including cancer slope factors (CSFs) or unit risk factors (URFs) for carcinogens, and reference doses (RfDs) or reference concentrations (RfCs) for non-carcinogens
- Risk characterization - integration of the toxicity and exposure assessments to derive quantitative estimates of potential human health risks for carcinogens and non-carcinogens, and presentation of the uncertainties and limitations inherent in the estimation of the potential risks

As noted in the introduction, the proposed format for the BHHRA will follow the USEPA's RAGS Part D (USEPA, 2001. The regulatory guidance for conducting the HHRA includes RAGS Parts A through F (USEPA 1989, 1991a, 1991b, 2001, 2004, and 2009), and the guidance and procedures that USEPA has issued in addition to the RAGS guidance. The RAGS Part D (USEPA, 2001) Standardized Tables will be completed for all the components of the BHHRA. This BHHRA Work Plan provides completed RAGS Part D Tables 1 and 2, and provides examples of the information that will be included in RAGS Part D Tables 3 through 7.

3.1.1 Hazard Identification

The purpose of the hazard identification process is to summarize the environmental media data, assess its quality, and screen the data to determine the COPCs that will be evaluated further in the risk assessment process.

3.1.1.1 Data Used in the Risk Assessment

The environmental media data used in the BHHRA are managed in an electronic database, and was compiled by constituent, medium, sample location, and sample depth, if applicable. All descriptive and statistical analysis of the data was performed using the ProUCL Version 5.1 that was developed for the USEPA (2016).

The following environmental media data was included in the BHHRA database:

- Soil quality data collected from 2016 (April through September)
- Groundwater quality data collected from 2016 (September and December) to 2017 (March and June) in the Upper Hydrogeologic Unit and Below Upper Hydrogeologic Unit

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- Surface water quality data collected from 2016 (June through December) to 2017 (March through June)
- Sediment quality data collected from 2016 (August and September)

The analytical data tables for each of the environmental media are included in **Appendix C**. The method detection limits are provided in the tables, and include the data qualifiers. As was noted in the Nature and Extent of Affected Media, the analysis of asbestos in the Asbestos Landfills indicated there was no potential for exposure.

As was noted previously, the data collected during the Weston investigation informed the Scope of Work for the Phase I Site Characterization that was completed by Roux Associates, on behalf of CFAC, in 2016 and 2017. The Phase 1 Site Characterization program comprehensively identified and confirmed source areas, and extensively characterized the nature and extent of COPCs across the Site. Therefore, the Phase I Site Characterization program database was considered the primary data for the BHHRA.

The soil quality data was collected using two different sampling methodologies. First, a Site-wide sampling program was conducted at discrete sampling locations at depths from 0 to 0.5 ft-bls, 0 to 2 ft-bls, and greater than 2 ft-bls (collectively 0 to 12 ft-bls). The Site-wide sampling results presents a robust dataset for soil across the Site and with the exposure areas. This data was used as the primary dataset for the BHHRA.

Second, an incremental soil sampling program was conducted within the Operational Area to assess whether any potential source areas are present in this area. The Operational Area was divided into 43 grid cells, also referred to as Decision Units (DUs); each DU was approximately one acre in size. Sampling was conducted at the frequency of one incremental surface soil sample (0 to 0.5 ft-bls) and one incremental shallow soil sample (0.5 to 2 ft-bls) per DU, for a total of 43 incremental soil samples from each interval. Each incremental soil sample consisted of 32 discrete grab samples that were randomly distributed within the four quadrants of each DU (i.e., 8 samples per quadrant). The incremental soil samples represent a spatial area (DU) that is represented by the compiled 32 discrete grab samples; the 43 DUs spatially overlapped the defined exposure areas established for the assessment of the Site-wide sampling program (**Figure 3**). The spatial DU soil sampling data cannot be statistically combined with the discrete Site-wide sampling data for purposes of an EPC for the exposure assessment. Therefore, the incremental sampling data will be assessed to identify COPCs within the incremental soil sampling DUs; based on the COPCs identified, DU-specific EPCs will be evaluated in the BHHRA.

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3.1.1.2 Data Usability and Data Decisions

To determine the data quality and usability in the BHHRA, data verification and validation were performed to confirm that the project data met the DQOs outlined in the RI/FS Work Plan and Phase I Sampling and Analysis Plan (SAP) (Roux Associates, 2017a). All samples proposed in the Phase I SAP were compared to samples collected during the Phase I Site Characterization program. Deviations from the proposed sample count provided in the Phase I SAP were described in the Phase I SAP Addendum and the Phase I Site Characterization Data Summary Report.

Approximately 51 laboratory sample delivery groups were submitted to Laboratory Data Consultants for review as part of the data validation process. The results of the data validation are summarized in data validation reports (Appendix H of the Phase I Site Characterization Data Summary Report) produced by Laboratory Data Consultants. Data qualifiers added as a result of the data validation processes were included in the BHHRA database.

A review of the data validation reports was completed in the Phase I Site Characterization Data Summary Report to evaluate the completeness of the data in accordance with the Phase I SAP QA/QC procedures. Overall, approximately 130 analyses were rejected out of an estimated 135,000 analyses (approximately 0.1 percent) performed as part of the Phase I Site Characterization activities suggesting that the overall data set generated during the work was usable and complete. The analytical results that were rejected during data validation are not reliable and were thus excluded from the data evaluations described throughout the Phase I Site Characterization Data Summary Report.

3.1.1.3 Selection of Constituents of Potential Concern

The purpose of this section is to select COPCs in order to focus the risk assessment on potentially important Site-related chemicals for quantitative evaluation. A screening level evaluation of soil, groundwater, surface water, and sediment quality data identified above from the Phase I Site Characterization program was conducted to identify COPCs that will be evaluated in the BHHRA. This evaluation is considered a preliminary screening of COPCs because the BHRRA database will be updated with the results of the Phase II Site Characterization program.

Consistent with the recommendations of the USEPA RSL guidance (USEPA 2017a), the RSLs that have a target hazard quotient (THQ) equal to 0.1 will be used to screen the COPCs. This THQ is used to address multiple chemicals that may have non-carcinogenic effects based on the same toxic endpoint and the same mode-of-action. For carcinogenic effects, RSLs with a target risk equal to 1×10^{-6} will be used in the selection process. Because there are no risk-based screening criteria to assess COPCs in sediments for human receptor exposure, the RSL residential soil screening level will be used. The proposed sources for human health risk-based screening criteria for the selection of COPCs are summarized below for soil, groundwater, surface water, and sediments:

- Soil:
  - USEPA RSL Residential Soil
  - USEPA RSL Risk-Based Soil Screening Level (RBSSL)
  - MDEQ Risk-Based Screening Level (RBSL) for Residential Surface Soil, Depth to Water less than 10 ft
- Groundwater:
  - USEPA RSLs for tap water
  - MDEQ Circular DEQ-7 Groundwater Standard
- Surface Water:
  - USEPA RSLs for tap water
  - MDEQ Circular DEQ-7 Groundwater Standard
- Sediments
  - USEPA RSL Residential Soil

The identification of COPCs was based on comparing the maximum measured COPC concentration by exposure area identified in the CEM with the lowest risk-based screening concentration. If the maximum COPC concentration in soil, surface water, and sediment exceeded the risk-based screening concentration, the COPC was selected for further assessment in the BHHRA. For groundwater, because the groundwater exposure pathway is considered incomplete for the CEM, COPCs identified in groundwater will not be carried forward for further assessment in the BHHRA.

In addition, the following was considered in the COPC selection process:

- Identify COPCs that are essential nutrients. Constituents identified as essential nutrients (i.e., calcium, magnesium, sodium and potassium) were not included as COPCs (USEPA, 1989).
- Evaluate frequency of detection:

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- For data sets with at least 20 samples, a COPC detected in five percent or fewer of the samples was not retained as a COPC (USEPA, 1989) provided samples with detected concentrations do not indicate the presence of potential hot spots (i.e., small spatial area).
- An evaluation of detection limits was conducted to ensure that COPCs eliminated based on frequency of detection do not have detection limits above screening levels. If detection limits above screening levels are identified for a given COPC, that COPC will not be eliminated based on frequency of detection.

- Detected COPCs classified by USEPA as known human carcinogens (USEPA, 2005) were retained as COPCs regardless of frequency of detection. The weight-of-evidence classification provided on USEPA's Integrated Risk Information System (IRIS) (USEPA, 2017b) will be consulted to identify COPCs classified as known carcinogens based on strong evidence of human carcinogenicity (historically characterized as Category A under the 1986 Guidelines for Carcinogen Risk Assessment) (USEPA, 1986).
- If a COPC did not have an applicable risk-based screening criteria, it was not selected as a COPC and its exclusion will be discussed in the uncertainty section of the BHHRA
- If a COPC was not detected, it was not selected as a COPC and its exclusion will be discussed in the uncertainty section of the BHHRA
- If a COPC in soil exceeded the USEPA RBSSL for potential to leach to groundwater, but did not exceed the USEPA RSL or MDEQ RBSL for direct contact with soil, and the COPC in soil was not a COPC in Site-wide groundwater, it was not selected as a COPC in soil. This decision is based upon the groundwater data indicating that leaching of the COPC in the soil is not affecting the groundwater quality (MDEQ, 2016a).

Concentrations of COPCs in soil and sediment from the exposure areas that are statistically similar to naturally-occurring metals in background concentrations may represent regional conditions that are not related to Site activities. In addition, potential risks from these COPCs would be similar to regional conditions, and would not be considered risk drivers for Site remedial activities. The current BHHRA database lacks a robust set of background concentrations to conduct a statistical analysis of soil and sediment data in the exposure areas to determine if they are statistically similar to naturally-occurring metals in background concentrations. As a preliminary evaluation, the maximum concentration of COPCs selected for further assessment in the BHHRA were compared to regional background threshold values (BTVs) for inorganics in Montana surface soils (Hydrometrics, 2013). The comparison to site-specific background concentrations of inorganics will be addressed in the data gap analysis.

Table 2-1 through **Table 2-39** present the descriptive statistics and the selection of COCs by media and exposure area, and the rationale for selection or deletion from the BHHRA. The tables are in the RAGS Part D format. A summary of the COPCs selected for each exposure area and receptor is discussed below. **Table 2-40** through **Table 2-42** provide a summary of the COPCs selected by exposure area for soils, surface water, and sediments.

3.1.1.3.1 Main Plant Area

Soil data from the Main Plant Area (exposure area 1) were compared to the risk-based screening concentrations. **Table 2-1** through **Table 2-3** present the selected COPCs for the three exposure depths from 0 to 0.5 ft-bgs, 0 to 2 ft-bgw, and greater than 2 ft-bgs (collectively 0 to 12 ft-bgs). A summary of the COPCs for the soil data is presented below. The selected COPCs were the same for all three sampling depths.

Soils COPCs (all three depths):

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- Antimony
- Arsenic
- Barium
- Cobalt
- Cyanide
- Fluoride
- Iron
- Manganese
- Nickel
- Selenium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene
- Benzo(k)Fluoranthene
- Chrysene
- Dibenz(a,h)Anthracene
- Indeno(1,2,3-c,d)Pyrene

A comparison of maximum concentrations of the inorganic COPCs to background BTVs indicated that arsenic, barium, cobalt, iron, selenium, and vanadium had maximum concentrations less than the BTVs.

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3.1.1.3.2 North Percolation Pond Area

Soil, surface water, and sediment data from the North Percolation Pond Area (exposure area 2) were compared to the risk-based screening concentrations. **Table 2-4** through **Table 2-6** present the selected COPCs for the three exposure depths from 0 to 0.5 ft-bls, 0 to 2 ft-bls, and greater than 2 ft-bls (collectively 0 to 12 ft-bls). **Table 2-7** and **Table 2-8** present the selected COPCs in surface water and sediment. A summary of the COPCs for the soil, surface water, and sediment data is presented below. The selected COPCs for soil were the same for all three sampling depths with the exception that aluminum was only selected as a COPC at depths of 0 to 2 ft-bls and 0 to 12 ft-bls. For surface water, total metals were analyzed in all sampling rounds and dissolved metals were analyzed only in the final fourth sampling round during the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Soils COPCs (all three depths):

- Aluminum
- Antimony
- Arsenic
- Barium
- Cobalt
- Cyanide
- Fluoride
- Iron
- Manganese
- Nickel

- Selenium
- Thallium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene
- Benzo(k)Fluoranthene
- Chrysene
- Dibenz(a,h)Anthracene
- Indeno(1,2,3-c,d)Pyrene

A comparison of maximum concentrations of the inorganic soils COPCs to background BTVs indicated that arsenic, iron, and manganese had maximum concentrations less than the BTVs.

Surface water COPCs

- Aluminum
- Antimony
- Arsenic
- Cadmium
- Cobalt
- Cyanide
- Fluoride
- Nickel
- Thallium
- Vanadium
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene
- Chrysene
- Indeno(1,2,3-c,d)Pyrene

Sediment COPCs

- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Cobalt
- Copper
- Cyanide
- Fluoride
- Iron
- Manganese
- Mercury

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- Nickel
- Selenium
- Silver
- Thallium
- Vanadium
- Zinc
- 2-Methylnaphthalene
- 4-Chloroaniline
- Acenaphthene
- Anthracene
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene
- Benzo(k)Fluoranthene
- Chrysene
- Dibenz(a,h)Anthracene
- Dibenzofuran
- Fluoranthene
- Fluorene
- Indeno(1,2,3-c,d)Pyrene
- Naphthalene
- Pyrene

A comparison of maximum concentrations of the inorganic COPCs in sediment to background BTVs indicated that copper, iron, and manganese had maximum concentrations less than the BTVs.

3.1.1.3.3 Central Landfills Area

Soil, surface water, and sediment data from the Central Landfills Area (exposure area 3) were compared to the risk-based screening concentrations. **Table 2-9** through **Table 2-11** present the selected COPCs in soil for the three exposure depths from 0 to 0.5 ft-bls, 0 to 2 ft-bls, and greater than 2 ft-bls (collectively 0 to 12 ft-bls). **Table 2-12** and **Table 2-13** present the selected COPCs in surface water and sediment. A summary of the COPCs for the soil, surface water, and sediment data is presented below. The selected COPCs for soil were the same for all three sampling depths. For surface water, total metals were analyzed in all sampling rounds and dissolved metals were analyzed only in the fourth sampling round during the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Soils COPCs (all three depths):

- Antimony
- Arsenic
- Barium
- Cobalt
- Cyanide
- Fluoride
- Iron
- Manganese

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- Nickel
- Selenium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene
- Benzo(k)Fluoranthene
- Chrysene
- Dibenz(a,h)Anthracene
- Indeno(1,2,3-c,d)Pyrene

A comparison of maximum concentrations of the inorganic soils COPCs to background BTVs indicated that arsenic, barium, manganese, vanadium, and zinc had maximum concentrations less than the BTVs.

Surface water COPCs

- Arsenic
- Fluoride

Sediment COPCs

- Aluminum
- Arsenic
- Cobalt
- Iron
- Manganese
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene
- Dibenz(a,h)Anthracene
- Indeno(1,2,3-c,d)Pyrene

A comparison of maximum concentrations of the inorganic COPCs in sediment to background BTVs indicated that cobalt and manganese had maximum concentrations less than the BTVs.

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3.1.1.3.4 Industrial Landfill Area

Soil data from the Industrial Landfill Area (exposure area 4) were compared to the risk-based screening concentrations. **Table 2-14** through **Table 2-16** present the selected COPCs for the three exposure depths from 0 to 0.5 ft-bls, 0 to 2 ft-bls, and greater than 2 ft-bls (collectively 0 to 12 ft-bls). A summary of the COPCs for the soil data is presented below. The selected COPCs for soil were the same for all three sampling depths.

Soils COPCs (all three depths):

- Arsenic
- Barium
- Cobalt
- Cyanide

- Fluoride
- Iron
- Manganese
- Nickel
- Vanadium
- Zinc
- Benzo(a)Pyrene

A comparison of maximum concentrations of the inorganic soils COPCs to background BTVs indicated that arsenic, barium, cobalt, iron, manganese, nickel, vanadium, and zinc had maximum concentrations less than the BTVs.

3.1.1.3.5 Eastern Undeveloped Area

Surface water and sediment data from the Eastern Undeveloped Area (exposure area 5) were compared to the risk-based screening concentrations. **Table 2-17** and **Table 2-18** present the selected COPCs. A summary of the COPCs for the surface water and sediment data is presented below. Soils samples were only collected in test pits; therefore, the soil analytical results were not used in the selection of COPC process. For surface water, total metals were analyzed in all sampling rounds and dissolved metals were analyzed only in the fourth sampling round during the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Surface water COPCs

- Arsenic
- Fluoride

Sediment COPCs

- Aluminum
- Arsenic
- Barium
- Cobalt
- Copper
- Cyanide
- Iron
- Manganese
- Mercury
- Nickel
- Selenium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene

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A comparison of maximum concentrations of the inorganic COPCs in sediment to background BTVs indicated that aluminum, arsenic, barium, cobalt, copper, iron, manganese, nickel, selenium, vanadium, and zinc had maximum concentrations less than the BTVs.

3.1.1.3.6 North-Central Undeveloped Area

Soil, surface water, and sediment data from the North-Central Undeveloped Area (exposure area 6) were compared to the risk-based screening concentrations. **Table 2-19** through **Table 2-21** present the selected COPCs for the three exposure depths from 0 to 0.5 ft-bls, 0 to 2 ft-bls, and greater than 2 ft-bls (collectively 0 to 12 ft-bls). **Table 2-22** and **Table 2-23** present the selected COPCs in surface water and sediment. A summary of the COPCs for the soil, surface water, and sediment data is presented below. The selected COPCs for soil were the same for all three sampling depths. For surface water, total metals were analyzed in all sampling rounds and dissolved metals were analyzed only in the fourth sampling round during the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Soils COPCs (all three depths):

- Arsenic
- Barium
- Cobalt
- Iron
- Cyanide
- Fluoride
- Manganese
- Nickel
- Selenium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene

A comparison of maximum concentrations of the inorganic soils COPCs to background BTVs indicated that arsenic, barium, cobalt, iron, manganese, nickel, selenium, vanadium, and zinc had maximum concentrations less than the BTVs.

Surface water COPCs

- Arsenic
- Aluminum
- Cobalt
- Fluoride
- Iron
- Manganese

Sediment COPCs

- Aluminum
- Arsenic

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- Barium
- Cobalt
- Copper
- Iron
- Manganese
- Mercury
- Nickel
- Selenium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene

A comparison of maximum concentrations of the inorganic COPCs in sediment to background BTVs indicated that arsenic, cobalt, copper, iron, nickel, vanadium, and zinc had maximum concentrations less than the BTVs.

3.1.1.3.7 Western Undeveloped Area

Soil, surface water, and sediment data from the Western Undeveloped Area (exposure area 7) were compared to the risk-based screening concentrations. **Table 2-24** through **Table 2-26** present the selected COPCs for the three exposure depths from 0 to 0.5 ft-bls, 0 to 2 ft-bls, and greater than 2 ft-bls (collectively 0 to 12 ft-bls). **Table 2-27** and **Table 2-28** present the selected COPCs in surface water and sediment. A summary of the COPCs for the soil, surface water, and sediment data is presented below. The selected COPCs for soil were the same for all three sampling depths with the exception that fluoride was only selected as a COPC at a depth of 0 to 12 ft-bls. For surface water, total metals were analyzed in all sampling rounds and dissolved metals were analyzed only in the fourth sampling round during the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Soils COPCs (all three depths)

- Arsenic
- Barium
- Cobalt
- Cyanide
- Fluoride
- Iron
- Manganese
- Nickel
- Selenium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene

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A comparison of maximum concentrations of the inorganic soils COPCs to background BTVs indicated that arsenic, cobalt, iron, manganese, nickel, vanadium, and zinc had maximum concentrations less than the BTVs.

Surface water COPCs

- Cyanide
- Fluoride

Sediment COPCs

- Aluminum
- Arsenic
- Barium
- Cobalt
- Copper
- Cyanide
- Iron
- Manganese
- Mercury
- Nickel
- Zinc
- Benzaldehyde
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Isophorone

A comparison of maximum concentrations of the inorganic COPCs in sediment to background BTVs indicated that aluminum, arsenic, barium, cobalt, copper, iron, manganese, nickel, and zinc had maximum concentrations less than the BTVs.

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3.1.1.3.8 South Percolation Pond Area

Soil, surface water, and sediment data from the South Percolation Pond Area (exposure area 8) were compared to the risk-based screening concentrations. **Table 2-29** through **Table 2-31** present the selected COPCs for the three exposure depths from 0 to 0.5 ft-bls, 0 to 2 ft-bls, and greater than 2 ft-bls (collectively 0 to 12 ft-bls). **Table 2-32** and **Table 2-33** present the selected COPCs in surface water and sediment. A summary of the COPCs for the soil, surface water, and sediment data is presented below. The selected COPCs for soil were the same for all three sampling depths. For surface water, total metals were analyzed in all sampling rounds and dissolved metals were analyzed only in the fourth sampling round during the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Soils COPCs (all three depths):

- Arsenic
- Barium
- Cobalt
- Cyanide

- Fluoride
- Iron
- Manganese
- Nickel
- Selenium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene
- Dibenz(a,h)Anthracene

A comparison of maximum concentrations of the inorganic soils COPCs to background BTVs indicated that arsenic, cobalt, iron, manganese, nickel, selenium, vanadium, and zinc had maximum concentrations less than the BTVs.

Surface water COPCs

- Cyanide
- Fluoride
- Arsenic
- Barium

Sediment COPCs

- Aluminum
- Arsenic
- Barium
- Cobalt
- Copper
- Cyanide
- Fluoride
- Iron
- Manganese
- Mercury
- Nickel
- Selenium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene

A comparison of maximum concentrations of the inorganic COPCs in sediment to background BTVs indicated that aluminum, arsenic, cobalt, copper, iron, manganese, nickel, selenium, vanadium, and zinc had maximum concentrations less than the BTVs.

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3.1.1.3.9 Flathead River Area

Surface water and sediment data from the Flathead River Area (exposure area 9) were compared to the risk-based screening concentrations. **Table 2-34** and **Table 2-35** present the selected COPCs in surface water and sediment. A summary of the COPCs for the surface water and sediment data is presented below. For surface water, total metals were analyzed in all sampling rounds and dissolved metals were analyzed only in the fourth sampling round during the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Surface water COPCs

- Arsenic
- Iron
- Manganese

Sediment COPCs

- Aluminum
- Arsenic
- Barium
- Cobalt
- Copper
- Iron
- Manganese
- Nickel
- Vanadium
- Zinc

A comparison of maximum concentrations of the inorganic COPCs in sediment to background BTVs indicated that aluminum, arsenic, barium, cobalt, copper, iron, manganese, nickel, vanadium, and zinc had maximum concentrations less than the BTVs.

3.1.1.3.10 Backwater Seep Sampling Area

Surface water and sediment data from the Backwater Seep Sampling Area (exposure area 9a) were compared to the risk-based screening concentrations. **Table 2-36** and **Table 2-37** present the selected COPCs in surface water and sediment. A summary of the COPCs for the surface water and sediment data is presented below. For surface water, total metals were analyzed in all sampling rounds and dissolved metals were analyzed only in the fourth sampling round during a the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Surface water COPCs

- Arsenic
- Cyanide
- Fluoride
- Cobalt

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- Manganese

Sediment COPCs

- Aluminum
- Arsenic
- Barium
- Cobalt
- Copper
- Cyanide
- Fluoride
- Iron
- Manganese
- Mercury
- Nickel
- Vanadium
- Zinc
- Benzo(a)Pyrene
- Benzo(b)Fluoranthene

A comparison of maximum concentrations of the inorganic COPCs in sediment to background BTVs indicated that aluminum, arsenic, barium, cobalt, copper, iron, manganese, nickel, vanadium, and zinc had maximum concentrations less than the BTVs.

3.1.1.3.11 Incremental Sampling DU

Soil from the incremental sampling DUs were compared to the risk-based screening concentrations. **Appendix D** presents the selected COPCs for the three exposure depths from 0 to 0.5 ft-bls, 0 to 2 ft-bls, and greater than 2 ft-bls (collectively 0 to 12 ft-bls). A summary of the COPCs for the soil data is presented below. The selected COPCs for soil were the same for all three sampling depths.

Soils COPCs (all three depths):

- Aluminum
- Antimony
- Arsenic
- Barium
- Cobalt
- Cyanide
- Fluoride
- Iron
- Manganese
- Nickel
- Selenium
- Thallium
- Vanadium
- Zinc
- Benzo(a)Anthracene
- Benzo(a)Pyrene

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- Benzo(f)Fluoranthene
- Benzo(k)Fluoranthene
- Chrysene
- Dibenz(a,h)Anthracene
- Indeno(1,2,3-c,d)Pyrene

3.1.1.3.12 Site-wide Groundwater - Upper Hydrogeologic Unit

Groundwater data from Site-wide Groundwater - Upper Hydrogeologic Unit were compared to the risk-based screening concentrations. **Table 2-38** present the selected COPCs in groundwater. A summary of the COPCs for the groundwater data is presented below. For groundwater, dissolved metals were collected during all four sampling rounds and total metals during fourth round of the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Groundwater COPCs

- Aluminum
- Antimony
- Arsenic
- Barium
- Cobalt
- Cyanide
- Fluoride
- Iron
- Manganese
- Selenium
- Vanadium
- Zinc
- 4,6-Dinitro-2-Methylphenol
- Trichloroethylene (TCE)

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3.1.1.3.13 Site-wide Groundwater – Below Upper Hydrogeologic Unit

Groundwater data from Site-wide Groundwater – Below Upper Hydrogeologic Unit were compared to the risk-based screening concentrations. **Table 2-39** present the selected COPCs in groundwater. A summary of the COPCs for the groundwater data is presented below. For groundwater, dissolved metals were collected during all four sampling rounds and total metals during fourth round of the Phase I Site Characterization program. For human health risk assessments, total metals are the preferred analysis for risk characterization. As a conservative measure, both total and dissolved metals were compared to the risk-based screening concentrations.

Groundwater COPCs

- Aluminum
- Antimony
- Arsenic

- Barium
- Cobalt
- Cyanide
- Fluoride
- Iron
- Manganese
- Zinc
- 1,2-Dichloroethane

3.1.1.4 Data Gap Analysis

This section presents a data gap analysis that is based on the CEM and the preliminary selection of COPCs. The CEM refined the potential complete exposure pathways and potential receptors presented in the RI/FS Work Plan. The preliminary exposure areas presented in the RI/FS Work Plan to characterize risks to potential human receptors from the different exposure scenarios based on the multiple landuses for the Site were then refined and established as spatial units overlaying the Site.

Using these exposure scenarios (potential complete exposure pathways and exposure areas), a preliminary selection of COPCs was conducted for each environmental media within each exposure area. As discussed in the CEM, groundwater was screened for COPCs based on Site-wide groundwater quality. In addition, the incremental sampling results were also screened to provide additional information on the extent of COPCs that exceeded the risk-based screening concentrations. The results of this preliminary screening of COPCs showed the following:

- Soils at the Site are primarily affected by metals, select PAHs, cyanide, and fluoride. These results were in agreement with the results presented in the Phase I Site Characterization Data Summary Report.
- The preliminary screening of COPCs also provided information on sample density with respect to the areal coverage of the exposure areas.
    - Soil sample density is high within the Main Plant Area and Central Landfills Area relative to the spatial areas. However, the soil sample density is low within the Industrial Landfill Area, Eastern Undeveloped Area (no samples), North-Central Undeveloped Area, and Western Undeveloped area relative to the spatial area of these exposure areas. The low sample density affects assessment of representative exposure points for the receptors when COPCs with low sample density are used for EPCs. An exposure area dataset with less than 10 samples may result in the maximum concentration being used for the EPC rather than the 95-percent upper confidence limit (UCL) of the mean, and may result in an overestimation of the potential risks to the receptor. In addition, a low sample density has a greater likelihood of missing an elevated concentration (i.e., hot spot), and may result in an underestimation of potential risks.
    - Surface water and sediment sample density is moderate for most of the exposure areas on the Site where surface water resources may be subject to exposure by receptors. The sample density is higher within the Flathead River, which is a key exposure area relative to recreational exposures. The preliminary screening of COPCs indicates that metals are the primary COPC in the surface water, and metals and select PAHs in the sediments. Additional sampling of exposure areas on the Site to establish a robust dataset amenable to the calculation of a UCL for the EPC may not be warranted for surface water resources on the Site where potential exposure by receptors is more limited (i.e., trespasser) than the potential exposure in the Flathead River.
- The comparison of soil concentrations of metals selected as COPCs to the background BTVs indicated that several of the metals may be representative of the concentrations of naturally-

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occurring metals in the regional environment. The lack of a robust site-specific background soil dataset for the metals and PAHs limits the lines of evidence (i.e., statistical analysis) that may be used to eliminate COPCs from the baseline risk assessment process. Background surface water and sediment sampling also would establish a line of evidence for eliminating COPCs in these media. In addition, PAHs may have a residual background concentration that may be representative of the low PAH concentrations detected in undeveloped areas on the Site in the Phase I Site Characterization program.

Based on the datagap analysis above, it is recommended that additional soil sampling be conducted in the areas of low sample density. The sampling methodology should follow the approach established for the Phase I Site Characterization program to ensure consistency in the BHHRA database, especially in calculation of the UCL. Sample locations for the additional soil sampling should be established to place sample locations within the exposure areas that either have very low or no sample density. For example, the Eastern Undeveloped Area did not have any sample locations, and test pits were only sampled in the southern portion of the area. Sample locations along the long-axis of the area that are located in areas of potential COPC migration would provide an EPC that is representative of the soil quality with Eastern Undeveloped Area.

Additional background data may need to be collected from offsite locations in future sampling efforts to further characterize COPC concentrations representative of regional conditions. The need for this sampling will be based upon whether and to what extent COPCs that are naturally occurring substances are determined to be contributing risk and potentially driving risk management decisions at the Site. The need for additional background data and the scope of potential background data collection will be revisited following the completion of the Risk Characterization.

3.1.2 Exposure Assessment

The purpose of the exposure assessment is to predict the magnitude and frequency of potential human exposure to each identified COPC based on the hazard identification. The CEM presented the potential receptors by potentially complete exposure pathways and environmental media of concern.

3.1.2.1 Exposure Point Concentration

Medium-specific EPCs will be based on reasonable maximum exposure (RME) scenarios for the Site environmental data for each receptor and exposure pathway. The RME is defined as the highest exposure that could reasonably be expected to occur for a given exposure pathway at the Site. The RME is intended to account for both uncertainty of the COPC concentration and variability in exposure parameters. If the exposures estimated results in an unacceptable hazard or risk, a central tendency exposure (CTE) may additionally be calculated. The CTE is designed to reflect a more typical, though still conservative, exposure.

The EPC for each environmental media and exposure pathway will be the UCL. The 95-percent UCL will be calculated using ProUCL Version 5.1 that was developed for the USEPA (2016), and will be dependent on the distribution of the data. If the 95-percent UCL exceeds the maximum detected concentration of a COPC, then the corresponding maximum concentration will be used as the EPC; or if a sufficient number of data points (i.e., greater than 10) are not available for the exposure scenario, the maximum detected concentration will be selected as the EPC. Recommendations provided by the ProUCL software for the evaluation of sample results qualified as below the detection level (non-detect) will be followed. **Appendix**

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E provides an example of the information to be presented in **Table 3** Exposure Point Concentration Summary in the RAGS Part D format.

3.1.2.2 Exposure Assumptions, Equations, and Models

The exposure assumptions to be used in the BHHRA will be based on site-specific conditions or default exposure assumptions.

Default exposure assumptions will be used for the following receptors:

- Commercial workers
- Residents

Default exposure assumptions are presented in the following guidance documents:

- USEPA RSLs Table (USEPA, 2017a)
- Exposure Factors Handbook (USEPA, 2011)
- Risk Assessment Guidance for Superfund, Volume I Human Health Evaluation Manual, Part E - Supplemental Guidance for Dermal Risk Assessment (USEPA, 2004)
- Risk Assessment Guidance for Superfund, Volume I Human Health Evaluation Manual, Part F - Supplemental Guidance for Inhalation Risk Assessment (USEPA, 2009)
- MDEQ Frequently Asked Questions web site http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions#riskAssessment

Site-specific exposure assumptions will be used for the following receptors:

- Trespassers
- Industrial workers
- Construction workers
- Decommissioning workers
- Recreational

Site-specific exposure assumptions for recreational and trespasser exposure frequencies and duration will be based on factors such as type of recreation anticipated (e.g., hunting, fishing, boating, floating), site features (e.g., accessibility), security measures in place, and proximity to residential properties. MDEQ has determined that there was no location in Montana for which climate data were available that did not have a minimum of four months of an average snow depth of at least 2 inches or an average temperature at or below freezing or both. Therefore, exposure assumptions including surface soil and dust exposure (ingestion, dermal, and inhalation) would only be likely to occur during the eight months of the year that did not meet those conditions. Other exposure assumptions (e.g., body weight, skin surface area) are based upon the type of receptor and use, and often are provided in the default guidance documents. Site-specific exposure assumptions for the decommissioning workers will be based on the Site Specific Health and Safety Plan prepared for the Columbia Falls Aluminum Decommissioning Project by the contractor.

Intake dose equations for ingestion and dermal contact and exposure concentration equations for inhalation to estimate non-carcinogenic health effects - average daily intake and carcinogenic effects - lifetime average daily intake will be based on the USEPA RSL exposure equations. **Appendix E** provides an example of the information to be presented in **Table 4** Daily Intake Equations and Values in the RAGS Part D format.

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3.1.3 Toxicity Assessment

The purpose of the toxicity assessment is to determine the relationship between the dose of a COPC taken into the body, and the probability that an adverse effect will result from that dose. The primary sources of toxicity values to be used in the risk assessment are based on the USEPA Superfund hierarchy of human health toxicity values, and they will be used to evaluate risk from both chronic and sub-chronic exposures. **Appendix E** provides an example of the information to be presented in **Table 5** Non-cancer Toxicity Criteria and **Table 6** Cancer Toxicity Criteria in the RAGS Part D format.

Sources of toxicity values in order of preference are as follows:

- USEPA IRIS
- Provisional peer-reviewed reference toxicity values (PPRTVs)
- Agency for Toxic Substances and Disease Registry's Minimal Risk Levels
- California Environmental Protection Agency Office of Environmental Health Hazard Assessment risk assessment health values
- Other sources (screening values from "PPRTV Appendix" sources and other specific individual toxicity values, and the USEPA Superfund program Health Effects Assessment Summary Table)

Quantitative estimates of the potency of COPCs include two sets of toxicity values, one for carcinogenic effects and one for non-carcinogenic effects. For carcinogenic effects, the USEPA assumes a non-threshold toxicological mechanism that assumes there is no level of exposure that does not pose a probability that an adverse effect will result from that dose. Toxicity criteria for non-carcinogens assume that there is a threshold effects level, below which adverse health effects are not expected to occur.

3.1.3.1 Non-Carcinogenic Effects

Non-carcinogenic effects, such as organ damage or reproductive effects are evaluated by RfDs for oral exposure, or RfCs for inhalation exposure. The basis of a chronic RfD or RfC calculation is usually the highest dose that result in a no observed adverse effect level (NOAEL) after chronic (usually lifetime) exposure in animal experiments. The NOAEL is then divided by a safety factor, and occasionally an additional modifying factor, to obtain the RfD or RfC. Uncertainty factors are typically factors of 10 that account for interspecies variation and sensitive human populations. Additional factors of 10 are included in the uncertainty factor if the RfD or RfC is based on the lowest observed adverse effect level instead of the NOAEL, or an experiment that includes a less-than-lifetime exposure. In addition, the non-carcinogenic dose-response values include the source and primary target organ, which is the organ that is most affected and experiences critical organ effects.

3.1.3.2 Carcinogenic Effects

For carcinogenic effects, USEPA (USEPA 2005) assigns a weight-of-evidence descriptor to each COPC, and if applicable, a CSF or URF is subsequently calculated. The weight-of-evidence descriptor is based on the likelihood that the COPC is a human carcinogen. The following are the weight-of-evidence descriptors:

- Carcinogenic to humans – convincing epidemiologic evidence demonstrating causality between human exposure and cancer, or exceptionally when there is strong epidemiological evidence, extensive animal evidence, knowledge of the mode of action, and information that the mode of action is anticipated to occur in humans and progress to tumors.
- Likely to be carcinogenic to humans – available tumor effects and other key data are adequate to demonstrate carcinogenic potential to humans, but does not reach the weight-of-evidence for the descriptor of carcinogenic to humans.

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- Suggestive evidence of carcinogenic potential – evidence from human or animal data is suggestive of carcinogenicity, which raises a concern for carcinogenic effects but is judged not sufficient for a stronger conclusion.
- Inadequate information to assess carcinogenic potential – available data are judged inadequate to perform an assessment.
- Not likely to be carcinogenic to humans – available data are robust for deciding that there is no basis for human hazard concern.

USEPA determines CSFs for oral exposure and URFs for inhalation exposure for those chemicals that are known or likely human carcinogens. The CSFs and URFs are upper-bound estimates of the excess cancer risk due to continuous exposure to a COPC averaged throughout the course of a 70-year lifetime. A CSF has units of 1/milligram (mg) of COPC/kilogram (kg) of body weight/day, or $(mg/kg\text{-}day)^{-1}$. A URF is expressed in units of 1/microgram (μg) of COPC/cubic meter (m^3) air or $(\mu g/m^3)^{-1}$. The basis of CSFs and URFs are data from lifetime animal bioassays, although human data are used when available.

3.1.4 Risk Characterization

The purpose of the risk characterization is to provide a conservative estimate of the potential risk resulting from exposure to COPCs identified in the environmental media of the Site. Included in this section is a quantitative estimate of potential carcinogenic and non-carcinogenic risks for each complete exposure pathway for each receptor. **Appendix E** provides an example of the information to be presented in **Table 7** Calculation of Cancer Risks and Non-cancer Hazards in the RAGS Part D format.

Cancer risks will be expressed as the upper-bound, increased likelihood of an individual developing cancer because of exposure to a particular COPC. The following equation is used to estimate the excess cancer risk:

Cancer Risk = LADI×CSF or EC×IUR

- *LADI* = Lifetime average daily intake (mg/kg-day)
- *CSF* = Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$
- *EC* = Exposure concentration ($\mu g/m^3$)
- *IUR* = Inhalation Unit Risk $(\mu g/m^3)^{-1}$

Cancer risk estimates for individual chemicals are summed by media and exposure pathway to generate an estimate of cumulative risk. The National Oil and Hazardous Substances Pollution Contingency Plan states that for carcinogens, acceptable exposure represents an excess upper-bound lifetime cancer risk to an individual between 10^{-6} and 10^{-4}. Cancer risks less than 1×10^{-6} are generally considered *de minimis*.

Noncancer effects from exposure to a COPC are expressed as an HQ. An HQ is the ratio of the estimated intake or exposure concentration of a COPC to the corresponding COPC-specific RfD or RfC. The following equation is used to estimate the noncancer risk:

Hazard Quotient = ADI/RfD or EC/RfC x CF

- *ADI* = Average daily intake (mg/kg-day)
- *RfD* = Reference dose $(mg/kg\text{-}day)^{-1}$
- *EC* = Exposure concentration ($\mu g/m^3$)
- *RfC* = Reference concentration ($\mu g/m^3$)
- CF = correction factor (1000 μg/mg)

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The COPC- and pathway-specific HQs are combined as a hazard index (HI), which is then compared to a typically accepted benchmark level of 1.0. If the HI exceeds 1.0, then combined site-specific exposures exceed the RfDs and/or RfCs, and there is a potential for noncancer adverse effects to result from exposure to Site COPCs under the evaluated receptor scenario(s). However, if the total HI is greater than 1.0, separate endpoint-specific HIs will be calculated based on target organs (e.g., HQs for neurotoxins are summed separately from HQs for renal toxins). Only if a target-organ-specific HI is greater than 1.0 is there a reason for concern about potential health effects for that target organ and receptor.

3.1.4.1 Uncertainty Analysis

The procedures and assumptions used to assess potential human health risks in this and similar BHHRAs are subject to a wide variety of uncertainties. However, the presence of uncertainty is inherent in the risk assessment process, from the sampling and analysis of chemicals in environmental media to the assessment of exposure and toxicity, and risk characterization. The USEPA recommends multiple lines of evidence and collection of additional data as appropriate to reduce the uncertainty. In addition, USEPA (1989) addresses the approach for conducting an uncertainty analysis. An analysis of uncertainty associated with the risk estimates and characterization is conducted in a semi-quantitative approach, and is used to address potential data gaps. Typically, uncertainty exists in characterization of the nature and extent of contamination, in environmental fate and transport modeling, and in the magnitude and duration of exposure of various receptors. Accordingly, site investigations and evaluations should include a discussion of the likely bias and magnitude of errors associated with uncertainties in estimating the risk. A fair and balanced characterization of uncertainty is important because most risk estimates are not highly precise and many risk managers are tempted to over-interpret the resulting values. Risk characterization, including a well-performed uncertainty analysis, will place the risk estimates in the proper perspective for informed decision-making.

The term "uncertainty" is often used in risk assessment to describe what are, in reality, two conceptually different terms: uncertainty and variability. Uncertainty can be described as the lack of a precise knowledge resulting in a fundamental data gap. Variability describes the natural heterogeneity of a population. Uncertainty can sometimes be reduced or eliminated through further measurements or study. By contrast, variability is inherent in what is being observed. Although variability can be better understood, it cannot be reduced through further measurement or study, although it may be more precisely defined. However, the additional cost of further data collection may become disproportional to the reduction in uncertainty.

The HHRA's approach to presenting the potential risks is consistent with the goal of RME representing the high end of the possible risk distribution, which is generally considered to be greater than the 90th percentile. However, these estimates are based on numerous and often conservative assumptions and, in the absence of definitive information, assumptions are used to ensure that actual sites risks are not underestimated. The cumulative effect of these assumptions can result in an analysis with an overall conservativeness greater than the individual components.

Accordingly, it is important to note that the risks presented in the HHRA are based on numerous conservative assumptions in order to be protective of human health and to ensure that the risks presented here are more likely to be overestimated rather than underestimated.

The uncertainties in the BHHRA will be discussed and presented in a table format that provides an evaluation of uncertainty throughout the data acquisition and evaluation process including site characterization and sampling program design, sample collection and analysis, and estimate of risk. The

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table will summarize the results of the uncertainty discussion and provide the perceived magnitude of uncertainty and associated impact on estimating risk.

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TABLES

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Table 1-1
Selection of Exposure Pathways - Main Plant Area (Exposure Area 1)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Main Plant Area (Exposure Area 1)	Current	Soil	Soil (0-2 ft bgs)	Soil	Decommissioning Worker	Adult	Ig D Ip	Quantitative	Workers exposed during decommissioning activities.
			Soil (0-2 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no current industrial or commercial activities
			Soil (0-2 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no current construction activities other than decommissioning activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the Main Plant Area that have been be used for hunting
		Groundwater	Groundwater	Groundwater	All	All	Ig D Iv	None	There is no current potable use of groundwater.
			Air	Ambient Outdoor	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	All	All	Ig D	None	There are no surface waters within the Main Plant Area
		Sediment	Sediment	Sediment	All	All	Ig D	None	There are no sediments within the Main Plant Area
	Future	Soil	Soil (0-12 ft bgs)	Soil	Decommissioning Worker	Adult	Ig D Ip	None	Decommissioning activities completed.
			Soil (0-12 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	Quantitative	Industrial or commercial worker exosed during to outdoor activity; Site soils redistributed during develoment
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	Quantitative	Construction worker exposed during excavations; Site soils redistributed during develoment
			Soil (0-12 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities; Site soils redistributed during develoment
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the Main Plant Area that will be used for hunting
		Groundwater	Groundwater	Groundwater	Industrial or Commercial Worker	Adult	Ig D Iv	Quantitative	There is potential for potable use of groundwater
			Air	Indoor/Outdoor Air	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	All	All	Ig D	None	There are no surface waters within the Main Plant Area
		Sediment	Sediment	Sediment	All	All	Ig D	None	There are no sediments within the Main Plant Area

a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

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Table 1-2
Selection of Exposure Pathways - North Percolation Pond Area (Exposure Area 2)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
North Percolation Pond Area (exposure area 2)	Current	Soil	Soil (0-2 ft bgs)	Soil	Stormwater Management Worker	Adult	Ig D Ip	Quantitative	Workers exposed during industrial stormwater management activities
			Soil (0-2 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no current industrial or commercial activities
			Soil (0-2 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no current construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the North Percolation Pond Area that have been or will be used for hunting
		Groundwater	Groundwater	Groundwater	All	All	Ig D Iv	None	There is no current potable use of groundwater.
			Air	Ambient Outdoor	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Stormwater Management Worker	Adult	Ig D	Quantitative	Workers exposed during industrial stormwater management activities
			Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Stormwater Management Worker	All	Ig D	Quantitative	Workers exposed during industrial stormwater management activities
			Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

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Table 1-2
Selection of Exposure Pathways - North Percolation Pond Area (Exposure Area 2)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
	Future	Soil	Soil (0-2 ft bgs)	Soil	Stormwater Management Worker	Adult	Ig D Ip	Quantitative	Workers exposed during industrial stormwater management activities
			Soil (0-12 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no future industrial or commercial activities
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no future construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the North Percolation Pond Area that have been or will be used for hunting
		Groundwater	Groundwater	Groundwater	Industrial or Commercial Worker	Adult	Ig D Iv	Quantitative	There is potential for potable use of groundwater
			Air	Indoor/Outdoor Air	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Stormwater Management Worker	Adult	Ig D	Quantitative	Workers exposed during industrial stormwater management activities
			Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Stormwater Management Worker	All	Ig D	Quantitative	Workers exposed during industrial stormwater management activities
			Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

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Table 1-3
Selection of Exposure Pathways - Central Landfill Area (Exposure Area 3)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Central Landfill Area (exposure area 3)	Current	Soil	Soil (0-2 ft bgs)	Soil	Landfill Management Worker	Adult	Ig D Ip	Quantitative	Workers exposed during landfill management and maintenance activities
			Soil (0-2 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no current industrial or commercial activities
			Soil (0-2 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no current construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the Central Landfill Area that have been be used for hunting
		Groundwater	Groundwater	Groundwater	All	All	Ig D Iv	None	There is no current potable use of groundwater.
			Air	Ambient Outdoor	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Landfill Management Worker	Adult	Ig D	Quantitative	Workers exposed during landfill management and maintenance activities
			Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Landfill Management Worker	All	Ig D	Quantitative	Workers exposed during landfill management and maintenance activities
			Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

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Table 1-3
Selection of Exposure Pathways - Central Landfill Area (Exposure Area 3)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
	Future	Soil	Soil (0-12 ft bgs)	Soil	Landfill Management Worker	Adult	Ig D Ip	Quantitative	Workers exposed during landfill management and maintenance activities
			Soil (0-12 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no future industrial or commercial activities
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no future construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the Central Landfill Area that will be used for hunting
		Groundwater	Groundwater	Groundwater	Industrial or Commercial Worker	Adult	Ig D Iv	Quantitative	There is potential for potable use of groundwater
			Air	Indoor/Outdoor Air	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Stormwater Management Worker	Adult	Ig D	Quantitative	Workers exposed during landfill management and maintenance activities
			Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Stormwater Management Worker	All	Ig D	Quantitative	Workers exposed during landfill management and maintenance activities
			Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

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Table 1-4
Selection of Exposure Pathways - Industrial Landfill Area (Exposure Area 4)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Industrial Landfill Area (exposure area 4)	Current	Soil	Soil (0-2 ft bgs)	Soil	Landfill Management Worker	Adult	Ig D Ip	Quantitative	Workers exposed during landfill management and maintenance activities
			Soil (0-2 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no current industrial or commercial activities
			Soil (0-2 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no current construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the Central Landfill Area that have been be used for hunting
		Groundwater	Groundwater	Groundwater	All	All	Ig D Iv	None	There is no current potable use of groundwater.
			Air	Ambient Outdoor	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	All	All	Ig D	None	There are no surface waters within the Central Landfill Area
		Sediment	Sediment	Sediment	All	All	Ig D	None	There are no surface waters in the Central Landfill Area
	Future	Soil	Soil (0-2 ft bgs)	Soil	Landfill Management Worker	Adult	Ig D Ip	Quantitative	Workers exposed during landfill management and maintenance activities
			Soil (0-12 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no future industrial or commercial activities
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no future construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the Central Landfill Area that will be used for hunting
		Groundwater	Groundwater	Groundwater	Industrial or Commercial Worker	Adult	Ig D Iv	Quantitative	There is potential for potable use of groundwater
			Air	Indoor/Outdoor Air	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	All	All	Ig D	None	There are no surface waters within the Central Landfill Area
		Sediment	Sediment	Sediment	All	All	Ig D	None	There are no surface waters in the Central Landfill Area

a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

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Table 1-5
Selection of Exposure Pathways - Eastern Undeveloped Area (Exposure Area 5)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Eastern Undeveloped Area (exposure area 5)	Current	Soil	Soil (0-2 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no current industrial or commercial activities
			Soil (0-2 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no current construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the Eastern Undeveloped Area that have been be used for hunting
		Groundwater	Groundwater	Groundwater	All	All	Ig D Iv	None	There is no current potable use of groundwater.
			Air	Ambient Outdoor	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
	Future	Soil	Soil (0-12 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	Quantitative	Industrial or commercial worker exosed during to outdoor activity; Site soils redistributed during develoment
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	Quantitative	Construction worker exposed during excavations; Site soils redistributed during develoment
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the Eastern Undeveloped Area that will be used for hunting
		Groundwater	Groundwater	Groundwater	Industrial or Commercial Worker	Adult	Ig D Iv	Quantitative	There is potential for potable use of groundwater
			Air	Indoor/Outdoor Air	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

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Table 1-6
Selection of Exposure Pathways - North-Central Undeveloped Area (Exposure Area 6)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
North-Central Undeveloped Area (exposure area 6)	Current	Soil	Soil (0-2 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no current industrial or commercial activities
			Soil (0-2 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no current construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the North-Central Undeveloped Area that have been be used for hunting
		Groundwater	Groundwater	Groundwater	All	All	Ig D Iv	None	There is no current potable use of groundwater.
			Air	Ambient Outdoor	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
	Future	Soil	Soil (0-12 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	Quantitative	Industrial or commercial worker exosed during to outdoor activity; Site soils redistributed during develoment
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	Quantitative	Construction worker exposed during excavations; Site soils redistributed during develoment
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the North-Central Undeveloped Area that will be used for hunting
		Groundwater	Groundwater	Groundwater	Industrial or Commercial Worker	Adult	Ig D Iv	Quantitative	There is potential for potable use of groundwater
			Air	Indoor/Outdoor Air	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

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Table 1-7
Selection of Exposure Pathways - Western Undeveloped Area (Exposure area 7)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Western Undeveloped Area (exposure area 7)	Current	Soil	Soil (0-2 ft bgs)	Soil	Resident	Adult	Ig D Ip	None	There are no curent residents
			Soil (0-2 ft bgs)	Soil	Resident	Child	Ig D Ip	None	There are no curent residents
			Soil (0-2 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	None	There are no current industrial or commercial activities
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no current construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreatist	Adult	Ig	Quantitative	There are recreational use areas within the Western Undeveloped Area that have been used for hunting
		Groundwater	Groundwater	Groundwater	All	All	Ig D Iv	None	There is no current potable use of groundwater.
			Air	Ambient Outdoor	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Western Undeveloped Area that have been used for hunting
			Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Western Undeveloped Area that have been used for hunting
			Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

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Table 1-7
Selection of Exposure Pathways - Western Undeveloped Area (Exposure Area 7)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
	Future	Soil	Soil (0-12 ft bgs)	Soil	Resident	Adult	Ig D Ip	Quantitative	There are potential future residents; Site soils redistributed during develoment
			Soil (0-12 ft bgs)	Soil	Resident	Child	Ig D Ip	Quantitative	There are potential future residents; Site soils redistributed during develoment
			Soil (0-12 ft bgs)	Soil	Industrial or Commercial Worker	Adult	Ig D Ip	Quantitative	Industrial or commercial worker exosed during to outdoor activity; Site soils redistributed during develoment
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	Quantitative	Construction worker exposed during excavations; Site soils redistributed during develoment
			Soil (0-12 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities; Site soils redistributed during develoment
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	Quantitative	There are recreational use areas within the Western Undeveloped Area that will used for hunting; undeveloped areas not subject to redistribution of soils
		Groundwater	Groundwater	Groundwater	Resident	Adult	Ig D Iv	Quantitative	There is potential for potable use of groundwater
			Air	Indoor/Outdoor Air	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Western Undeveloped Area that will be used for hunting
			Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Western Undeveloped Area that will be used for hunting
			Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

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Table 1-8
Selection of Exposure Pathways - South Percolation Pond Area (Exposure Area 8)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
South Percolation Pond Area (exposure area 8)	Current	Soil	Soil (0-2 ft bgs)	Soil	Resident	Adult	Ig D Ip	None	There are no curent residents
			Soil (0-2 ft bgs)	Soil	Industrial Worker	Adult	Ig D Ip	None	There are no current industrial activities
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no current construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the South Percolation Pond Area that have been used for hunting
		Groundwater	Groundwater	Groundwater	All	All	Ig D Iv	None	There is no current potable use of groundwater.
			Air	Ambient Outdoor	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the South Percolation Pond Area that have been used for fishing
			Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the South Percolation Pond Area that have been used for fishing
			Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

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Table 1-8
Selection of Exposure Pathways - South Percolation Pond Area (Exposure Area 8)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
	Future	Soil	Soil (0-12 ft bgs)	Soil	Resident	Adult	Ig D Ip	None	There are no curent residents
			Shallow soil (0-.5 ft bgs)	Soil	Industrial	Adult	Ig D Ip	Quantitative	Industrial or commercial worker exosed during outdoor activity
			Soil (0-12 ft bgs)	Soil	Construction Worker	Adult	Ig D Ip	None	There are no future construction activities
			Shallow soil (0-.5 ft bgs)	Soil	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
			Shallow soil (0-.5 ft bgs)	Biota	Recreationist	Adult	Ig	None	There are no recreational use areas within the South Percolation Pond Area that will be used for hunting
		Groundwater	Groundwater	Groundwater	All	Adult	Ig D Iv	None	There is no potential potable use of groundwater
			Air	Indoor/Outdoor Air	All	All	Iv	None	Assessment of groundwater with VISL calculator showed no unacceptable concentrations
		Surface Water	Surface water	Surface water	Recreationist	Adult	Ig D	Quantitative	There are no recreational use areas within the South Percolation Pond Area that will be used for fishing
			Surface water	Biota	Recreationist	Adult	Ig	Quantitative	There are no recreational use areas within the South Percolation Pond Area that will be used for fishing
			Surface water	Surface water	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities
		Sediment	Sediment	Sediment	Recreatist	Adult	Ig D	Quantitative	There are no recreational use areas within the South Percolation Pond Area that will be used for fishing
			Sediment	Biota	Recreatist	Adult	Ig	Quantitative	There are no recreational use areas within the South Percolation Pond Area that will be used for fishing
			Sediment	Sediment	Trespasser	Child/ Adolescent	Ig D	Quantitative	Trespasser exposed during unauthorized activities

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a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

Table 1-9
Selection of Exposure Pathways - Flathead River Area (Exposure Area 9)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Flathead River Area (exposure area 9)	Current	Surface Water	Surface water	Surface water	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing, and water contact sports
			Surface water	Surface water	Recreationist	Child/ Adolescent	Ig D	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing, and water contact sports
			Surface water	Biota	Recreationist	Adult	Ig	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing
		Sediment	Sediment	Sediment	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing, and water contact sports
			Sediment	Sediment	Recreationist	Child/ Adolescent	Ig D	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing, and water contact sports
			Sediment	Biota	Recreationist	Adult	Ig	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing
	Future	Surface Water	Surface water	Surface water	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing, and water contact sports
			Surface water	Surface water	Recreationist	Child/ Adolescent	Ig D	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing, and water contact sports
			Surface water	Biota	Recreationist	Adult	Ig	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing
		Sediment	Sediment	Sediment	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing, and water contact sports
			Sediment	Sediment	Recreationist	Child/ Adolescent	Ig D	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing, and water contact sports
			Sediment	Biota	Recreationist	Adult	Ig	Quantitative	There are recreational use areas within the Flathead River Area that have been used for fishing

a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

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Table 1-9a
Selection of Exposure Pathways - Backwater Seep Area (Exposure Area 9a)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Exposure Area	Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route (a)	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Backwater Seep Area (exposure area 9a)	Current	Surface Water	Surface water	Surface water	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Backwater Seep Area that have been used for fishing
			Surface water	Biota	Recreationist	Adult	Ig	Quantitative	There are recreational use areas within the Backwater Seep Areathat have been used for fishing
		Sediment	Sediment	Sediment	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Backwater Seep Areathat have been used for fishing
			Sediment	Biota	Recreationist	Adult	Ig	Quantitative	There are recreational use areas within the Backwater Seep Areathat have been used for fishing
	Future	Surface Water	Surface water	Surface water	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Backwater Seep Area that will be used for fishing
			Surface water	Biota	Recreationist	Adult	Ig	Quantitative	There are recreational use areas within the Backwater Seep Area that will be used for fishing
		Sediment	Sediment	Sediment	Recreationist	Adult	Ig D	Quantitative	There are recreational use areas within the Backwater Seep Area that will be used for fishing
			Sediment	Biota	Recreationist	Adult	Ig	Quantitative	There are recreational use areas within the Backwater Seep Area that will be used for fishing

a/ Ip = inhalation of particulate
Iv = inhalation of volatiles

D = dermal
Ig = ingestion

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Table 2-1

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.01E-06	0.000111	mg/kg	CFSB-082	11 / 13	2.3e-008 - 3.9e-008	0.000111	NA	No Screening Level		N	NSL
	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	4.80E-07	2.69E-05	mg/kg	CFMW-040	11 / 13	2.3e-008 - 2.7e-008	2.69E-05	NA	No Screening Level		N	NSL
	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	7.80E-08	1.77E-06	mg/kg	CFSB-074	5 / 13	2.8e-008 - 3.4e-008	1.77E-06	NA	No Screening Level		N	NSL
	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	5.70E-08	3.42E-06	mg/kg	CFMW-040	8 / 13	2.5e-008 - 3e-008	3.42E-06	NA	No Screening Level		N	NSL
	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	1.40E-07	3.07E-06	mg/kg	CFSB-082	8 / 13	2.3e-008 - 2.7e-008	3.07E-06	NA	No Screening Level		N	NSL
	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	1.20E-07	5.07E-06	mg/kg	CFMW-040	11 / 13	2.3e-008 - 2.9e-008	5.07E-06	NA	No Screening Level		N	NSL
	57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	4.40E-08	1.05E-06	mg/kg	CFSB-073	10 / 13	2.2e-008 - 2.1e-007	1.05E-06	NA	No Screening Level		N	NSL
	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	1.10E-07	4.60E-06	mg/kg	CFMW-040	11 / 13	2e-008 - 2.6e-008	4.60E-06	NA	No Screening Level		N	NSL
	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	ND	ND	ND	ND	0 / 13	2.4e-008 - 2.4e-008	ND	NA	No Screening Level		N	BSL-ND
	40321-76-4	1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	2.60E-07	1.21E-06	mg/kg	CFMW-040	3 / 13	3.5e-008 - 5.9e-008	1.21E-06	NA	No Screening Level		N	NSL
	57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	2.90E-07	1.59E-06	mg/kg	CFMW-040	6 / 13	2.8e-008 - 5.8e-008	1.59E-06	NA	No Screening Level		N	NSL
	60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	2.80E-07	1.70E-06	mg/kg	CFSB-082	6 / 13	2.3e-008 - 3.7e-008	1.70E-06	NA	No Screening Level		N	NSL
	57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	2.90E-07	1.71E-06	mg/kg	CFMW-040	6 / 13	2.9e-008 - 6e-008	1.71E-06	NA	No Screening Level		N	NSL
	1746-01-6	2,3,7,8-Tetrachlorodibenzo-P-Dioxin	1.40E-07	5.80E-07	mg/kg	CFMW-040	3 / 13	2.2e-008 - 3.8e-008	5.80E-07	NA	5.90E-08	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	8.90E-08	5.26E-06	mg/kg	CFMW-040	10 / 13	1.9e-008 - 2.3e-008	5.26E-06	NA	No Screening Level		N	NSL
	37871-00-4	Heptachlorodibenzo-p-dioxins (HpCDD), Total	5.30E-07	0.0002	mg/kg	CFSB-082	13 / 13	2.3e-008 - 2.3e-008	0.0002	NA	No Screening Level		N	NSL
	38998-75-3	Heptachlorodibenzofurans	2.60E-07	8.73E-05	mg/kg	CFMW-040	13 / 13	2.6e-008 - 2.6e-008	8.73E-05	NA	No Screening Level		N	NSL
	34465-46-8	Hexachlorodibenzo-P-Dioxin	6.20E-08	3.98E-05	mg/kg	CFMW-040	13 / 13	2.3e-008 - 2.3e-008	3.98E-05	NA	1.70E-05	USEPA RSL RBSSL THQ=0.1, c	N	ASL-SSLOnly
	55684-94-1	Hexachlorodibenzofuran	4.40E-08	5.18E-05	mg/kg	CFSB-083	13 / 13	2.3e-008 - 2.3e-008	5.18E-05	NA	No Screening Level		N	NSL
	3268-87-9	Octachlorodibenzo-P-Dioxin	2.12E-05	0.00173	mg/kg	CFSB-082	11 / 13	2.2e-008 - 4.5e-008	0.00173	NA	No Screening Level		N	NSL
	39001-02-0	Octachlorodibenzofuran	1.99E-06	9.72E-05	mg/kg	CFMW-040	11 / 13	2.1e-008 - 2.5e-008	9.72E-05	NA	No Screening Level		N	NSL
	PECDD	Pentachlorinated Dibenzo-P-Dioxins, (Total)	7.90E-07	4.67E-06	mg/kg	CFMW-040	3 / 13	3.5e-008 - 5.9e-008	4.67E-06	NA	No Screening Level		N	NSL
	30402-15-4	Pentachloro Dibenzofuran	1.40E-07	1.25E-05	mg/kg	CFMW-040	11 / 13	2.9e-008 - 3.1e-008	1.25E-05	NA	No Screening Level		N	NSL
	TCDF	Tetrachlorinated Dibenzofurans, (Total)	4.70E-08	2.41E-05	mg/kg	CFMW-040	12 / 13	1.9e-008 - 2.3e-008	2.41E-05	NA	No Screening Level		N	NSL
	41903-57-5	Tetrachlorodibenzo-P-Dioxin	3.20E-08	5.61E-06	mg/kg	CFMW-040	8 / 13	2.2e-008 - 2.9e-008	5.61E-06	NA	No Screening Level		N	NSL
	57-12-5	Cyanide	0.018	0.87	mg/kg	CFMW-042	61 / 63	0.014 - 0.015	0.87	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	4.25	571	mg/kg	CFSB-066	63 / 63	0.19 - 0.19	571	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	TOC	Total Organic Carbon	21500	47000	mg/kg	CFMW-053A	6 / 6	77.2 - 77.2	47000	NA	No Screening Level		N	NSL
	7429-90-5	Aluminum	5610	51200	mg/kg	CFMW-037	63 / 63	5.7 - 5.7	51200	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.35	0.57	mg/kg	CFSB-042	5 / 63	0.28 - 0.33	0.57	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-38-2	Arsenic	2.1	7.6	mg/kg	CFSB-099	63 / 63	0.28 - 0.28	7.6	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	40.3	376	mg/kg	CFMW-042	63 / 63	0.51 - 0.51	376	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.21	0.96	mg/kg	CFSB-055	63 / 63	0.086 - 0.086	0.96	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.29	1.7	mg/kg	CFSB-066	11 / 63	0.24 - 0.25	1.7	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	1940	65300	mg/kg	CFSB-094	63 / 63	27.9 - 27.9	65300	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	5.3	74.2	mg/kg	CFSB-046	63 / 63	0.53 - 0.53	74.2	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	2.8	7.8	mg/kg	CFSB-066	63 / 63	0.53 - 0.53	7.8	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	5.7	26.7	mg/kg	CFMW-035	63 / 63	0.52 - 0.52	26.7	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	6170	20500	mg/kg	CFMW-035	63 / 63	16.7 - 16.7	20500	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)

Preliminary Under EPA and MDEQ Review

Table 2-1

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	7439-92-1	Lead	4.1	184	mg/kg	CFMW-040	77 / 77	0.16 - 0.16	184	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	3030	27500	mg/kg	CFSB-071	63 / 63	26.7 - 26.7	27500	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	173	1270	mg/kg	CFMW-053A	63 / 63	1.1 - 1.1	1270	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.012	0.069	mg/kg	CFSB-065	57 / 63	0.011 - 0.013	0.069	NA	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	6.3	140	mg/kg	CFSB-066	63 / 63	0.54 - 0.54	140	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	388	1530	mg/kg	CFMW-026	63 / 63	26.2 - 26.2	1530	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.41	0.66	mg/kg	CFSB-099	5 / 63	0.26 - 0.31	0.66	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	0.96	1.5	mg/kg	CFMW-035	2 / 63	0.55 - 0.8	1.5	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	31.3	1590	mg/kg	CFSB-066	47 / 63	29.9 - 31.3	1590	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 63	0.11 - 0.11	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	6	31.6	mg/kg	CFMW-042	63 / 63	0.6 - 0.6	31.6	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	22.2	238	mg/kg	CFMW-026	63 / 63	1.9 - 1.9	238	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 23	0.00087 - 0.00087	ND	NA	1.50E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 23	0.00066 - 0.00066	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 23	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 23	0.0007 - 0.0007	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 23	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 23	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 23	0.00078 - 0.00078	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 23	0.00094 - 0.00094	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 23	0.00084 - 0.00084	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 23	0.00091 - 0.00091	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 23	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 23	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 23	0.00065 - 0.00065	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 23	0.00092 - 0.00092	ND	NA	1.20E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 23	0.0014 - 0.0014	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 23	0.0015 - 0.0015	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 23	0.00095 - 0.00095	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 23	0.001 - 0.001	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 23	0.00074 - 0.00074	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 23	0.021 - 0.021	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 23	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	1.30E-02	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND

Preliminary, Under EPA and MDEQ Review

Table 2-1

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 63	0.026 - 0.026	ND	NA	7.90E-04	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 63	0.092 - 0.092	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 63	0.032 - 0.032	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 63	0.034 - 0.034	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 63	0.0098 - 0.0098	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 63	0.0081 - 0.0081	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 63	0.076 - 0.076	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 63	0.26 - 0.26	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 63	0.014 - 0.014	ND	NA	3.20E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 63	0.018 - 0.018	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 63	0.0078 - 0.0078	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 63	0.0087 - 0.0087	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.008	1.7	mg/kg	CFSB-044	31 / 63	0.0076 - 0.0076	1.7	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 63	0.015 - 0.015	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 63	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 63	0.038 - 0.038	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.036	0.036	mg/kg	CFMW-050	1 / 63	0.0092 - 0.011	0.036	NA	No Screening Level		N	LDF
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 63	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 63	0.092 - 0.092	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 63	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 63	0.0088 - 0.0088	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 63	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 63	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 63	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.0095	15	mg/kg	CFSB-040	50 / 63	0.0083 - 0.0084	15	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.01	0.039	mg/kg	CFMW-045A	6 / 63	0.0088 - 0.0092	0.039	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.0079	0.046	mg/kg	CFSB-066	2 / 63	0.0075 - 0.0078	0.046	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	LDF
	120-12-7	Anthracene	0.038	22	mg/kg	CFSB-040	45 / 63	0.033 - 0.033	22	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 63	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.031	0.093	mg/kg	CFMW-044A	3 / 63	0.026 - 0.028	0.093	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.043	110	mg/kg	CFSB-040	59 / 63	0.029 - 0.031	110	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.033	130	mg/kg	CFSB-040	61 / 63	0.01 - 0.012	130	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.028	150	mg/kg	CFSB-040	62 / 63	0.013 - 0.016	150	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen

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Table 2-1

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	191-24-2	Benzo(G,H,I)Perylene	0.032	99	mg/kg	CFSB-040	62 / 63	0.02 - 0.023	99	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.016	68	mg/kg	CFSB-040	59 / 63	0.015 - 0.016	68	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.016	5.6	mg/kg	CFMW-037	19 / 63	0.011 - 0.011	5.6	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.034	0.034	mg/kg	CFSB-050	1 / 63	0.029 - 0.031	0.034	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	1.30E-03	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 63	0.0081 - 0.0081	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 63	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.016	5.8	mg/kg	CFMW-050	28 / 63	0.013 - 0.014	5.8	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 63	0.025 - 0.025	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.011	17	mg/kg	CFSB-040	55 / 63	0.0085 - 0.0088	17	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.022	130	mg/kg	CFSB-040	62 / 63	0.0094 - 0.011	130	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.013	0.085	mg/kg	CFSB-094	12 / 63	0.01 - 0.011	0.085	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 63	0.017 - 0.017	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.023	28	mg/kg	CFSB-040	53 / 63	0.018 - 0.019	28	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.012	4.8	mg/kg	CFSB-040	39 / 63	0.01 - 0.01	4.8	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 63	0.0098 - 0.0098	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 63	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.038	170	mg/kg	CFSB-040	62 / 63	0.01 - 0.012	170	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.0085	10	mg/kg	CFSB-040	46 / 63	0.0075 - 0.0075	10	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 63	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 63	0.0097 - 0.0097	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 63	0.021 - 0.021	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 63	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.028	100	mg/kg	CFSB-040	62 / 63	0.023 - 0.027	100	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.013	0.076	mg/kg	CFSB-045	5 / 63	0.0074 - 0.0079	0.076	NA	2.60E-02	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 63	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 63	0.031 - 0.031	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.009	4	mg/kg	CFSB-044	41 / 63	0.0087 - 0.0088	4	NA	5.40E-04	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	0.3	0.53	mg/kg	CFSB-059	3 / 63	0.042 - 0.043	0.53	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	85-01-8	Phenanthrene	0.022	120	mg/kg	CFSB-040	62 / 63	0.0092 - 0.011	120	NA	No Screening Level		N	NSL

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Table 2-1

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	108-95-2	Phenol	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	129-00-0	Pyrene	0.043	220	mg/kg	CFSB-040	62 / 63	0.016 - 0.018	220	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk

USEPA = US Environmental Protection Agency

RSL = Regional Screening Level

MDEQ = Montana Department of Environmental Quaility

(1) Maximum detection value

(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1×10^{-6})

USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level

MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.

c = carcinogenic basis

n = non-carcinogenic basis

dc - direct contact

(3) COPC Flag

Y = Yes

N = No

(4) Rationale for Selection or Deletion

BSL - Detections and Detection Limits Below Screening Level

BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.

ASL = Detections Above Screening Level

ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.

ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded

ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level

LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set

Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA

NSL = no screening level available

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Table 2-2

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area Soil
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	5.80E-07	0.000312	mg/kg	CFSB-080	21 / 26	1.8e-008 - 2.7e-008	0.000312	NA	No Screening Level		N	NSL
	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.60E-07	6.64E-05	mg/kg	CFSB-080	18 / 26	1.4e-008 - 2e-008	6.64E-05	NA	No Screening Level		N	NSL
	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	6.80E-08	1.77E-06	mg/kg	CFSB-074	6 / 26	1.6e-008 - 2.2e-008	1.77E-06	NA	No Screening Level		N	NSL
	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	3.70E-08	3.42E-06	mg/kg	CFMW-040	13 / 26	1.5e-008 - 2.1e-008	3.42E-06	NA	No Screening Level		N	NSL
	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	4.80E-08	9.63E-06	mg/kg	CFSB-080	19 / 26	1.7e-008 - 2.3e-008	9.63E-06	NA	No Screening Level		N	NSL
	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	7.50E-08	1.08E-05	mg/kg	CFSB-080	21 / 26	1.4e-008 - 2e-008	1.08E-05	NA	No Screening Level		N	NSL
	57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	4.40E-08	2.86E-06	mg/kg	CFSB-080	16 / 26	1.5e-008 - 1.7e-008	2.86E-06	NA	No Screening Level		N	NSL
	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	6.20E-08	5.14E-06	mg/kg	CFSB-080	22 / 26	1.2e-008 - 1.9e-008	5.14E-06	NA	No Screening Level		N	NSL
	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	5.20E-08	7.70E-08	mg/kg	CFSB-082	2 / 26	1.6e-008 - 3.8e-008	7.70E-08	NA	No Screening Level		N	NSL
	40321-76-4	1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	2.80E-08	1.21E-06	mg/kg	CFMW-040	6 / 26	1.8e-008 - 3.4e-008	1.21E-06	NA	No Screening Level		N	NSL
	57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	1.10E-07	2.10E-06	mg/kg	CFSB-080	10 / 26	1.5e-008 - 4.1e-008	2.10E-06	NA	No Screening Level		N	NSL
	60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	3.10E-08	4.58E-06	mg/kg	CFSB-080	13 / 26	1.6e-008 - 2.3e-008	4.58E-06	NA	No Screening Level		N	NSL
	57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	6.50E-08	1.88E-06	mg/kg	CFSB-080	10 / 26	1.5e-008 - 2.6e-008	1.88E-06	NA	No Screening Level		N	NSL
	1746-01-6	2,3,7,8-Tetrachlorodibenzo-P-Dioxin	1.10E-07	5.80E-07	mg/kg	CFMW-040	4 / 26	1.6e-008 - 3.8e-008	5.80E-07	NA	5.90E-08	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	4.80E-08	5.26E-06	mg/kg	CFMW-040	20 / 26	1.4e-008 - 1.9e-008	5.26E-06	NA	No Screening Level		N	NSL
	37871-00-4	Heptachlorodibenzo-p-dioxins (HpCDD), Total	4.60E-07	0.000558	mg/kg	CFSB-080	26 / 26	1.8e-008 - 1.8e-008	0.000558	NA	No Screening Level		N	NSL
	38998-75-3	Heptachlorodibenzofurans	2.50E-07	0.000239	mg/kg	CFSB-080	26 / 26	1.5e-008 - 1.5e-008	0.000239	NA	No Screening Level		N	NSL
	34465-46-8	Hexachlorodibenzo-P-Dioxin	6.20E-08	3.98E-05	mg/kg	CFMW-040	25 / 26	1.4e-008 - 2.3e-008	3.98E-05	NA	1.70E-05	USEPA RSL RBSSL THQ=0.1, c	N	ASL-SSLOnly
	55684-94-1	Hexachlorodibenzofuran	4.40E-08	0.000178	mg/kg	CFSB-080	24 / 26	1.6e-008 - 2.9e-008	0.000178	NA	No Screening Level		N	NSL
	3268-87-9	Octachlorodibenzo-P-Dioxin	3.02E-06	0.00435	mg/kg	CFSB-080	23 / 26	2.2e-008 - 2.9e-008	0.00435	NA	No Screening Level		N	NSL
	39001-02-0	Octachlorodibenzofuran	9.30E-07	9.72E-05	mg/kg	CFMW-040	18 / 26	1.2e-008 - 2.1e-008	9.72E-05	NA	No Screening Level		N	NSL
	PECDD	Pentachlorinated Dibenzo-P-Dioxins, (Total)	6.50E-08	4.67E-06	mg/kg	CFMW-040	7 / 26	1.8e-008 - 3.4e-008	4.67E-06	NA	No Screening Level		N	NSL
	30402-15-4	Pentachloro Dibenzofuran	1.30E-07	2.27E-05	mg/kg	CFSB-080	21 / 26	1.5e-008 - 2.8e-008	2.27E-05	NA	No Screening Level		N	NSL
	TCDF	Tetrachlorinated Dibenzofurans, (Total)	4.70E-08	2.41E-05	mg/kg	CFMW-040	23 / 26	1.4e-008 - 1.9e-008	2.41E-05	NA	No Screening Level		N	NSL
	41903-57-5	Tetrachlorodibenzo-P-Dioxin	3.20E-08	5.61E-06	mg/kg	CFMW-040	14 / 26	1.6e-008 - 2.2e-008	5.61E-06	NA	No Screening Level		N	NSL
	57-12-5	Cyanide	0.072	2.4	mg/kg	CFSB-131	123 / 136	0.014 - 0.015	2.4	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	1.55	571	mg/kg	CFSB-066	136 / 136	0.19 - 0.19	571	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	TOC	Total Organic Carbon	1990	47000	mg/kg	CFMW-053A	13 / 13	71.7 - 71.7	47000	NA	No Screening Level		N	NSL
	7429-90-5	Aluminum	5540	51200	mg/kg	CFMW-037	136 / 136	5.6 - 5.6	51200	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.35	0.57	mg/kg	CFSB-042	6 / 136	0.26 - 0.33	0.57	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-38-2	Arsenic	1.6	7.9	mg/kg	CFSB-065	136 / 136	0.27 - 0.27	7.9	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	32.6	392	mg/kg	CFMW-043	136 / 136	0.5 - 0.5	392	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.16	0.96	mg/kg	CFSB-055	136 / 136	0.081 - 0.081	0.96	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.29	1.7	mg/kg	CFSB-066	16 / 136	0.24 - 0.25	1.7	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	1560	81500	mg/kg	CFSB-052	136 / 136	27.2 - 27.2	81500	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	5.3	74.2	mg/kg	CFSB-046	136 / 136	0.5 - 0.5	74.2	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	2.8	9.6	mg/kg	CFSB-052	136 / 136	0.5 - 0.5	9.6	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	5.6	52.6	mg/kg	CFSB-065	136 / 136	0.51 - 0.51	52.6	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

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Table 2-2

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area Soil
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	7439-89-6	Iron	6170	20500	mg/kg	CFMW-035	136 / 136	15.8 - 15.8	20500	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	2.9	184	mg/kg	CFMW-040	150 / 150	0.15 - 0.15	184	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	3030	27500	mg/kg	CFSB-071	136 / 136	25.1 - 25.1	27500	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	161	1270	mg/kg	CFMW-053A	136 / 136	1 - 1	1270	830	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.012	0.27	mg/kg	CFSB-065	114 / 136	0.011 - 0.011	0.27	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	6.3	140	mg/kg	CFSB-066	136 / 136	0.51 - 0.51	140	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	324	1530	mg/kg	CFMW-026	136 / 136	24.6 - 24.6	1530	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.33	0.66	mg/kg	CFSB-099	10 / 136	0.25 - 0.31	0.66	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	0.96	1.5	mg/kg	CFMW-035	3 / 136	0.52 - 0.8	1.5	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	31.3	1590	mg/kg	CFSB-066	92 / 136	29.2 - 29.9	1590	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 136	0.1 - 0.1	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	4.4	31.8	mg/kg	CFSB-065	136 / 136	0.59 - 0.59	31.8	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	22.2	244	mg/kg	CFSB-065	136 / 136	1.9 - 1.9	244	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 23	0.00087 - 0.00087	ND	NA	1.50E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 23	0.00066 - 0.00066	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 23	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 23	0.0007 - 0.0007	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 23	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 23	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 23	0.00078 - 0.00078	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 23	0.00094 - 0.00094	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 23	0.00084 - 0.00084	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 23	0.00091 - 0.00091	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 23	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 23	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 23	0.00065 - 0.00065	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 23	0.00092 - 0.00092	ND	NA	1.20E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 23	0.0014 - 0.0014	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 23	0.0015 - 0.0015	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 23	0.00095 - 0.00095	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 23	0.001 - 0.001	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 23	0.00074 - 0.00074	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 23	0.021 - 0.021	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 23	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 136	0.0092 - 0.0092	ND	NA	1.30E-02	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 136	0.0092 - 0.0092	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 136	0.0092 - 0.0092	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 136	0.0092 - 0.0092	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 136	0.0092 - 0.0092	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 136	0.0095 - 0.0095	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND

Preliminary Under EPA and MDEQ Review

Table 2-2

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area Soil
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 136	0.0095 - 0.0095	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 136	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 136	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 136	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 136	0.025 - 0.025	ND	NA	7.90E-04	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 134	0.092 - 0.092	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 134	0.032 - 0.032	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 134	0.034 - 0.034	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 134	0.0097 - 0.0097	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 134	0.0081 - 0.0081	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 134	0.075 - 0.075	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 133	0.26 - 0.26	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 136	0.014 - 0.014	ND	NA	3.20E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 136	0.018 - 0.018	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 136	0.0078 - 0.0078	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 134	0.0087 - 0.0087	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.008	1.7	mg/kg	CFSB-044	51 / 136	0.0076 - 0.0076	1.7	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 134	0.015 - 0.015	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 136	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 134	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 136	0.038 - 0.038	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.011	0.036	mg/kg	CFMW-050	4 / 134	0.0091 - 0.0097	0.036	NA	No Screening Level		N	LDF
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 136	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 134	0.091 - 0.091	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 136	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 134	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 136	0.0088 - 0.0088	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 136	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 136	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 134	0.16 - 0.16	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.0093	15	mg/kg	CFSB-040	89 / 136	0.0083 - 0.0083	15	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.01	0.048	mg/kg	CFSB-040	9 / 136	0.0088 - 0.0091	0.048	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.0079	0.046	mg/kg	CFSB-066	4 / 136	0.0075 - 0.0075	0.046	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	LDF
	120-12-7	Anthracene	0.033	22	mg/kg	CFSB-040	73 / 136	0.033 - 0.033	22	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 136	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.031	0.093	mg/kg	CFMW-044A	3 / 136	0.026 - 0.028	0.093	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.029	110	mg/kg	CFSB-040	112 / 136	0.029 - 0.029	110	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.012	130	mg/kg	CFSB-040	124 / 136	0.01 - 0.01	130	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.017	150	mg/kg	CFSB-040	127 / 136	0.013 - 0.013	150	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen

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Table 2-2

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area Soil
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	191-24-2	Benzo(G,H,I)Perylene	0.022	99	mg/kg	CFSB-040	117 / 136	0.02 - 0.02	99	NA	No Screening Level		N	NSL
Surface Soil	207-08-9	Benzo(K)Fluoranthene	0.016	68	mg/kg	CFSB-040	109 / 136	0.015 - 0.015	68	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.013	5.6	mg/kg	CFMW-037	31 / 136	0.011 - 0.011	5.6	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.034	0.11	mg/kg	CFSB-010	3 / 136	0.029 - 0.031	0.11	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 136	0.011 - 0.011	ND	NA	1.30E-03	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 136	0.0081 - 0.0081	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 135	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.016	5.8	mg/kg	CFMW-050	47 / 136	0.013 - 0.013	5.8	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 136	0.025 - 0.025	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.01	17	mg/kg	CFSB-040	94 / 136	0.0085 - 0.0085	17	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.012	130	mg/kg	CFSB-040	127 / 136	0.0093 - 0.0094	130	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.013	0.19	mg/kg	CFSB-050	23 / 136	0.01 - 0.01	0.19	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	0.027	0.027	mg/kg	CFMW-026	1 / 136	0.017 - 0.019	0.027	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.019	28	mg/kg	CFSB-040	92 / 136	0.018 - 0.018	28	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.011	4.8	mg/kg	CFSB-040	61 / 136	0.01 - 0.01	4.8	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 136	0.0097 - 0.0097	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 136	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.01	170	mg/kg	CFSB-040	128 / 136	0.01 - 0.01	170	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.0085	10	mg/kg	CFSB-040	80 / 136	0.0075 - 0.0075	10	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	0.091	0.091	mg/kg	CFSB-082	1 / 136	0.014 - 0.015	0.091	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	ASL-SSLOnly
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 136	0.0096 - 0.0096	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 136	0.021 - 0.021	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 136	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.023	100	mg/kg	CFSB-040	116 / 136	0.023 - 0.023	100	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.0099	3.3	mg/kg	CFSB-052	10 / 136	0.0073 - 0.0074	3.3	NA	2.60E-02	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 136	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 136	0.031 - 0.031	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.009	4	mg/kg	CFSB-044	67 / 136	0.0087 - 0.0087	4	NA	5.40E-04	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 136	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	0.17	0.53	mg/kg	CFSB-059	5 / 134	0.041 - 0.042	0.53	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	85-01-8	Phenanthrene	0.01	120	mg/kg	CFSB-040	127 / 136	0.0091 - 0.0092	120	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.021	0.021	mg/kg	CFSB-010	1 / 134	0.011 - 0.012	0.021	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	LDF
	129-00-0	Pyrene	0.018	220	mg/kg	CFSB-040	126 / 136	0.016 - 0.016	220	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 73	0.00027 - 0.00027	ND	NA	2.80E-01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 73	0.00012 - 0.00012	ND	NA	3.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 73	0.00032 - 0.00032	ND	NA	2.60E+00	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 73	0.0002 - 0.0002	ND	NA	1.30E-05	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 73	0.00024 - 0.00024	ND	NA	0.00078	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 73	0.00029 - 0.00029	ND	NA	0.01	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table 2-2

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area Soil
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 73	7.9e-005 - 7.9e-005	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL

Preliminary - Under EPA and MDEQ Review

Table 2-2

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area Soil
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 73	0.00023 - 0.00023	ND	NA	1.20E-03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 73	0.00034 - 0.00034	ND	NA	1.40E-07	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 73	8.6e-005 - 8.6e-005	ND	NA	2.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 73	0.0001 - 0.0001	ND	NA	3.00E-02	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	0.00014	0.00014	mg/kg	CFMW-054	1 / 73	7.9e-005 - 0.00014	0.00014	NA	4.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 73	0.00012 - 0.00012	ND	NA	4.70E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 73	8.6e-005 - 8.6e-005	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 73	9.3e-005 - 9.3e-005	ND	NA	0.00046	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	0.0012	0.0012	mg/kg	CFSB-066	1 / 73	0.00067 - 0.00087	0.0012	NA	0.00088	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	67-64-1	Acetone	0.0055	0.17	mg/kg	CFMW-026	71 / 73	0.00076 - 0.0011	0.17	NA	0.29	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-43-2	Benzene	0.00019	0.0013	mg/kg	CFMW-049A	50 / 73	0.00014 - 0.00016	0.0013	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 73	0.00012 - 0.00012	ND	NA	2.10E-03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 73	0.00027 - 0.00027	ND	NA	3.60E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 73	9.3e-005 - 9.3e-005	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	0.0011	0.0011	mg/kg	CFSB-055	1 / 73	0.00023 - 0.00026	0.0011	NA	0.00019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	75-15-0	Carbon Disulfide	0.00038	0.0028	mg/kg	CFSB-051	39 / 73	0.00031 - 0.00032	0.0028	NA	0.024	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 73	0.00031 - 0.00031	ND	NA	0.00018	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 73	0.0001 - 0.0001	ND	NA	0.0053	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 73	0.00025 - 0.00025	ND	NA	5.90E-01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 73	0.00015 - 0.00015	ND	NA	6.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 73	0.00027 - 0.00027	ND	NA	0.0049	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 73	0.00016 - 0.00016	ND	NA	0.0011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 73	0.00011 - 0.00011	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	0.00039	0.0055	mg/kg	CFMW-049A	17 / 73	0.00033 - 0.00035	0.0055	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 73	0.00011 - 0.00011	ND	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 73	0.00023 - 0.00023	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	0.00017	0.0011	mg/kg	CFSB-066	17 / 73	0.00013 - 0.00014	0.0011	NA	0.0017	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	3.00E-04	0.0003	mg/kg	CFSB-066	1 / 73	0.00012 - 0.00016	0.0003	NA	0.074	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	9.10E-05	0.0042	mg/kg	CFSB-066	42 / 73	7.9e-005 - 8.8e-005	0.0042	NA	No Screening Level		N	NSL
	79-20-9	Methyl Acetate	0.0016	0.32	mg/kg	CFSB-050	18 / 73	0.00065 - 0.00068	0.32	NA	0.41	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0012	0.014	mg/kg	CFSB-097	32 / 73	0.00055 - 0.00058	0.014	NA	0.12	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.0043	0.0043	mg/kg	CFSB-066	1 / 73	0.0016 - 0.002	0.0043	NA	0.14	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.00045	0.0076	mg/kg	CFMW-049A	32 / 73	0.00036 - 0.00038	0.0076	NA	No Screening Level		N	NSL
	75-09-2	Methylene Chloride	0.00068	0.0027	mg/kg	CFSB-050	3 / 73	0.00023 - 0.0003	0.0027	NA	0.0027	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	0.00015	0.0051	mg/kg	CFSB-066	20 / 73	0.00011 - 0.00013	0.0051	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-42-5	Styrene	0.0003	0.0003	mg/kg	CFSB-066	1 / 73	0.00011 - 0.00014	0.0003	NA	0.13	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 73	0.00012 - 0.00012	ND	NA	0.0032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	0.00032	0.00033	mg/kg	CFSB-082	2 / 73	0.0002 - 0.00026	0.00033	NA	0.0018	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00016	0.012	mg/kg	CFSB-066	58 / 73	0.00014 - 0.00014	0.012	NA	0.076	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table 2-2

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area Soil
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 73	0.00028 - 0.00028	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 73	7.2e-005 - 7.2e-005	ND	NA	No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 73	0.00019 - 0.00019	ND	NA	0.0001	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 73	0.00024 - 0.00024	ND	NA	3.30E-01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 73	0.00028 - 0.00028	ND	NA	6.50E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-3
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Main Plant Area Soil
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.01E-06	0.000111	mg/kg	CFSB-082	11 / 13	2.3e-008 - 3.9e-008	0.000111	NA	No Screening Level	N	NSL
	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	4.80E-07	2.69E-05	mg/kg	CFMW-040	11 / 13	2.3e-008 - 2.7e-008	2.69E-05	NA	No Screening Level	N	NSL
	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	7.80E-08	1.77E-06	mg/kg	CFSB-074	5 / 13	2.8e-008 - 3.4e-008	1.77E-06	NA	No Screening Level	N	NSL
	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	5.70E-08	3.42E-06	mg/kg	CFMW-040	8 / 13	2.5e-008 - 3e-008	3.42E-06	NA	No Screening Level	N	NSL
	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	1.40E-07	3.07E-06	mg/kg	CFSB-082	8 / 13	2.3e-008 - 2.7e-008	3.07E-06	NA	No Screening Level	N	NSL
	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	1.20E-07	5.07E-06	mg/kg	CFMW-040	11 / 13	2.3e-008 - 2.9e-008	5.07E-06	NA	No Screening Level	N	NSL
	57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	4.40E-08	1.05E-06	mg/kg	CFSB-073	10 / 13	2.2e-008 - 2.1e-007	1.05E-06	NA	No Screening Level	N	NSL
	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	1.10E-07	4.60E-06	mg/kg	CFMW-040	11 / 13	2e-008 - 2.6e-008	4.60E-06	NA	No Screening Level	N	NSL
	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	ND	ND	ND	ND	0 / 13	2.4e-008 - 2.4e-008	ND	NA	No Screening Level	N	BSL-ND
	40321-76-4	1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	2.60E-07	1.21E-06	mg/kg	CFMW-040	3 / 13	3.5e-008 - 5.9e-008	1.21E-06	NA	No Screening Level	N	NSL
	57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	2.90E-07	1.59E-06	mg/kg	CFMW-040	6 / 13	2.8e-008 - 5.8e-008	1.59E-06	NA	No Screening Level	N	NSL
	60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	2.80E-07	1.70E-06	mg/kg	CFSB-082	6 / 13	2.3e-008 - 3.7e-008	1.70E-06	NA	No Screening Level	N	NSL
	57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	2.90E-07	1.71E-06	mg/kg	CFMW-040	6 / 13	2.9e-008 - 6e-008	1.71E-06	NA	No Screening Level	N	NSL
	1746-01-6	2,3,7,8-Tetrachlorodibenzo-P-Dioxin	1.40E-07	5.80E-07	mg/kg	CFMW-040	3 / 13	2.2e-008 - 3.8e-008	5.80E-07	NA	5.90E-08 USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	8.90E-08	5.26E-06	mg/kg	CFMW-040	10 / 13	1.9e-008 - 2.3e-008	5.26E-06	NA	No Screening Level	N	NSL
	37871-00-4	Heptachlorodibenzo-p-dioxins (HpCDD), Total	5.30E-07	0.0002	mg/kg	CFSB-082	13 / 13	2.3e-008 - 2.3e-008	0.0002	NA	No Screening Level	N	NSL
	38998-75-3	Heptachlorodibenzofurans	2.60E-07	0.0000873	mg/kg	CFMW-040	13 / 13	2.6e-008 - 2.6e-008	0.0000873	NA	No Screening Level	N	NSL
	34465-46-8	Hexachlorodibenzo-P-Dioxin	6.20E-08	3.98E-05	mg/kg	CFMW-040	13 / 13	2.3e-008 - 2.3e-008	3.98E-05	NA	1.70E-05 USEPA RSL RBSSL (THQ=0.1, c	N	ASL-SSLOnly
	55684-94-1	Hexachlorodibenzofuran	4.40E-08	0.0000518	mg/kg	CFSB-082	13 / 13	2.3e-008 - 2.3e-008	0.0000518	NA	No Screening Level	N	NSL
	3268-87-9	Octachlorodibenzo-P-Dioxin	2.12E-05	0.00173	mg/kg	CFSB-082	11 / 13	2.2e-008 - 4.5e-008	0.00173	NA	No Screening Level	N	NSL
	39001-02-0	Octachlorodibenzofuran	1.99E-06	9.72E-05	mg/kg	CFMW-040	11 / 13	2.1e-008 - 2.5e-008	9.72E-05	NA	No Screening Level	N	NSL
	PECDD	Pentachlorinated Dibenzo-P-Dioxins, (Total)	7.90E-07	4.67E-06	mg/kg	CFMW-040	3 / 13	3.5e-008 - 5.9e-008	4.67E-06	NA	No Screening Level	N	NSL
	30402-15-4	Pentachloro Dibenzofuran	1.40E-07	1.25E-05	mg/kg	CFMW-040	11 / 13	2.9e-008 - 3.1e-008	1.25E-05	NA	No Screening Level	N	NSL
	TCDF	Tetrachlorinated Dibenzofurans, (Total)	4.70E-08	2.41E-05	mg/kg	CFMW-040	12 / 13	1.9e-008 - 2.3e-008	2.41E-05	NA	No Screening Level	N	NSL
	41903-57-5	Tetrachlorodibenzo-P-Dioxin	3.20E-08	5.61E-06	mg/kg	CFMW-040	8 / 13	2.2e-008 - 2.9e-008	5.61E-06	NA	No Screening Level	N	NSL
	57-12-5	Cyanide	0.018	0.87	mg/kg	CFMW-042	61 / 63	0.014 - 0.015	0.87	NA	0.0015 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	4.25	571	mg/kg	CFSB-066	63 / 63	0.19 - 0.19	571	NA	12 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	TOC	Total Organic Carbon	21500	47000	mg/kg	CFMW-053A	6 / 6	77.2 - 77.2	47000	NA	No Screening Level	N	NSL
	7429-90-5	Aluminum	5610	51200	mg/kg	CFMW-037	63 / 63	5.7 - 5.7	51200	25941	3000 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.35	0.57	mg/kg	CFSB-042	5 / 63	0.28 - 0.33	0.57	0.4	0.035 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-38-2	Arsenic	2.1	7.6	mg/kg	CFSB-099	63 / 63	0.28 - 0.28	7.6	22.5	0.0015 USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	40.3	376	mg/kg	CFMW-042	63 / 63	0.51 - 0.51	376	429	16 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.21	0.96	mg/kg	CFSB-055	63 / 63	0.086 - 0.086	0.96	1.1	1.9 USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.29	1.7	mg/kg	CFSB-066	11 / 63	0.24 - 0.25	1.7	0.7	0.069 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	1940	65300	mg/kg	CFSB-094	63 / 63	27.9 - 27.9	65300	NA	No Screening Level	N	NSL
	7440-47-3	Chromium, Total	5.3	74.2	mg/kg	CFSB-046	63 / 63	0.53 - 0.53	74.2	NA	No Screening Level	N	NSL
	7440-48-4	Cobalt	2.8	7.8	mg/kg	CFSB-066	63 / 63	0.53 - 0.53	7.8	10	0.027 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	5.7	26.7	mg/kg	CFMW-035	63 / 63	0.52 - 0.52	26.7	165	2.8 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	6170	20500	mg/kg	CFMW-035	63 / 63	16.7 - 16.7	20500	24400	35 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	4.1	184	mg/kg	CFMW-040	77 / 77	0.16 - 0.16	184	29.8	400 USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	3030	27500	mg/kg	CFSB-071	63 / 63	26.7 - 26.7	27500	NA	No Screening Level	N	NSL
	7439-96-5	Manganese	173	1270	mg/kg	CFMW-053A	63 / 63	1.1 - 1.1	1270	880	2.8 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)

Preliminary, Draft Data under EPA Review

Table 2-3
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Main Plant Area Soil
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	7439-97-6	Mercury	0.012	0.069	mg/kg	CFSB-065	57 / 63	0.011 - 0.013	0.069	NC	0.0033 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
Soil	7440-02-0	Nickel	6.3	140	mg/kg	CFSB-066	63 / 63	0.54 - 0.54	140	31.4	2.6 USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	388	1530	mg/kg	CFMW-026	63 / 63	26.2 - 26.2	1530	NA	No Screening Level	N	NSL
	7782-49-2	Selenium	0.41	0.66	mg/kg	CFSB-099	5 / 63	0.26 - 0.31	0.66	0.1	0.052 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	0.96	1.5	mg/kg	CFMW-035	2 / 63	0.55 - 0.8	1.5	0.3	0.08 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	31.3	1590	mg/kg	CFSB-066	47 / 63	29.9 - 31.3	1590	NA	No Screening Level	N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 63	0.11 - 0.11	ND	0.41	0.0014 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	6	31.6	mg/kg	CFMW-042	63 / 63	0.6 - 0.6	31.6	52.6	8.6 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	22.2	238	mg/kg	CFMW-026	63 / 63	1.9 - 1.9	238	118	37 USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 23	0.00087 - 0.00087	ND	NA	1.50E-04 USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 23	0.00066 - 0.00066	ND	NA	4.20E-05 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 23	0.001 - 0.001	ND	NA	No Screening Level	N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 23	0.0007 - 0.0007	ND	NA	0.00015 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 23	0.0011 - 0.0011	ND	NA	No Screening Level	N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 23	0.0012 - 0.0012	ND	NA	No Screening Level	N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 23	0.00078 - 0.00078	ND	NA	No Screening Level	N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 23	0.00094 - 0.00094	ND	NA	7.10E-05 USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 23	0.00084 - 0.00084	ND	NA	No Screening Level	N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 23	0.00091 - 0.00091	ND	NA	0.0092 USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 23	0.00089 - 0.00089	ND	NA	No Screening Level	N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 23	0.001 - 0.001	ND	NA	No Screening Level	N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 23	0.00065 - 0.00065	ND	NA	0.00024 USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 23	0.00092 - 0.00092	ND	NA	1.20E-04 USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 23	0.0014 - 0.0014	ND	NA	2.80E-05 USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 23	0.0015 - 0.0015	ND	NA	0.2 USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 23	0.00095 - 0.00095	ND	NA	0.0075 USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 23	0.001 - 0.001	ND	NA	0.011 USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 23	0.00074 - 0.00074	ND	NA	0.077 USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 23	0.021 - 0.021	ND	NA	0.011 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 23	0.0016 - 0.0016	ND	NA	No Screening Level	N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	1.30E-02 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	8.00E-05 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	8.00E-05 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	0.0012 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 63	0.0093 - 0.0093	ND	NA	0.0012 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	0.002 USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	0.0055 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	No Screening Level	N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	No Screening Level	N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 63	0.0096 - 0.0096	ND	NA	No Screening Level	N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 63	0.026 - 0.026	ND	NA	7.90E-04 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 63	0.092 - 0.092	ND	NA	9.40E-05 USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND

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Table 2-3
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Main Plant Area Soil
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 63	0.032 - 0.032	ND	NA	0.018 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 63	0.034 - 0.034	ND	NA	0.4 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
Soil	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 63	0.0098 - 0.0098	ND	NA	0.0012 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 63	0.0081 - 0.0081	ND	NA	0.0023 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 63	0.076 - 0.076	ND	NA	0.042 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 63	0.26 - 0.26	ND	NA	0.0044 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 63	0.014 - 0.014	ND	NA	3.20E-04 USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 63	0.018 - 0.018	ND	NA	6.70E-05 USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 63	0.0078 - 0.0078	ND	NA	0.39 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 63	0.0087 - 0.0087	ND	NA	0.0089 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.008	1.7	mg/kg	CFSB-044	31 / 63	0.0076 - 0.0076	1.7	NA	0.019 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 63	0.015 - 0.015	ND	NA	0.075 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	0.008 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 63	0.012 - 0.012	ND	NA	No Screening Level	N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 63	0.038 - 0.038	ND	NA	0.00082 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.036	0.036	mg/kg	CFMW-050	1 / 63	0.0092 - 0.011	0.036	NA	No Screening Level	N	LDF
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 63	0.01 - 0.01	ND	NA	No Screening Level	N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 63	0.092 - 0.092	ND	NA	0.00026 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	No Screening Level	N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 63	0.015 - 0.015	ND	NA	0.17 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 63	0.0088 - 0.0088	ND	NA	0.00016 USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 63	0.01 - 0.01	ND	NA	No Screening Level	N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 63	0.013 - 0.013	ND	NA	0.0016 USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 63	0.17 - 0.17	ND	NA	No Screening Level	N	BSL-ND
	83-32-9	Acenaphthene	0.0095	15	mg/kg	CFSB-040	50 / 63	0.0083 - 0.0084	15	NA	0.55 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.01	0.039	mg/kg	CFMW-045A	6 / 63	0.0088 - 0.0092	0.039	NA	No Screening Level	N	NSL
	98-86-2	Acetophenone	0.0079	0.046	mg/kg	CFSB-066	2 / 63	0.0075 - 0.0078	0.046	NA	0.058 USEPA RSL RBSSL (THQ=0.1, n	N	LDF
	120-12-7	Anthracene	0.038	22	mg/kg	CFSB-040	45 / 63	0.033 - 0.033	22	NA	5.8 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 63	0.015 - 0.015	ND	NA	0.0002 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.031	0.093	mg/kg	CFMW-044A	3 / 63	0.026 - 0.028	0.093	NA	0.0041 USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.043	110	mg/kg	CFSB-040	59 / 63	0.029 - 0.031	110	NA	0.011 USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.033	130	mg/kg	CFSB-040	61 / 63	0.01 - 0.012	130	NA	0.018 USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.028	150	mg/kg	CFSB-040	62 / 63	0.013 - 0.016	150	NA	0.18 USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.032	99	mg/kg	CFSB-040	62 / 63	0.02 - 0.023	99	NA	No Screening Level	N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.016	68	mg/kg	CFSB-040	59 / 63	0.015 - 0.016	68	NA	1.8 USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.016	5.6	mg/kg	CFMW-037	19 / 63	0.011 - 0.011	5.6	NA	0.24 USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.034	0.034	mg/kg	CFSB-050	1 / 63	0.029 - 0.031	0.034	NA	0.00087 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	1.30E-03 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 63	0.0081 - 0.0081	ND	NA	3.60E-06 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 63	0.014 - 0.014	ND	NA	0.026 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.016	5.8	mg/kg	CFMW-050	28 / 63	0.013 - 0.014	5.8	NA	1.3 USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 63	0.025 - 0.025	ND	NA	0.25 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND

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Table 2-3
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Main Plant Area Soil
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	86-74-8	Carbazole	0.011	17	mg/kg	CFSB-040	55 / 63	0.0085 - 0.0088	17	NA	No Screening Level	N	NSL
	218-01-9	Chrysene	0.022	130	mg/kg	CFSB-040	62 / 63	0.0094 - 0.011	130	NA	9 USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.013	0.085	mg/kg	CFSB-094	12 / 63	0.01 - 0.011	0.085	NA	0.23 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
Soil	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 63	0.017 - 0.017	ND	NA	5.7 USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.023	28	mg/kg	CFSB-040	53 / 63	0.018 - 0.019	28	NA	0.096 USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.012	4.8	mg/kg	CFSB-040	39 / 63	0.01 - 0.01	4.8	NA	0.015 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 63	0.0098 - 0.0098	ND	NA	0.61 USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 63	0.01 - 0.01	ND	NA	No Screening Level	N	BSL-ND
	206-44-0	Fluoranthene	0.038	170	mg/kg	CFSB-040	62 / 63	0.01 - 0.012	170	NA	8.9 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.0085	10	mg/kg	CFSB-040	46 / 63	0.0075 - 0.0075	10	NA	0.54 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 63	0.014 - 0.014	ND	NA	0.00012 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 63	0.0097 - 0.0097	ND	NA	0.00027 USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 63	0.021 - 0.021	ND	NA	0.00013 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 63	0.013 - 0.013	ND	NA	0.0002 USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.028	100	mg/kg	CFSB-040	62 / 63	0.023 - 0.027	100	NA	0.98 USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.013	0.076	mg/kg	CFSB-045	5 / 63	0.0074 - 0.0079	0.076	NA	2.60E-02 USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 63	0.012 - 0.012	ND	NA	8.10E-06 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 63	0.031 - 0.031	ND	NA	0.067 USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.009	4	mg/kg	CFSB-044	41 / 63	0.0087 - 0.0088	4	NA	5.40E-04 USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	9.20E-05 USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	0.3	0.53	mg/kg	CFSB-059	3 / 63	0.042 - 0.043	0.53	NA	5.70E-05 USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	85-01-8	Phenanthrene	0.022	120	mg/kg	CFSB-040	62 / 63	0.0092 - 0.011	120	NA	No Screening Level	N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 63	0.011 - 0.011	ND	NA	0.33 USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	129-00-0	Pyrene	0.043	220	mg/kg	CFSB-040	62 / 63	0.016 - 0.018	220	NA	1.3 USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.

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Table 2-3
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Main Plant Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Main Plant Area Soil
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)

ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-4

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.19	137	mg/kg	CFSB-026	8 / 8	0.017 - 0.017	137	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	33.6	241	mg/kg	CFSB-016	8 / 8	0.22 - 0.22	241	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	10300	106000	mg/kg	CFSB-026	8 / 8	6.5 - 6.5	106000	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	1.1	2.6	mg/kg	CFSB-025	2 / 8	0.36 - 0.58	2.6	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-38-2	Arsenic	5.7	22.7	mg/kg	CFSB-026	8 / 8	0.39 - 0.39	22.7	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	82.9	461	mg/kg	CFSB-026	8 / 8	0.58 - 0.58	461	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.36	17.2	mg/kg	CFSB-026	8 / 8	0.11 - 0.11	17.2	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-43-9	Cadmium	0.68	8.3	mg/kg	CFSB-026	7 / 8	0.27 - 0.3	8.3	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	2630	68600	mg/kg	CFSB-026	8 / 8	31.5 - 31.5	68600	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	11.4	47.5	mg/kg	CFSB-026	8 / 8	0.68 - 0.68	47.5	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	4.6	27.4	mg/kg	CFSB-025	8 / 8	0.68 - 0.68	27.4	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	6.7	59.4	mg/kg	CFSB-016	8 / 8	0.59 - 0.59	59.4	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	6400	15400	mg/kg	CFSB-016	8 / 8	22.8 - 22.8	15400	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	8.3	238	mg/kg	CFSB-026	8 / 8	0.19 - 0.19	238	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	1560	11800	mg/kg	CFSB-028	8 / 8	31.6 - 31.6	11800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	15.8	479	mg/kg	CFSB-030	8 / 8	1.4 - 1.4	479	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.016	0.04	mg/kg	CFSB-016	5 / 8	0.013 - 0.015	0.04	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	17.9	1250	mg/kg	CFSB-025	8 / 8	0.69 - 0.69	1250	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	559	1900	mg/kg	CFSB-030	8 / 8	29.9 - 29.9	1900	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.71	3.3	mg/kg	CFSB-025	5 / 8	0.34 - 0.37	3.3	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 8	0.66 - 0.66	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	67.6	2140	mg/kg	CFSB-025	2 / 8	33.8 - 36.7	2140	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.25	4.6	mg/kg	CFSB-026	7 / 8	0.14 - 0.18	4.6	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-DC Only
	7440-62-2	Vanadium	13.3	348	mg/kg	CFSB-025	8 / 8	0.68 - 0.68	348	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	42.2	265	mg/kg	CFSB-016	8 / 8	2.1 - 2.1	265	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 6	0.00092 - 0.00092	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00069 - 0.00069	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00074 - 0.00074	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00083 - 0.00083	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 6	0.00099 - 0.00099	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 6	0.00088 - 0.00088	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 6	0.00096 - 0.00096	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 6	0.00094 - 0.00094	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND

Preliminary - Under EPA and MDEQ Review

Table 2-4
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 6	0.00068 - 0.00068	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 6	0.00098 - 0.00098	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 6	0.0015 - 0.0015	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 6	0.00078 - 0.00078	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 6	0.022 - 0.022	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 8	0.0095 - 0.0095	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 8	0.0095 - 0.0095	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 8	0.0095 - 0.0095	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 8	0.0095 - 0.0095	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 8	0.0095 - 0.0095	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 8	0.029 - 0.029	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 8	0.1 - 0.1	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 8	0.037 - 0.037	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 8	0.039 - 0.039	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 8	0.0092 - 0.0092	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 8	0.085 - 0.085	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 8	0.29 - 0.29	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 8	0.015 - 0.015	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 8	0.021 - 0.021	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 8	0.0088 - 0.0088	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.017	3.2	mg/kg	CFSB-026	8 / 8	0.0086 - 0.0086	3.2	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 8	0.017 - 0.017	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 8	0.013 - 0.013	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 8	0.013 - 0.013	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 8	0.043 - 0.043	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 8	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND

Preliminary - Under EPA MDEQ Review

Table 2-4
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 8	0.1 - 0.1	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 8	0.017 - 0.017	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 8	0.01 - 0.01	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 8	0.015 - 0.015	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 8	0.19 - 0.19	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.031	8.4	mg/kg	CFSB-026	8 / 8	0.0094 - 0.0094	8.4	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.033	0.033	mg/kg	CFSB-019	1 / 8	0.01 - 0.01	0.033	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.011	0.011	mg/kg	CFSB-019	1 / 8	0.0085 - 0.0088	0.011	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	120-12-7	Anthracene	0.049	38	mg/kg	CFSB-025	8 / 8	0.037 - 0.037	38	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 8	0.017 - 0.017	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 8	0.03 - 0.03	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	1.7	190	mg/kg	CFSB-025	7 / 8	0.032 - 0.034	190	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	2	140	mg/kg	CFSB-025	7 / 8	0.012 - 0.012	140	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	6.8	210	mg/kg	CFSB-025	7 / 8	0.015 - 0.016	210	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	2.2	56	mg/kg	CFSB-026	7 / 8	0.022 - 0.023	56	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	2.4	78	mg/kg	CFSB-025	7 / 8	0.017 - 0.018	78	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.55	0.55	mg/kg	CFSB-028	1 / 8	0.012 - 0.023	0.55	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.072	0.072	mg/kg	CFSB-019	1 / 8	0.033 - 0.034	0.072	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 8	0.0092 - 0.0092	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 8	0.016 - 0.016	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.17	0.17	mg/kg	CFSB-028	1 / 8	0.015 - 0.029	0.17	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 8	0.028 - 0.028	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.11	8.2	mg/kg	CFSB-025	7 / 8	0.0096 - 0.01	8.2	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	2.3	270	mg/kg	CFSB-025	7 / 8	0.011 - 0.011	270	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 8	0.02 - 0.02	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.61	20	mg/kg	CFSB-025	7 / 8	0.02 - 0.021	20	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.041	4.1	mg/kg	CFSB-026	8 / 8	0.012 - 0.012	4.1	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.029	320	mg/kg	CFSB-025	8 / 8	0.012 - 0.012	320	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.012	8.1	mg/kg	CFSB-026	8 / 8	0.0085 - 0.0085	8.1	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 8	0.016 - 0.016	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Preliminary - Under EPA/MDEQ Review

Table 2-4

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 8	0.024 - 0.024	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 8	0.014 - 0.014	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	2.7	63	mg/kg	CFSB-025	7 / 8	0.026 - 0.027	63	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 8	0.0083 - 0.0083	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 8	0.013 - 0.013	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 8	0.035 - 0.035	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.042	3.8	mg/kg	CFSB-025	8 / 8	0.0099 - 0.0099	3.8	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 8	0.047 - 0.047	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.51	86	mg/kg	CFSB-026	8 / 8	0.01 - 0.01	86	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 8	0.013 - 0.013	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	129-00-0	Pyrene	0.058	300	mg/kg	CFSB-026	8 / 8	0.018 - 0.018	300	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk
USEPA = US Environmental Protection Agency

RSL = Regional Screening Level

MDEQ = Montana Department of Environmental Quality
(1) Maximum detection value

(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})

USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level

MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.

c = carcinogenic basis

n = non-carcinogenic basis
dc - direct contact

(3) COPC Flag

Y = Yes

N = No

(4) Rationale for Selection or Deletion

BSL - Detections and Detection Limits Below Screening Level

BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.

ASL = Detections Above Screening Level

ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.

ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded

ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level

LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set

Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA

NSL = no screening level available

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Table 2-5

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.078	137	mg/kg	CFSB-026	17 / 17	0.017 - 0.017	137	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	7.98	258	mg/kg	CFSB-026	17 / 17	0.2 - 0.2	258	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	7930	121000	mg/kg	CFSB-025	17 / 17	6.5 - 6.5	121000	25943	3000	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-DC Only
	7440-36-0	Antimony	0.68	2.6	mg/kg	CFSB-025	3 / 17	0.36 - 0.58	2.6	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-38-2	Arsenic	3.8	22.7	mg/kg	CFSB-026	17 / 17	0.39 - 0.39	22.7	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	78.3	461	mg/kg	CFSB-026	17 / 17	0.58 - 0.58	461	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.36	17.2	mg/kg	CFSB-026	17 / 17	0.11 - 0.11	17.2	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-43-9	Cadmium	0.29	8.3	mg/kg	CFSB-026	14 / 17	0.27 - 0.28	8.3	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	2390	75600	mg/kg	CFSB-026	17 / 17	31.5 - 31.5	75600	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	9.5	47.5	mg/kg	CFSB-026	17 / 17	0.68 - 0.68	47.5	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	4.5	27.4	mg/kg	CFSB-025	17 / 17	0.68 - 0.68	27.4	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	6.7	202	mg/kg	CFSB-019	17 / 17	0.59 - 0.59	202	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	4870	23600	mg/kg	CFSB-016	17 / 17	22.8 - 22.8	23600	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	7.5	238	mg/kg	CFSB-026	17 / 17	0.19 - 0.19	238	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	1560	21800	mg/kg	CFSB-016	17 / 17	31.6 - 31.6	21800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	15.8	762	mg/kg	CFSB-028	17 / 17	1.4 - 1.4	762	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.016	0.04	mg/kg	CFSB-016	9 / 17	0.012 - 0.012	0.04	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	12.5	1250	mg/kg	CFSB-025	17 / 17	0.69 - 0.69	1250	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	559	1900	mg/kg	CFSB-030	17 / 17	29.9 - 29.9	1900	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.64	3.3	mg/kg	CFSB-025	9 / 17	0.34 - 0.34	3.3	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	0.7	0.7	mg/kg	CFSB-030	1 / 17	0.66 - 0.67	0.7	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	38.1	2140	mg/kg	CFSB-025	16 / 17	33.8 - 34.2	2140	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.14	4.6	mg/kg	CFSB-026	15 / 17	0.14 - 0.14	4.6	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-DC Only
	7440-62-2	Vanadium	11	348	mg/kg	CFSB-025	17 / 17	0.68 - 0.68	348	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	34.3	281	mg/kg	CFSB-026	17 / 17	2.1 - 2.1	281	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 6	0.00092 - 0.00092	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00069 - 0.00069	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00074 - 0.00074	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00083 - 0.00083	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 6	0.00099 - 0.00099	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 6	0.00088 - 0.00088	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 6	0.00096 - 0.00096	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 6	0.00094 - 0.00094	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 6	0.00068 - 0.00068	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 6	0.00098 - 0.00098	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table 2-5

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 6	0.0015 - 0.0015	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 6	0.00078 - 0.00078	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 6	0.022 - 0.022	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 17	0.0095 - 0.0095	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 17	0.0095 - 0.0095	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 17	0.0095 - 0.0095	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 17	0.0095 - 0.0095	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 17	0.0095 - 0.0095	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 17	0.0099 - 0.0099	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 17	0.0099 - 0.0099	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 17	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 17	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 17	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 17	0.027 - 0.027	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 17	0.096 - 0.096	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 17	0.034 - 0.034	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 17	0.036 - 0.036	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 17	0.01 - 0.01	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 17	0.0084 - 0.0084	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 17	0.079 - 0.079	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 17	0.27 - 0.27	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 17	0.014 - 0.014	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 17	0.019 - 0.019	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 17	0.0081 - 0.0081	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 17	0.0091 - 0.0091	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.017	4.2	mg/kg	CFSB-026	15 / 17	0.0079 - 0.0086	4.2	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 17	0.016 - 0.016	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 17	0.012 - 0.012	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 17	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 17	0.04 - 0.04	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 17	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 17	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 17	0.096 - 0.096	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 17	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 17	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND

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Table 2-5

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 17	0.0092 - 0.0092	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 17	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 17	0.014 - 0.014	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 17	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.031	16	mg/kg	CFSB-026	16 / 17	0.0087 - 0.0094	16	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.033	0.033	mg/kg	CFSB-019	1 / 17	0.0092 - 0.01	0.033	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.011	0.011	mg/kg	CFSB-019	1 / 17	0.0078 - 0.0085	0.011	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	120-12-7	Anthracene	0.049	110	mg/kg	CFSB-025	16 / 17	0.034 - 0.037	110	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 17	0.016 - 0.016	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 17	0.027 - 0.027	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	1.7	260	mg/kg	CFSB-025	15 / 17	0.03 - 0.033	260	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	2	170	mg/kg	CFSB-025	15 / 17	0.011 - 0.012	170	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	6.8	330	mg/kg	CFSB-025	15 / 17	0.014 - 0.016	330	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	2.2	140	mg/kg	CFSB-025	15 / 17	0.021 - 0.023	140	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	2.4	110	mg/kg	CFSB-025	15 / 17	0.016 - 0.017	110	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.55	0.55	mg/kg	CFSB-028	1 / 17	0.011 - 0.023	0.55	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.072	0.072	mg/kg	CFSB-019	1 / 17	0.031 - 0.033	0.072	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 17	0.011 - 0.011	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 17	0.0084 - 0.0084	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 17	0.015 - 0.015	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.17	5.9	mg/kg	CFSB-025	3 / 17	0.014 - 0.029	5.9	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 17	0.026 - 0.026	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.11	12	mg/kg	CFSB-026	15 / 17	0.0089 - 0.0099	12	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.011	500	mg/kg	CFSB-025	16 / 17	0.0097 - 0.011	500	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 17	0.011 - 0.011	ND	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 17	0.018 - 0.018	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.61	42	mg/kg	CFSB-025	15 / 17	0.019 - 0.021	42	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.041	8.8	mg/kg	CFSB-026	16 / 17	0.011 - 0.012	8.8	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	2.3	2.3	mg/kg	CFSB-019	2 / 17	0.01 - 0.21	2.3	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 17	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.029	1400	mg/kg	CFSB-025	16 / 17	0.011 - 0.012	1400	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.012	22	mg/kg	CFSB-025	16 / 17	0.0078 - 0.0085	22	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 17	0.015 - 0.015	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 17	0.01 - 0.01	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 17	0.022 - 0.022	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 17	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	2.7	140	mg/kg	CFSB-025	15 / 17	0.024 - 0.027	140	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 17	0.0077 - 0.0077	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 17	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

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Table 2-5

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 17	0.032 - 0.032	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.042	3.8	mg/kg	CFSB-025	16 / 17	0.0091 - 0.0099	3.8	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 17	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 17	0.043 - 0.043	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.51	440	mg/kg	CFSB-025	16 / 17	0.0095 - 0.01	440	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.26	0.26	mg/kg	CFSB-030	1 / 17	0.012 - 0.062	0.26	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	129-00-0	Pyrene	0.058	1200	mg/kg	CFSB-025	16 / 17	0.016 - 0.018	1200	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 9	0.00038 - 0.00038	ND	NA	0.28	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 9	0.00017 - 0.00017	ND	NA	3.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 9	0.00044 - 0.00044	ND	NA	2.6	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 9	0.00028 - 0.00028	ND	NA	1.30E-05	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 9	0.00034 - 0.00034	ND	NA	0.00078	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 9	0.00041 - 0.00041	ND	NA	0.01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 9	0.00011 - 0.00011	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 9	0.00032 - 0.00032	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 9	0.00047 - 0.00047	ND	NA	1.40E-07	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 9	0.00012 - 0.00012	ND	NA	2.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 9	0.00014 - 0.00014	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 9	0.00011 - 0.00011	ND	NA	4.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 9	0.00017 - 0.00017	ND	NA	4.70E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 9	0.00012 - 0.00012	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 9	0.00013 - 0.00013	ND	NA	0.00046	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	0.0024	0.0024	mg/kg	CFSB-016	1 / 9	0.00095 - 0.0016	0.0024	NA	0.00088	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	67-64-1	Acetone	0.0088	0.31	mg/kg	CFSB-026	9 / 9	0.0011 - 0.0011	0.31	NA	0.29	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	71-43-2	Benzene	0.00043	0.0031	mg/kg	CFSB-027	5 / 9	0.0002 - 0.00024	0.0031	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 9	0.00017 - 0.00017	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 9	0.00038 - 0.00038	ND	NA	3.60E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 9	0.00013 - 0.00013	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 9	0.00032 - 0.00032	ND	NA	0.00019	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	0.0033	0.0059	mg/kg	CFSB-030	5 / 9	0.00043 - 0.00047	0.0059	NA	0.024	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 9	0.00043 - 0.00043	ND	NA	0.00018	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 9	0.00014 - 0.00014	ND	NA	0.0053	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 9	0.00035 - 0.00035	ND	NA	0.59	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 9	0.00021 - 0.00021	ND	NA	6.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 9	0.00038 - 0.00038	ND	NA	0.0049	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 9	0.00022 - 0.00022	ND	NA	0.0011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 9	0.00015 - 0.00015	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	0.0026	0.0086	mg/kg	CFSB-027	4 / 9	0.00046 - 0.00054	0.0086	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 9	0.00015 - 0.00015	ND	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table 2-5

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 9	0.00032 - 0.00032	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	0.0013	0.0038	mg/kg	CFSB-027	4 / 9	0.00018 - 0.00021	0.0038	NA	0.0017	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	98-82-8	Isopropylbenzene (Cumene)	0.0002	0.00052	mg/kg	CFSB-027	2 / 9	0.00017 - 0.0002	0.00052	NA	0.074	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	0.00031	0.0091	mg/kg	CFSB-027	5 / 9	0.00011 - 0.00013	0.0091	NA	No Screening Level		N	NSL
	79-20-9	Methyl Acetate	0.0022	0.0054	mg/kg	CFSB-016	4 / 9	0.00091 - 0.0011	0.0054	NA	0.41	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.002	0.041	mg/kg	CFSB-026	6 / 9	0.00077 - 0.00084	0.041	NA	0.12	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 9	0.0022 - 0.0022	ND	NA	0.14	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.0052	0.015	mg/kg	CFSB-027	4 / 9	0.0005 - 0.00058	0.015	NA	No Screening Level		N	NSL
	75-09-2	Methylene Chloride	0.002	0.004	mg/kg	CFSB-019	2 / 9	0.00032 - 0.00044	0.004	NA	0.0027	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	0.00094	0.0032	mg/kg	CFSB-027	4 / 9	0.00016 - 0.00019	0.0032	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 9	0.00015 - 0.00015	ND	NA	0.13	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 9	0.00017 - 0.00017	ND	NA	0.0032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 9	0.00023 - 0.00028	ND	NA	0.0018	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00033	0.013	mg/kg	CFSB-027	8 / 9	0.00019 - 0.00023	0.013	NA	0.076	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 9	0.00039 - 0.00039	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 9	0.0001 - 0.0001	ND	NA	No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 9	0.00026 - 0.00026	ND	NA	0.0001	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 9	0.00034 - 0.00034	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 9	0.00039 - 0.00039	ND	NA	6.50E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk

USEPA = US Environmental Protection Agency

RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set

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Table 2-5

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)

Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-6
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	57-12-5	Cyanide	0.02	137	mg/kg	CFSB-026	27 / 28	0.016 - 0.02	137	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	0.87	258	mg/kg	CFSB-026	28 / 28	0.19 - 0.19	258	NA	12	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	5340	121000	mg/kg	CFSB-025	28 / 28	5.9 - 5.9	121000	25941	3000	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-DC Only
	7440-36-0	Antimony	0.68	2.6	mg/kg	CFSB-025	3 / 28	0.33 - 0.58	2.6	0.4	0.035	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-38-2	Arsenic	1.3	22.7	mg/kg	CFSB-026	28 / 28	0.36 - 0.36	22.7	22.5	0.0015	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	22.7	461	mg/kg	CFSB-026	28 / 28	0.53 - 0.53	461	429	16	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.19	17.2	mg/kg	CFSB-026	28 / 28	0.1 - 0.1	17.2	1.1	1.9	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-43-9	Cadmium	0.29	8.3	mg/kg	CFSB-026	16 / 28	0.25 - 0.28	8.3	0.7	0.069	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	1370	120000	mg/kg	CFMW-027	28 / 28	28.7 - 28.7	120000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	5.9	47.5	mg/kg	CFSB-026	28 / 28	0.62 - 0.62	47.5	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	2.6	27.4	mg/kg	CFSB-025	28 / 28	0.62 - 0.62	27.4	10	0.027	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	4.3	202	mg/kg	CFSB-019	28 / 28	0.54 - 0.54	202	165	2.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	2920	23600	mg/kg	CFSB-016	28 / 28	20.8 - 20.8	23600	24400	35	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	2.2	238	mg/kg	CFSB-026	28 / 28	0.18 - 0.18	238	29.8	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	1090	21800	mg/kg	CFSB-016	28 / 28	28.8 - 28.8	21800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	15.8	762	mg/kg	CFSB-025	28 / 28	1.3 - 1.3	762	880	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.012	0.04	mg/kg	CFSB-016	14 / 28	0.012 - 0.012	0.04	NC	0.0033	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	6.2	1250	mg/kg	CFSB-025	28 / 28	0.63 - 0.63	1250	31.4	2.6	USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	266	1900	mg/kg	CFSB-030	28 / 28	27.2 - 27.2	1900	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.38	3.3	mg/kg	CFSB-025	12 / 28	0.31 - 0.34	3.3	0.7	0.052	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	0.7	0.7	mg/kg	CFSB-030	1 / 28	0.6 - 0.67	0.7	0.3	0.08	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	38.1	2140	mg/kg	CFSB-025	18 / 28	30.8 - 34.2	2140	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.14	4.6	mg/kg	CFSB-026	20 / 28	0.12 - 0.12	4.6	0.41	0.0014	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-DC Only
	7440-62-2	Vanadium	4.1	348	mg/kg	CFSB-025	28 / 28	0.62 - 0.62	348	52.6	8.6	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	19.8	281	mg/kg	CFSB-026	28 / 28	2 - 2	281	118	37	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 7	0.00092 - 0.00092	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 7	0.00069 - 0.00069	ND	NA	4.20E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 7	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 7	0.00074 - 0.00074	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 7	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 7	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 7	0.00083 - 0.00083	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 7	0.00099 - 0.00099	ND	NA	7.10E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 7	0.00088 - 0.00088	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 7	0.00096 - 0.00096	ND	NA	0.0092	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 7	0.00094 - 0.00094	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 7	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 7	0.00068 - 0.00068	ND	NA	0.00024	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 7	0.00098 - 0.00098	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND

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Table 2-6
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 7	0.0015 - 0.0015	ND	NA	2.80E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 7	0.0016 - 0.0016	ND	NA	0.2	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 7	0.001 - 0.001	ND	NA	0.0075	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 7	0.0011 - 0.0011	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 7	0.00078 - 0.00078	ND	NA	0.077	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 7	0.022 - 0.022	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 7	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 28	0.0093 - 0.0093	ND	NA	0.013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 28	0.0093 - 0.0093	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 28	0.0093 - 0.0093	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 28	0.0093 - 0.0093	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 28	0.0093 - 0.0093	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 28	0.0096 - 0.0096	ND	NA	0.002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 28	0.0096 - 0.0096	ND	NA	0.0055	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 28	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 28	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 28	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 28	0.026 - 0.026	ND	NA	0.00079	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 28	0.092 - 0.092	ND	NA	9.40E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 28	0.032 - 0.032	ND	NA	0.018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 28	0.034 - 0.034	ND	NA	0.4	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 28	0.0098 - 0.0098	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 28	0.0081 - 0.0081	ND	NA	0.0023	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 28	0.076 - 0.076	ND	NA	0.042	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 28	0.26 - 0.26	ND	NA	0.0044	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 28	0.014 - 0.014	ND	NA	0.00032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 28	0.018 - 0.018	ND	NA	6.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 28	0.0078 - 0.0078	ND	NA	0.39	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 28	0.0087 - 0.0087	ND	NA	0.0089	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.017	4.2	mg/kg	CFSB-026	20 / 28	0.0076 - 0.0078	4.2	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 28	0.015 - 0.015	ND	NA	0.075	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 28	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 28	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 28	0.038 - 0.038	ND	NA	0.00082	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 28	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 28	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 28	0.092 - 0.092	ND	NA	0.00026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 28	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 28	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND

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Table 2-6
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 28	0.0088 - 0.0088	ND	NA	0.00016	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 28	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 28	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 28	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.031	40	mg/kg	CFMW-027	21 / 28	0.0083 - 0.0086	40	NA	0.55	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.033	1.2	mg/kg	CFMW-027	2 / 28	0.0088 - 0.01	1.2	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.011	0.011	mg/kg	CFSB-019	1 / 28	0.0075 - 0.0085	0.011	NA	0.058	USEPA RSL RBSSL (THQ=0.1, n	N	LDF
	120-12-7	Anthracene	0.049	110	mg/kg	CFSB-025	21 / 28	0.033 - 0.034	110	NA	5.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 28	0.015 - 0.016	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 28	0.026 - 0.026	ND	NA	0.0041	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.036	280	mg/kg	CFMW-027	21 / 28	0.029 - 0.029	280	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.02	320	mg/kg	CFMW-027	21 / 28	0.01 - 0.011	320	NA	0.029	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.025	460	mg/kg	CFMW-027	22 / 28	0.013 - 0.014	460	NA	0.3	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	1.6	250	mg/kg	CFMW-027	20 / 28	0.02 - 0.02	250	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.017	150	mg/kg	CFMW-027	21 / 28	0.015 - 0.015	150	NA	2.9	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.55	0.55	mg/kg	CFSB-029	1 / 28	0.011 - 0.023	0.55	NA	0.24	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.072	0.072	mg/kg	CFSB-019	1 / 28	0.029 - 0.033	0.072	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 28	0.011 - 0.011	ND	NA	0.0013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 28	0.0081 - 0.0081	ND	NA	3.60E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 28	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.17	5.9	mg/kg	CFSB-025	3 / 28	0.013 - 0.029	5.9	NA	1.3	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 28	0.025 - 0.025	ND	NA	0.25	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.11	33	mg/kg	CFMW-027	20 / 28	0.0085 - 0.0088	33	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.011	500	mg/kg	CFSB-025	23 / 28	0.0094 - 0.0095	500	NA	9	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.052	0.052	mg/kg	CFSB-019	1 / 28	0.01 - 0.011	0.052	NA	0.23	USEPA RSL RBSSL (THQ=0.1, n	N	LDF
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 28	0.017 - 0.017	ND	NA	5.7	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.20	70	mg/kg	CFMW-027	20 / 28	0.018 - 0.018	70	NA	0.096	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.017	8.8	mg/kg	CFSB-026	21 / 28	0.01 - 0.011	8.8	NA	0.015	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	2.3	2.3	mg/kg	CFSB-019	2 / 28	0.0098 - 0.21	2.3	NA	0.61	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 28	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.014	1400	mg/kg	CFSB-025	23 / 28	0.01 - 0.01	1400	NA	8.9	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.012	22	mg/kg	CFSB-025	21 / 28	0.0075 - 0.0077	22	NA	0.54	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 28	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 28	0.0097 - 0.0097	ND	NA	0.00027	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 28	0.021 - 0.021	ND	NA	0.00013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 28	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	1.5	260	mg/kg	CFMW-027	20 / 28	0.023 - 0.024	260	NA	0.98	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 28	0.0074 - 0.0074	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 28	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND

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Table 2-6
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 28	0.031 - 0.031	ND	NA	0.067	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.023	6.5	mg/kg	CFMW-027	21 / 28	0.0087 - 0.009	6.5	NA	0.00054	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 28	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 28	0.042 - 0.042	ND	NA	5.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.054	440	mg/kg	CFSB-025	22 / 28	0.0092 - 0.0093	440	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.26	0.26	mg/kg	CFSB-030	1 / 28	0.011 - 0.062	0.26	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	LDF
	129-00-0	Pyrene	0.058	1200	mg/kg	CFSB-025	22 / 28	0.016 - 0.016	1200	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 19	0.00027 - 0.00027	ND	NA	0.28	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 19	0.00012 - 0.00012	ND	NA	3.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 19	0.00032 - 0.00032	ND	NA	2.6	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 19	0.0002 - 0.0002	ND	NA	1.30E-05	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 19	0.00024 - 0.00024	ND	NA	0.00078	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 19	0.00029 - 0.00029	ND	NA	0.01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 19	7.9e-005 - 7.9e-005	ND	NA	0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 19	0.00023 - 0.00023	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 19	0.00034 - 0.00034	ND	NA	1.40E-07	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 19	8.6e-005 - 8.6e-005	ND	NA	2.10E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 19	0.0001 - 0.0001	ND	NA	0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 19	7.9e-005 - 7.9e-005	ND	NA	4.80E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 19	0.00012 - 0.00012	ND	NA	4.70E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 19	8.6e-005 - 8.6e-005	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 19	9.3e-005 - 9.3e-005	ND	NA	0.00046	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	0.0024	0.0036	mg/kg	CFMW-027	2 / 19	0.00067 - 0.0012	0.0036	NA	0.00088	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	67-64-1	Acetone	0.0029	0.31	mg/kg	CFSB-026	19 / 19	0.00076 - 0.00076	0.31	NA	0.29	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	71-43-2	Benzene	0.00019	0.0031	mg/kg	CFSB-027	12 / 19	0.00014 - 0.00017	0.0031	NA	0.00023	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 19	0.00012 - 0.00012	ND	NA	0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 19	0.00027 - 0.00027	ND	NA	3.60E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 19	9.3e-005 - 9.3e-005	ND	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 19	0.00023 - 0.00023	ND	NA	0.00019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	0.00092	0.0059	mg/kg	CFSB-030	8 / 19	0.00031 - 0.00032	0.0059	NA	0.024	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 19	0.00031 - 0.00031	ND	NA	0.00018	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 19	0.0001 - 0.0001	ND	NA	0.0053	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 19	0.00025 - 0.00025	ND	NA	0.59	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 19	0.00015 - 0.00015	ND	NA	6.10E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 19	0.00027 - 0.00027	ND	NA	0.0049	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 19	0.00016 - 0.00016	ND	NA	0.0011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 19	0.00011 - 0.00011	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	0.00055	0.0086	mg/kg	CFSB-027	10 / 19	0.00033 - 0.0004	0.0086	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 19	0.00011 - 0.00011	ND	NA	0.00023	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND

Preliminary Under EPA and MDEQ Review

Table 2-6
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 19	0.00023 - 0.00023	ND	NA	0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	0.00018	0.0038	mg/kg	CFSB-027	10 / 19	0.00013 - 0.00016	0.0038	NA	0.0017	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	98-82-8	Isopropylbenzene (Cumene)	0.0002	0.00052	mg/kg	CFSB-027	2 / 19	0.00012 - 0.00017	0.00052	NA	0.074	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	0.00016	0.0091	mg/kg	CFSB-027	14 / 19	7.9e-005 - 0.00013	0.0091	NA	No Screening Level		N	NSL
	79-20-9	Methyl Acetate	0.0022	0.0065	mg/kg	CFMW-027	5 / 19	0.00064 - 0.0011	0.0065	NA	0.41	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.00087	0.041	mg/kg	CFSB-026	11 / 19	0.00055 - 0.00069	0.041	NA	0.12	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 19	0.0016 - 0.0016	ND	NA	0.14	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.00052	0.015	mg/kg	CFSB-027	12 / 19	0.00036 - 0.00058	0.015	NA	No Screening Level		N	NSL
	75-09-2	Methylene Chloride	0.002	0.004	mg/kg	CFSB-019	2 / 19	0.00023 - 0.00044	0.004	NA	0.0027	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	0.00019	0.0032	mg/kg	CFSB-027	11 / 19	0.00011 - 0.00015	0.0032	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 19	0.00011 - 0.00011	ND	NA	0.13	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 19	0.00012 - 0.00012	ND	NA	0.0032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 19	0.0002 - 0.0002	ND	NA	0.0018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00029	0.013	mg/kg	CFSB-027	18 / 19	0.00014 - 0.00023	0.013	NA	0.076	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 19	0.00028 - 0.00028	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 19	7.2e-005 - 7.2e-005	ND	NA	No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 19	0.00019 - 0.00019	ND	NA	0.0001	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 19	0.00024 - 0.00024	ND	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 19	0.00028 - 0.00028	ND	NA	6.50E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk

USEPA = US Environmental Protection Agency

RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set

Preliminary - Under EPA and DEQ Review

Table 2-6
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond Area
Exposure Medium: Surface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)

Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

Preliminary - Under EPA and MDEQ Review

Table 2-7
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Water North Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	57-12-5	Cyanide	D	ND	ND	ND	ND	0 / 1	2 - 2	ND	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	16984-48-8	Fluoride	D	21500	21500	µg/l	CFSWP-024	1 / 1	600 - 600	21500	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	57-12-5	Cyanide	T	7.6	7.6	µg/l	CFSWP-023	1 / 2	2 - 2	7.6	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	16984-48-8	Fluoride	T	2150	22400	µg/l	CFSWP-024	2 / 2	60 - 60	22400	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	D	4780	4780	µg/l	CFSWP-024	1 / 1	18.2 - 18.2	4780	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	D	7.2	7.2	µg/l	CFSWP-024	1 / 1	0.62 - 0.62	7.2	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-38-2	Arsenic	D	1	1	µg/l	CFSWP-024	1 / 1	0.64 - 0.64	1	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	D	26.4	26.4	µg/l	CFSWP-023	1 / 1	1.2 - 1.2	26.4	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	D	0.51	0.51	µg/l	CFSWP-024	1 / 1	0.24 - 0.24	0.51	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	2.5	2.5	µg/l	CFSWP-024	1 / 1	0.71 - 0.71	2.5	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-70-2	Calcium	D	7020	7020	µg/l	CFSWP-023	1 / 1	60.5 - 60.5	7020	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	D	ND	ND	ND	ND	0 / 1	1.3 - 1.3	ND	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	D	ND	ND	ND	ND	0 / 1	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	D	2	2	µg/l	CFSWP-024	1 / 1	1.4 - 1.4	2	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	ND	ND	ND	ND	0 / 1	42.4 - 42.4	ND	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	D	ND	ND	ND	ND	0 / 1	0.38 - 0.38	ND	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	D	384	384	µg/l	CFSWP-023	1 / 1	63.6 - 63.6	384	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	D	31.8	31.8	µg/l	CFSWP-024	1 / 1	2.5 - 2.5	31.8	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 1	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	D	22.1	22.1	µg/l	CFSWP-024	1 / 1	1.4 - 1.4	22.1	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	D	760	760	µg/l	CFSWP-024	1 / 1	91.4 - 91.4	760	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	D	ND	ND	ND	ND	0 / 1	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 1	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	D	6180	6180	µg/l	CFSWP-024	1 / 1	69 - 69	6180	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 1	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	4.3	4.3	µg/l	CFSWP-024	1 / 1	1.9 - 1.9	4.3	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	D	512	512	µg/l	CFSWP-024	1 / 1	7 - 7	512	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	T	109	8630	µg/l	CFSWP-024	2 / 2	18.2 - 18.2	8630	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	T	7.7	7.7	µg/l	CFSWP-024	1 / 2	0.62 - 0.62	7.7	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-38-2	Arsenic	T	2.4	2.4	µg/l	CFSWP-024	1 / 2	0.64 - 0.64	2.4	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	T	234	234	µg/l	CFSWP-023	2 / 2	1.2 - 1.2	234	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	T	0.71	0.71	µg/l	CFSWP-024	1 / 2	0.24 - 0.24	0.71	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	3	3	µg/l	CFSWP-024	1 / 2	0.71 - 0.71	3	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-70-2	Calcium	T	7860	63300	µg/l	CFSWP-023	2 / 2	60.5 - 60.5	63300	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	T	2.7	2.7	µg/l	CFSWP-024	1 / 2	1.3 - 1.3	2.7	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	T	1.6	1.6	µg/l	CFSWP-024	1 / 2	1.3 - 1.3	1.6	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	T	3.8	16.5	µg/l	CFSWP-024	2 / 2	1.4 - 1.4	16.5	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	817	817	µg/l	CFSWP-024	1 / 2	42.4 - 42.4	817	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
Surface Water	7439-92-1	Lead	T	7.6	7.6	µg/l	CFSWP-024	1 / 2	0.38 - 0.38	7.6	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	T	804	13900	µg/l	CFSWP-023	2 / 2	63.6 - 63.6	13900	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	T	37.4	37.4	µg/l	CFSWP-024	1 / 2	2.5 - 2.5	37.4	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 2	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	T	1.9	55.9	µg/l	CFSWP-024	2 / 2	1.4 - 1.4	55.9	NA	39	USEPA RSL Tapwater (THQ=0.1), n	Y	Carcinogen
	7440-09-7	Potassium	T	646	814	µg/l	CFSWP-024	2 / 2	91.4 - 91.4	814	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	T	ND	ND	ND	ND	0 / 2	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 2	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	5280	6730	µg/l	CFSWP-024	2 / 2	69 - 69	6730	NA	No Screening Level		N	NSL

Preliminary Under EPA and MDEQ Review

Table 2-7
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Water North Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	7440-28-0	Thallium	T	0.27	0.27	µg/l	CFSWP-024	1 / 2	0.26 - 0.26	0.27	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-62-2	Vanadium	T	6.9	18	µg/l	CFSWP-024	2 / 2	1.9 - 1.9	18	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-66-6	Zinc	T	537	537	µg/l	CFSWP-024	1 / 2	7 - 7	537	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	309-00-2	Aldrin	NA	ND	ND	ND	ND	0 / 1	0.003 - 0.003	ND	NA	0.00049	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	NA	ND	ND	ND	ND	0 / 1	0.007 - 0.007	ND	NA	0.0072	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	959-98-8	Alpha Endosulfan	NA	ND	ND	ND	ND	0 / 1	0.002 - 0.002	ND	NA	20	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	NA	ND	ND	ND	ND	0 / 1	0.004 - 0.004	ND	NA	0.025	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	33213-65-9	Beta Endosulfan	NA	ND	ND	ND	ND	0 / 1	0.004 - 0.004	ND	NA	20	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	5103-71-9	cis-Chlordane	NA	ND	ND	ND	ND	0 / 1	0.002 - 0.002	ND	NA	0.008	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	NA	ND	ND	ND	ND	0 / 1	0.005 - 0.005	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	NA	ND	ND	ND	ND	0 / 1	0.003 - 0.003	ND	NA	0.00052	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	NA	ND	ND	ND	ND	0 / 1	0.006 - 0.006	ND	NA	20	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	72-20-8	Endrin	NA	ND	ND	ND	ND	0 / 1	0.004 - 0.004	ND	NA	0.059	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL
	7421-93-4	Endrin Aldehyde	NA	ND	ND	ND	ND	0 / 1	0.008 - 0.008	ND	NA	1	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL
	53494-70-5	Endrin Ketone	NA	ND	ND	ND	ND	0 / 1	0.008 - 0.008	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	NA	ND	ND	ND	ND	0 / 1	0.012 - 0.012	ND	NA	0.042	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	76-44-8	Heptachlor	NA	ND	ND	ND	ND	0 / 1	0.003 - 0.003	ND	NA	0.00079	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	NA	ND	ND	ND	ND	0 / 1	0.005 - 0.005	ND	NA	0.00039	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	72-43-5	Methoxychlor	NA	ND	ND	ND	ND	0 / 1	0.004 - 0.004	ND	NA	0.02	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	72-54-8	P,P'-DDD	NA	ND	ND	ND	ND	0 / 1	0.006 - 0.006	ND	NA	0.0012	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	72-55-9	P,P'-DDE	NA	ND	ND	ND	ND	0 / 1	0.002 - 0.002	ND	NA	0.00018	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	50-29-3	P,P'-DDT	NA	ND	ND	ND	ND	0 / 1	0.004 - 0.004	ND	NA	0.0022	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	8001-35-2	Toxaphene	NA	ND	ND	ND	ND	0 / 1	0.11 - 0.11	ND	NA	0.007	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	5103-74-2	trans-Chlordane	NA	ND	ND	ND	ND	0 / 1	0.003 - 0.003	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	NA	ND	ND	ND	ND	0 / 1	0.1 - 0.1	ND	NA	0.14	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	NA	ND	ND	ND	ND	0 / 1	0.1 - 0.1	ND	NA	0.0047	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	NA	ND	ND	ND	ND	0 / 1	0.1 - 0.1	ND	NA	0.0047	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	NA	ND	ND	ND	ND	0 / 1	0.1 - 0.1	ND	NA	0.0078	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	NA	ND	ND	ND	ND	0 / 1	0.1 - 0.1	ND	NA	0.0078	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
Surface	11097-69-1	PCB-1254 (Aroclor 1254)	NA	ND	ND	ND	ND	0 / 1	0.099 - 0.099	ND	NA	0.0078	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
Water	11096-82-5	PCB-1260 (Aroclor 1260)	NA	ND	ND	ND	ND	0 / 1	0.099 - 0.099	ND	NA	0.0078	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	NA	ND	ND	ND	ND	0 / 1	0.099 - 0.099	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	NA	ND	ND	ND	ND	0 / 1	0.099 - 0.099	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	NA	ND	ND	ND	ND	0 / 1	0.1 - 0.1	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	NA	ND	ND	ND	ND	0 / 1	0.43 - 0.43	ND	NA	0.03	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	NA	ND	ND	ND	ND	0 / 1	3.1 - 3.1	ND	NA	0.46	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	NA	ND	ND	ND	ND	0 / 1	0.69 - 0.69	ND	NA	24	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-95-4	2,4,5-Trichlorophenol	NA	ND	ND	ND	ND	0 / 1	0.49 - 0.49	ND	NA	120	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	NA	ND	ND	ND	ND	0 / 1	0.53 - 0.53	ND	NA	1.2	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-83-2	2,4-Dichlorophenol	NA	ND	ND	ND	ND	0 / 1	0.63 - 0.63	ND	NA	4.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	105-67-9	2,4-Dimethylphenol	NA	ND	ND	ND	ND	0 / 1	0.91 - 0.91	ND	NA	36	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	51-28-5	2,4-Dinitrophenol	NA	ND	ND	ND	ND	0 / 1	2.4 - 2.4	ND	NA	3.9	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	121-14-2	2,4-Dinitrotoluene	NA	ND	ND	ND	ND	0 / 1	1 - 1	ND	NA	0.24	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	NA	ND	ND	ND	ND	0 / 1	0.88 - 0.88	ND	NA	0.049	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	NA	ND	ND	ND	ND	0 / 1	0.61 - 0.61	ND	NA	75	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	NA	ND	ND	ND	ND	0 / 1	0.74 - 0.74	ND	NA	9.1	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	91-57-6	2-Methylnaphthalene	NA	ND	ND	ND	ND	0 / 1	0.88 - 0.88	ND	NA	3.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

Preliminary-Under EPA and MDEQ Review

Table 2-7
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Water North Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C)	(2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	95-48-7	2-Methylphenol (O-Cresol)	NA	ND	ND	ND	ND	0 / 1	1.3 - 1.3	ND	NA	93	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	NA	ND	ND	ND	ND	0 / 1	0.65 - 0.65	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-75-5	2-Nitrophenol	NA	ND	ND	ND	ND	0 / 1	0.59 - 0.59	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	NA	ND	ND	ND	ND	0 / 1	1 - 1	ND	NA	0.13	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	NA	ND	ND	ND	ND	0 / 1	0.88 - 0.88	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	NA	ND	ND	ND	ND	0 / 1	0.82 - 0.82	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	NA	ND	ND	ND	ND	0 / 1	2 - 2	ND	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	NA	ND	ND	ND	ND	0 / 1	1 - 1	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	NA	ND	ND	ND	ND	0 / 1	0.76 - 0.76	ND	NA	140	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	106-47-8	4-Chloroaniline	NA	ND	ND	ND	ND	0 / 1	0.73 - 0.73	ND	NA	0.37	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	NA	ND	ND	ND	ND	0 / 1	0.96 - 0.96	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	NA	ND	ND	ND	ND	0 / 1	0.48 - 0.48	ND	NA	3.8	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	100-02-7	4-Nitrophenol	NA	ND	ND	ND	ND	0 / 1	4.7 - 4.7	ND	NA	50	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	83-32-9	Acenaphthene	NA	ND	ND	ND	ND	0 / 1	0.88 - 0.88	ND	NA	53	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	NA	ND	ND	ND	ND	0 / 1	0.65 - 0.65	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	NA	ND	ND	ND	ND	0 / 1	1 - 1	ND	NA	190	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	NA	ND	ND	ND	ND	0 / 1	0.57 - 0.57	ND	NA	180	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	NA	ND	ND	ND	ND	0 / 1	0.77 - 0.77	ND	NA	0.3	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	100-52-7	Benzaldehyde	NA	ND	ND	ND	ND	0 / 1	0.86 - 0.86	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	56-55-3	Benzo(A)Anthracene	NA	3	3	µg/l	CFSWP-024	1 / 1	0.55 - 0.55	3	NA	0.03	USEPA RSL Tapwater (THQ=0.1), c	Y	Carcinogen
Surface	50-32-8	Benzo(A)Pyrene	NA	3.9	3.9	µg/l	CFSWP-024	1 / 1	0.16 - 0.16	3.9	NA	0.025	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
Water	205-99-2	Benzo(B)Fluoranthene	NA	10	10	µg/l	CFSWP-024	1 / 1	0.44 - 0.44	10	NA	0.038	MDEQ Circular DEQ-7 Surface Water, c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	NA	3.9	3.9	µg/l	CFSWP-024	1 / 1	0.75 - 0.75	3.9	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	NA	ND	ND	ND	ND	0 / 1	0.18 - 0.18	ND	NA	0.038	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	85-68-7	Benzyl Butyl Phthalate	NA	ND	ND	ND	ND	0 / 1	0.6 - 0.6	ND	NA	1	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	92-52-4	Biphenyl (Diphenyl)	NA	ND	ND	ND	ND	0 / 1	0.63 - 0.63	ND	NA	0.083	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	NA	ND	ND	ND	ND	0 / 1	0.69 - 0.69	ND	NA	5.9	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	NA	ND	ND	ND	ND	0 / 1	0.12 - 0.12	ND	NA	0.014	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	NA	ND	ND	ND	ND	0 / 1	0.93 - 0.93	ND	NA	71	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	NA	ND	ND	ND	ND	0 / 1	0.72 - 0.72	ND	NA	3.2	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	105-60-2	Caprolactam	NA	ND	ND	ND	ND	0 / 1	1.1 - 1.1	ND	NA	990	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	NA	ND	ND	ND	ND	0 / 1	0.85 - 0.85	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	NA	7.6	7.6	µg/l	CFSWP-024	1 / 1	0.67 - 0.67	7.6	NA	1.2	MDEQ Circular DEQ-7 Surface Water, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	NA	ND	ND	ND	ND	0 / 1	0.82 - 0.82	ND	NA	20	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	117-84-0	Di-N-Octylphthalate	NA	ND	ND	ND	ND	0 / 1	0.69 - 0.69	ND	NA	20	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	NA	ND	ND	ND	ND	0 / 1	0.09 - 0.09	ND	NA	0.0012	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	132-64-9	Dibenzofuran	NA	ND	ND	ND	ND	0 / 1	0.85 - 0.85	ND	NA	0.79	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	84-66-2	Diethyl Phthalate	NA	ND	ND	ND	ND	0 / 1	1 - 1	ND	NA	600	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	131-11-3	Dimethyl Phthalate	NA	ND	ND	ND	ND	0 / 1	0.98 - 0.98	ND	NA	2000	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	206-44-0	Fluoranthene	NA	9.3	9.3	µg/l	CFSWP-024	1 / 1	0.72 - 0.72	9.3	NA	20	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL
	86-73-7	Fluorene	NA	ND	ND	ND	ND	0 / 1	0.8 - 0.8	ND	NA	29	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	NA	ND	ND	ND	ND	0 / 1	0.47 - 0.47	ND	NA	0.00079	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	NA	ND	ND	ND	ND	0 / 1	0.76 - 0.76	ND	NA	0.1	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	NA	ND	ND	ND	ND	0 / 1	0.61 - 0.61	ND	NA	0.041	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	NA	ND	ND	ND	ND	0 / 1	0.09 - 0.09	ND	NA	0.33	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	193-39-5	Indeno(1,2,3-C,D)Pyrene	NA	3.1	3.1	µg/l	CFSWP-024	1 / 1	0.21 - 0.21	3.1	NA	0.012	MDEQ Circular DEQ-7 Surface Water, c	Y	Carcinogen
	78-59-1	Isophorone	NA	ND	ND	ND	ND	0 / 1	0.67 - 0.67	ND	NA	78	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL

Preliminary Draft
EPA and MDEQ Review

Table 2-7
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Water North Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	621-64-7	N-Nitrosodi-N-Propylamine	NA	ND	ND	ND	ND	0 / 1	0.83 - 0.83	ND	NA	0.011	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	NA	ND	ND	ND	ND	0 / 1	0.74 - 0.74	ND	NA	12	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	91-20-3	Naphthalene	NA	ND	ND	ND	ND	0 / 1	0.8 - 0.8	ND	NA	0.17	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	NA	ND	ND	ND	ND	0 / 1	0.49 - 0.49	ND	NA	0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	NA	ND	ND	ND	ND	0 / 1	2.2 - 2.2	ND	NA	0.041	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	NA	1.5	1.5	µg/l	CFSWP-024	1 / 1	0.65 - 0.65	1.5	NA	No Screening Level		N	NSL
	108-95-2	Phenol	NA	ND	ND	ND	ND	0 / 1	0.41 - 0.41	ND	NA	580	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	NA	7	7	µg/l	CFSWP-024	1 / 1	0.83 - 0.83	7	NA	12	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	71-55-6	1,1,1-Trichloroethane	NA	ND	ND	ND	ND	0 / 1	0.28 - 0.28	ND	NA	200	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	NA	ND	ND	ND	ND	0 / 1	0.19 - 0.19	ND	NA	0.076	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	ND	ND	ND	ND	0 / 1	0.34 - 0.34	ND	NA	1000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
Surface Water	79-00-5	1,1,2-Trichloroethane	NA	ND	ND	ND	ND	0 / 1	0.08 - 0.08	ND	NA	0.041	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	NA	ND	ND	ND	ND	0 / 1	0.24 - 0.24	ND	NA	2.8	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	75-35-4	1,1-Dichloroethene	NA	ND	ND	ND	ND	0 / 1	0.34 - 0.34	ND	NA	7	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	NA	ND	ND	ND	ND	0 / 1	0.35 - 0.35	ND	NA	0.7	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	NA	ND	ND	ND	ND	0 / 1	0.27 - 0.27	ND	NA	0.071	MDEQ Circular DEQ-7 Surface Water, t	N	BSL-ND
	96-12-8	1,2-Dibromo-3-Chloropropane	NA	ND	ND	ND	ND	0 / 1	0.23 - 0.23	ND	NA	0.00033	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	NA	ND	ND	ND	ND	0 / 1	0.19 - 0.19	ND	NA	0.0075	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 1	0.22 - 0.22	ND	NA	30	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	107-06-2	1,2-Dichloroethane	NA	ND	ND	ND	ND	0 / 1	0.25 - 0.25	ND	NA	0.17	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	NA	ND	ND	ND	ND	0 / 1	0.18 - 0.18	ND	NA	0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 1	0.33 - 0.33	ND	NA	7	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	106-46-7	1,4-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 1	0.33 - 0.33	ND	NA	0.48	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	591-78-6	2-Hexanone	NA	ND	ND	ND	ND	0 / 1	0.72 - 0.72	ND	NA	3.8	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	67-64-1	Acetone	NA	12	12	µg/l	CFSWP-024	1 / 1	1.1 - 1.1	12	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	71-43-2	Benzene	NA	ND	ND	ND	ND	0 / 1	0.09 - 0.09	ND	NA	0.46	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	74-97-5	Bromochloromethane	NA	ND	ND	ND	ND	0 / 1	0.3 - 0.3	ND	NA	8.3	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-27-4	Bromodichloromethane	NA	ND	ND	ND	ND	0 / 1	0.15 - 0.15	ND	NA	0.13	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	75-25-2	Bromoform	NA	ND	ND	ND	ND	0 / 1	0.18 - 0.18	ND	NA	3.3	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	74-83-9	Bromomethane	NA	ND	ND	ND	ND	0 / 1	0.18 - 0.18	ND	NA	0.75	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-15-0	Carbon Disulfide	NA	ND	ND	ND	ND	0 / 1	0.22 - 0.22	ND	NA	81	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	56-23-5	Carbon Tetrachloride	NA	ND	ND	ND	ND	0 / 1	0.33 - 0.33	ND	NA	0.46	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	108-90-7	Chlorobenzene	NA	ND	ND	ND	ND	0 / 1	0.24 - 0.24	ND	NA	7.8	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-00-3	Chloroethane	NA	ND	ND	ND	ND	0 / 1	0.37 - 0.37	ND	NA	2100	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	67-66-3	Chloroform	NA	ND	ND	ND	ND	0 / 1	0.22 - 0.22	ND	NA	0.22	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	74-87-3	Chloromethane	NA	ND	ND	ND	ND	0 / 1	0.22 - 0.22	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	NA	ND	ND	ND	ND	0 / 1	0.26 - 0.26	ND	NA	3.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	NA	ND	ND	ND	ND	0 / 1	0.16 - 0.16	ND	NA	3.4	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	110-82-7	Cyclohexane	NA	ND	ND	ND	ND	0 / 1	0.26 - 0.26	ND	NA	1300	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	124-48-1	Dibromochloromethane	NA	ND	ND	ND	ND	0 / 1	0.22 - 0.22	ND	NA	0.87	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	75-71-8	Dichlorodifluoromethane	NA	ND	ND	ND	ND	0 / 1	0.14 - 0.14	ND	NA	20	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	100-41-4	Ethylbenzene	NA	ND	ND	ND	ND	0 / 1	0.3 - 0.3	ND	NA	1.5	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	NA	ND	ND	ND	ND	0 / 1	0.32 - 0.32	ND	NA	45	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	79601-23-1	M,P-Xylene	NA	ND	ND	ND	ND	0 / 1	0.28 - 0.28	ND	NA	No Screening Level		N	BSL-ND
	79-20-9	Methyl Acetate	NA	ND	ND	ND	ND	0 / 1	0.58 - 0.58	ND	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	NA	ND	ND	ND	ND	0 / 1	2.2 - 2.2	ND	NA	560	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	NA	ND	ND	ND	ND	0 / 1	0.63 - 0.63	ND	NA	630	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

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Table 2-7
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond Area
Exposure Medium: Surface Water North Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	108-87-2	Methylcyclohexane	NA	ND	ND	ND	ND	0 / 1	0.22 - 0.22	ND	NA	No Screening Level		N	BSL-ND
	75-09-2	Methylene Chloride	NA	ND	ND	ND	ND	0 / 1	0.21 - 0.21	ND	NA	5	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
Surface Water	95-47-6	O-Xylene (1,2-Dimethylbenzene)	NA	ND	ND	ND	ND	0 / 1	0.32 - 0.32	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	100-42-5	Styrene	NA	ND	ND	ND	ND	0 / 1	0.17 - 0.17	ND	NA	100	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	NA	ND	ND	ND	ND	0 / 1	0.13 - 0.13	ND	NA	14	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	NA	ND	ND	ND	ND	0 / 1	0.12 - 0.12	ND	NA	4.1	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-88-3	Toluene	NA	ND	ND	ND	ND	0 / 1	0.25 - 0.25	ND	NA	57	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	NA	ND	ND	ND	ND	0 / 1	0.18 - 0.18	ND	NA	36	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	NA	ND	ND	ND	ND	0 / 1	0.19 - 0.19	ND	NA	2	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	79-01-6	Trichloroethylene (TCE)	NA	ND	ND	ND	ND	0 / 1	0.22 - 0.22	ND	NA	0.28	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-69-4	Trichlorofluoromethane	NA	ND	ND	ND	ND	0 / 1	0.15 - 0.15	ND	NA	520	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-01-4	Vinyl Chloride	NA	ND	ND	ND	ND	0 / 1	0.06 - 0.06	ND	NA	0.019	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND

Footnotes:
T = total
D = dissolved
NA = not applicable
ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
MDEQ Circular DEQ-7 Groundawter = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-8
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Exposure North Percolation Pond Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	57-12-5	Cyanide	0.096	7.8	mg/kg	CFSDP-024	3 / 3	0.036 - 0.036	7.8	NA	1.5E-03 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	16984-48-8	Fluoride	56.6	219	mg/kg	CFSDP-024	3 / 3	0.5 - 0.5	219	NA	1.2E+01 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	20800	112000	mg/kg	CFSDP-024	3 / 3	10.3 - 10.3	112000	NA	3.0E+03 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	0.53	2.6	mg/kg	CFSDP-024	2 / 3	0.37 - 0.39	2.6	NA	3.5E-02 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-38-2	Arsenic	7.6	26.4	mg/kg	CFSDP-024	3 / 3	0.37 - 0.37	26.4	NA	1.5E-03 USEPA RSL Res Soil (THQ=0.1), c**R	Y	Carcinogen
	7440-39-3	Barium	317	539	mg/kg	CFSDP-023	3 / 3	0.84 - 0.84	539	NA	1.6E+01 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	1.5	4.5	mg/kg	CFSDP-024	3 / 3	0.11 - 0.11	4.5	NA	1.9E+00 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-43-9	Cadmium	2.6	8	mg/kg	CFSDP-024	3 / 3	0.39 - 0.39	8	NA	6.9E-02 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-70-2	Calcium	33400	106000	mg/kg	CFSDP-023	3 / 3	50.3 - 50.3	106000	NA	No Screening Level	N	NSL
	7440-47-3	Chromium, Total	42.3	53	mg/kg	CFSDP-023	3 / 3	0.89 - 0.89	53	NA	No Screening Level	N	NSL
	7440-48-4	Cobalt	5.3	18.5	mg/kg	CFSDP-024	3 / 3	0.7 - 0.7	18.5	NA	2.7E-02 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	56.4	83.6	mg/kg	CFSDP-024	3 / 3	0.7 - 0.7	83.6	NA	2.8E+00 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-89-6	Iron	2940	9040	mg/kg	CFSDP-024	3 / 3	21.8 - 21.8	9040	NA	3.5E+01 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	24.6	109	mg/kg	CFSDP-024	3 / 3	0.21 - 0.21	109	NA	4.0E+02 USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	2660	4020	mg/kg	CFSDP-024	3 / 3	34.8 - 34.8	4020	NA	No Screening Level	N	NSL
	7439-96-5	Manganese	24.8	74.7	mg/kg	CFSDP-024	3 / 3	1.4 - 1.4	74.7	NA	2.8E+00 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	0.028	0.1	mg/kg	CFSDP-024	3 / 3	0.014 - 0.014	0.1	NA	3.3E-03 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-02-0	Nickel	208	771	mg/kg	CFSDP-024	3 / 3	0.71 - 0.71	771	NA	2.6E+00 USEPA RSL Res Soil (THQ=0.1), n	Y	Carcinogen
	7440-09-7	Potassium	351	1150	mg/kg	CFSDP-024	3 / 3	34.1 - 34.1	1150	NA	No Screening Level	N	NSL
	7782-49-2	Selenium	0.89	3.4	mg/kg	CFSDP-024	3 / 3	0.34 - 0.34	3.4	NA	5.2E-02 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-22-4	Silver	1	1	mg/kg	CFSDP-024	1 / 3	0.72 - 0.82	1	NA	8.0E-02 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-23-5	Sodium	177	840	mg/kg	CFSDP-024	3 / 3	49.6 - 49.6	840	NA	No Screening Level	N	NSL
	7440-28-0	Thallium	0.26	1.2	mg/kg	CFSDP-024	3 / 3	0.14 - 0.14	1.2	NA	1.4E-03 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-62-2	Vanadium	63.3	233	mg/kg	CFSDP-024	3 / 3	1 - 1	233	NA	8.6E+00 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-66-6	Zinc	349	871	mg/kg	CFSDP-024	3 / 3	3.7 - 3.7	871	NA	3.7E+01 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 3	0.0011 - 0.0011	ND	NA	1.5E-04 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.00085 - 0.00085	ND	NA	4.2E-05 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	No Screening Level	N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.00091 - 0.00091	ND	NA	1.5E-04 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 3	0.0015 - 0.0015	ND	NA	No Screening Level	N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 3	0.0015 - 0.0015	ND	NA	No Screening Level	N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.001 - 0.001	ND	NA	No Screening Level	N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 3	0.0012 - 0.0012	ND	NA	7.1E-05 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 3	0.0011 - 0.0011	ND	NA	No Screening Level	N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 3	0.0012 - 0.0012	ND	NA	9.2E-03 USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 3	0.0012 - 0.0012	ND	NA	No Screening Level	N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	No Screening Level	N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 3	0.00084 - 0.00084	ND	NA	2.4E-04 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 3	0.0012 - 0.0012	ND	NA	1.2E-04 USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 3	0.0018 - 0.0018	ND	NA	2.8E-05 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND

Preliminary - Until EPA and MDEQ Review

Table 2-8
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Exposure North Percolation Pond Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 3	0.002 - 0.002	ND	NA	2.0E-01 USEPA RSL Res Soil (THQ=0.1), n	N	BSL
Sediment	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 3	0.0012 - 0.0012	ND	NA	7.5E-03 USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 3	0.0014 - 0.0014	ND	NA	1.1E-02 USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 3	0.00096 - 0.00096	ND	NA	7.7E-02 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	1.1E-02 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 3	0.002 - 0.002	ND	NA	No Screening Level	N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	1.3E-02 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	8.0E-05 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	8.0E-05 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	1.2E-03 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	1.2E-03 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	2.0E-03 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	5.5E-03 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	No Screening Level	N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	No Screening Level	N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	No Screening Level	N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 3	0.17 - 0.17	ND	NA	7.9E-04 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 3	0.62 - 0.62	ND	NA	9.4E-05 USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 3	0.22 - 0.22	ND	NA	1.8E-02 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.23 - 0.23	ND	NA	4.0E-01 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.066 - 0.066	ND	NA	1.2E-03 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 3	0.054 - 0.054	ND	NA	2.3E-03 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 3	0.51 - 0.51	ND	NA	4.2E-02 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 3	1.7 - 1.7	ND	NA	4.4E-03 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.091 - 0.091	ND	NA	3.2E-04 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.12 - 0.12	ND	NA	6.7E-05 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 3	0.052 - 0.052	ND	NA	3.9E-01 USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 3	0.059 - 0.059	ND	NA	8.9E-03 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.13	0.52	mg/kg	CFSDP-024	3 / 3	0.051 - 0.051	0.52	NA	1.9E-02 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 3	0.1 - 0.1	ND	NA	7.5E-02 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 3	0.076 - 0.076	ND	NA	8.0E-03 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 3	0.078 - 0.078	ND	NA	No Screening Level	N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 3	0.26 - 0.26	ND	NA	8.2E-04 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 3	0.061 - 0.061	ND	NA	No Screening Level	N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 3	0.068 - 0.068	ND	NA	No Screening Level	N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 3	0.62 - 0.62	ND	NA	2.6E-04 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.073 - 0.073	ND	NA	No Screening Level	N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 3	0.099 - 0.099	ND	NA	1.7E-01 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	106-47-8	4-Chloroaniline	0.13	0.13	mg/kg	CFSDP-023	1 / 3	0.059 - 0.12	0.13	NA	1.6E-04 USEPA RSL Res Soil (THQ=0.1), c**	Y	ASL
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.069 - 0.069	ND	NA	No Screening Level	N	BSL-ND

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Table 2-8
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Exposure North Percolation Pond Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 3	0.087 - 0.087	ND	NA	1.6E-03 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 3	1.1 - 1.1	ND	NA	No Screening Level	N	BSL-ND
Sediment	83-32-9	Acenaphthene	0.28	4.1	mg/kg	CFSDP-024	3 / 3	0.056 - 0.056	4.1	NA	5.5E-01 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	208-96-8	Acenaphthylene	0.086	0.086	mg/kg	CFSDP-023	1 / 3	0.059 - 0.12	0.086	NA	No Screening Level	N	NSL
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 3	0.05 - 0.05	ND	NA	5.8E-02 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	120-12-7	Anthracene	1.3	9.9	mg/kg	CFSDP-024	3 / 3	0.22 - 0.22	9.9	NA	5.8E+00 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 3	0.1 - 0.1	ND	NA	2.0E-04 USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 3	0.18 - 0.18	ND	NA	4.1E-03 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	14	76	mg/kg	CFSDP-024	3 / 3	0.19 - 0.19	76	NA	1.1E-02 USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	19	100	mg/kg	CFSDP-024	3 / 3	0.07 - 0.07	100	NA	1.8E-02 USEPA RSL Res Soil (THQ=0.1), c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	40	210	mg/kg	CFSDP-024	3 / 3	0.09 - 0.09	210	NA	1.8E-01 USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	13	150	mg/kg	CFSDP-024	3 / 3	0.13 - 0.13	150	NA	No Screening Level	N	NSL
	207-08-9	Benzo(K)Fluoranthene	17	64	mg/kg	CFSDP-024	3 / 3	0.1 - 0.1	64	NA	1.8E+00 USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.071 - 0.071	ND	NA	2.4E-01 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 3	0.2 - 0.2	ND	NA	8.7E-04 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 3	0.072 - 0.072	ND	NA	1.3E-03 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 3	0.054 - 0.054	ND	NA	3.6E-06 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 3	0.095 - 0.095	ND	NA	2.6E-02 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.18	0.18	mg/kg	CFSDP-023	1 / 3	0.09 - 0.18	0.18	NA	1.3E+00 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 3	0.17 - 0.17	ND	NA	2.5E-01 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	86-74-8	Carbazole	0.97	9.6	mg/kg	CFSDP-024	3 / 3	0.057 - 0.057	9.6	NA	No Screening Level	N	NSL
	218-01-9	Chrysene	18	150	mg/kg	CFSDP-024	3 / 3	0.063 - 0.063	150	NA	9.0E+00 USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.069 - 0.069	ND	NA	2.3E-01 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 3	0.12 - 0.12	ND	NA	5.7E+00 USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	4.8	40	mg/kg	CFSDP-024	3 / 3	0.12 - 0.12	40	NA	9.6E-02 USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.53	1.4	mg/kg	CFSDP-024	3 / 3	0.07 - 0.07	1.4	NA	1.5E-02 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 3	0.066 - 0.066	ND	NA	6.1E-01 USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 3	0.067 - 0.067	ND	NA	No Screening Level	N	BSL-ND
	206-44-0	Fluoranthene	17	120	mg/kg	CFSDP-024	3 / 3	0.068 - 0.068	120	NA	8.9E+00 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	86-73-7	Fluorene	0.11	2.1	mg/kg	CFSDP-024	3 / 3	0.05 - 0.05	2.1	NA	5.4E-01 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 3	0.094 - 0.094	ND	NA	1.2E-04 USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 3	0.065 - 0.065	ND	NA	2.7E-04 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 3	0.14 - 0.14	ND	NA	1.3E-04 USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 3	0.085 - 0.085	ND	NA	2.0E-04 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	15	140	mg/kg	CFSDP-024	3 / 3	0.15 - 0.15	140	NA	9.8E-01 USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 3	0.05 - 0.05	ND	NA	2.6E-02 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 3	0.078 - 0.078	ND	NA	8.1E-06 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 3	0.21 - 0.21	ND	NA	6.7E-02 USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	91-20-3	Naphthalene	0.39	0.89	mg/kg	CFSDP-024	3 / 3	0.059 - 0.059	0.89	NA	5.4E-04 USEPA RSL Res Soil (THQ=0.1), c**	Y	ASL
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 3	0.073 - 0.073	ND	NA	9.2E-05 USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND

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Table 2-8
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Exposure North Percolation Pond Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 3	0.28 - 0.28	ND	NA	5.7E-05 USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	6.2	41	mg/kg	CFSDP-024	3 / 3	0.061 - 0.061	41	NA	No Screening Level	N	NSL

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Table 2-8
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North Percolation Pond Area Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Exposure North Percolation Pond Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	108-95-2	Phenol	ND	ND	ND	ND	0 / 3	0.075 - 0.075	ND	NA	3.3E-01 USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	16	120	mg/kg	CFSDP-024	3 / 3	0.1 - 0.1	120	NA	1.3E+00 USEPA RSL Res Soil (THQ=0.1), n	Y	ASL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
c = carcinogenic basis
n = non-carcinogenic basis
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-9

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.016	0.39	mg/kg	CFSB-001	18 / 19	0.015 - 0.016	0.39	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	11.6	210	mg/kg	CFSB-034	19 / 19	0.19 - 0.19	210	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	7200	20400	mg/kg	CFSB-001	19 / 19	5.7 - 5.7	20400	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.57	0.57	mg/kg	CFSB-036	1 / 19	0.32 - 0.44	0.57	0.7	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-38-2	Arsenic	3.6	11.8	mg/kg	CFSB-008	19 / 19	0.35 - 0.35	11.8	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	55.3	319	mg/kg	CFSB-009	19 / 19	0.51 - 0.51	319	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.36	0.85	mg/kg	CFSB-009	19 / 19	0.097 - 0.097	0.85	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 19	0.24 - 0.24	ND	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	1770	86800	mg/kg	CFSB-005	19 / 19	27.7 - 27.7	86800	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	7.7	84.8	mg/kg	CFSB-036	19 / 19	0.6 - 0.6	84.8	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	3.9	6.8	mg/kg	CFSB-036	19 / 19	0.59 - 0.59	6.8	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	8	7260	mg/kg	CFSB-002	19 / 19	0.52 - 0.52	7260	165	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-DC Only
	7439-89-6	Iron	10900	37100	mg/kg	CFSB-036	19 / 19	20 - 20	37100	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	6.1	21.9	mg/kg	CFSB-036	20 / 20	0.17 - 0.17	21.9	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	7820	15600	mg/kg	CFSB-005	19 / 19	27.8 - 27.8	15600	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	156	760	mg/kg	CFSB-035	19 / 19	1.2 - 1.2	760	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.017	0.045	mg/kg	CFSB-009	14 / 19	0.012 - 0.013	0.045	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	8.9	89	mg/kg	CFMW-023A	19 / 19	0.6 - 0.6	89	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	541	1400	mg/kg	CFSB-003	19 / 19	26.3 - 26.3	1400	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.43	1.2	mg/kg	CFSB-009	5 / 19	0.3 - 0.35	1.2	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 19	0.58 - 0.58	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	37.2	340	mg/kg	CFSB-035	11 / 19	29.7 - 35.2	340	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 19	0.12 - 0.12	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	6.2	21.7	mg/kg	CFMW-023A	19 / 19	0.6 - 0.6	21.7	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	28.9	66.8	mg/kg	CFSB-001	19 / 19	1.9 - 1.9	66.8	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 1	0.00095 - 0.00095	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00072 - 0.00072	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00077 - 0.00077	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 1	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00086 - 0.00086	ND	NA	No Screening Level		N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 1	0.00092 - 0.00092	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 1	0.00098 - 0.00098	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 1	0.00071 - 0.00071	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table 2-9

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 1	0.0015 - 0.0015	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 1	0.00081 - 0.00081	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 1	0.023 - 0.023	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 19	0.0096 - 0.0096	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 19	0.0096 - 0.0096	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 19	0.0096 - 0.0096	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 19	0.0096 - 0.0096	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 19	0.0096 - 0.0096	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 19	0.0099 - 0.0099	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 19	0.0099 - 0.0099	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 19	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 19	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 19	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 19	0.027 - 0.027	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 19	0.096 - 0.096	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 19	0.034 - 0.034	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 19	0.036 - 0.036	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 19	0.01 - 0.01	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 19	0.0084 - 0.0084	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 19	0.079 - 0.079	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 19	0.27 - 0.27	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 19	0.014 - 0.014	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 19	0.019 - 0.019	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 19	0.0081 - 0.0081	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 19	0.0091 - 0.0091	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.018	2	mg/kg	CFSB-004	6 / 19	0.0079 - 0.0086	2	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 19	0.016 - 0.016	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 19	0.012 - 0.012	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 19	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 19	0.04 - 0.04	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.026	0.048	mg/kg	CFSB-021	2 / 19	0.0095 - 0.011	0.048	NA	No Screening Level		N	NSL
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 19	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 19	0.095 - 0.095	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 19	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 19	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND

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Table 2-9

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 19	0.0092 - 0.0092	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 19	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 19	0.014 - 0.014	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 19	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.012	22	mg/kg	CFSB-004	15 / 19	0.0086 - 0.0087	22	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.022	0.54	mg/kg	CFSB-004	2 / 19	0.0092 - 0.012	0.54	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.0091	0.0091	mg/kg	CFSB-036	1 / 19	0.0078 - 0.0086	0.0091	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	120-12-7	Anthracene	0.039	47	mg/kg	CFSB-004	12 / 19	0.034 - 0.034	47	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 19	0.016 - 0.016	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.037	0.037	mg/kg	CFSB-021	1 / 19	0.027 - 0.031	0.037	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.077	100	mg/kg	CFSB-004	17 / 19	0.03 - 0.03	100	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.095	100	mg/kg	CFSB-004	17 / 19	0.011 - 0.011	100	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.015	120	mg/kg	CFSB-004	18 / 19	0.014 - 0.016	120	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.095	62	mg/kg	CFSB-004	17 / 19	0.021 - 0.021	62	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.076	50	mg/kg	CFSB-004	12 / 19	0.016 - 0.016	50	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.057	0.98	mg/kg	CFSB-036	2 / 19	0.011 - 0.011	0.98	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 19	0.03 - 0.03	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 19	0.011 - 0.011	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 19	0.0084 - 0.0084	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 19	0.015 - 0.015	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.051	0.18	mg/kg	CFSB-001	5 / 19	0.014 - 0.014	0.18	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	0.066	0.066	mg/kg	CFSB-035	1 / 19	0.026 - 0.027	0.066	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-74-8	Carbazole	0.011	32	mg/kg	CFSB-004	17 / 19	0.0089 - 0.0089	32	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.011	110	mg/kg	CFSB-004	19 / 19	0.0097 - 0.0097	110	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.017	0.056	mg/kg	CFSB-033	3 / 19	0.011 - 0.011	0.056	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 19	0.018 - 0.018	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.023	21	mg/kg	CFSB-004	16 / 19	0.019 - 0.019	21	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.012	10	mg/kg	CFSB-004	9 / 19	0.011 - 0.011	10	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 19	0.01 - 0.01	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 19	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.014	240	mg/kg	CFSB-004	18 / 19	0.011 - 0.012	240	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.01	19	mg/kg	CFSB-004	13 / 19	0.0078 - 0.0078	19	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 19	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 19	0.01 - 0.01	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 19	0.022 - 0.022	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 19	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.092	76	mg/kg	CFSB-004	17 / 19	0.024 - 0.024	76	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.011	0.25	mg/kg	CFSB-007	9 / 19	0.0077 - 0.0077	0.25	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly

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Table 2-9

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 19	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 19	0.032 - 0.032	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.0097	4.6	mg/kg	CFSB-004	10 / 19	0.0091 - 0.0091	4.6	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 19	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 19	0.043 - 0.043	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.018	180	mg/kg	CFSB-004	18 / 19	0.0095 - 0.011	180	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.016	0.016	mg/kg	CFSB-036	1 / 19	0.012 - 0.013	0.016	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	129-00-0	Pyrene	0.15	150	mg/kg	CFSB-004	17 / 19	0.016 - 0.016	150	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-10

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.016	0.85	mg/kg	CFSB-033	35 / 38	0.015 - 0.015	0.85	NA	0.0015 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	5.6	210	mg/kg	CFSB-034	38 / 38	0.19 - 0.19	210	NA	12 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	7000	20400	mg/kg	CFSB-001	38 / 38	5.7 - 5.7	20400	25941	3800 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.57	0.57	mg/kg	CFSB-036	1 / 38	0.32 - 0.44	0.57	0.4	0.035 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-38-2	Arsenic	2.8	12	mg/kg	CFSB-003	38 / 38	0.35 - 0.35	12	22.5	0.0015 USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	40.7	319	mg/kg	CFSB-009	38 / 38	0.51 - 0.51	319	429	16 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.24	0.85	mg/kg	CFSB-009	38 / 38	0.097 - 0.097	0.85	1.1	1.9 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.78	0.78	mg/kg	CFSB-004	1 / 38	0.24 - 0.27	0.78	0.7	0.069 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	1210	87500	mg/kg	CFSB-021	38 / 38	27.7 - 27.7	87500	NA	No Screening Level	N	NSL
	7440-47-3	Chromium, Total	6.5	84.8	mg/kg	CFSB-036	38 / 38	0.6 - 0.6	84.8	NA	No Screening Level	N	NSL
	7440-48-4	Cobalt	3.5	11.7	mg/kg	CFSB-005	38 / 38	0.59 - 0.59	11.7	10	0.027 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	8	7260	mg/kg	CFSB-002	38 / 38	0.52 - 0.52	7260	165	2.8 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-DC Only
	7439-89-6	Iron	9060	37100	mg/kg	CFSB-036	38 / 38	20 - 20	37100	24400	35 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	6.1	84.2	mg/kg	CFSB-008	39 / 39	0.17 - 0.17	84.2	29.8	400 USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	7430	15600	mg/kg	CFSB-005	38 / 38	27.8 - 27.8	15600	NA	No Screening Level	N	NSL
	7439-96-5	Manganese	147	886	mg/kg	CFSB-004	38 / 38	1.2 - 1.2	886	880	2.8 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.012	0.067	mg/kg	CFSB-008	29 / 38	0.012 - 0.012	0.067	NC	0.0033 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	7.4	89	mg/kg	CFMW-023A	38 / 38	0.6 - 0.6	89	31.4	2.6 USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	541	1400	mg/kg	CFSB-003	38 / 38	26.3 - 26.3	1400	NA	No Screening Level	N	NSL
	7782-49-2	Selenium	0.35	1.2	mg/kg	CFSB-009	8 / 38	0.3 - 0.33	1.2	0.7	0.052 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 38	0.58 - 0.58	ND	0.3	0.08 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	33	508	mg/kg	CFSB-035	21 / 38	29.7 - 29.9	508	NA	No Screening Level	N	NSL
	7440-28-0	Thallium	0.14	0.14	mg/kg	CFSB-004	1 / 38	0.12 - 0.13	0.14	0.41	0.0014 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	5	21.7	mg/kg	CFMW-023A	38 / 38	0.6 - 0.6	21.7	52.6	8.6 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	27.9	113	mg/kg	CFSB-004	38 / 38	1.9 - 1.9	113	118	37 USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 1	0.00095 - 0.00095	ND	NA	0.00015 USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00072 - 0.00072	ND	NA	4.20E-05 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	No Screening Level	N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00077 - 0.00077	ND	NA	0.00015 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 1	0.0012 - 0.0012	ND	NA	No Screening Level	N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	No Screening Level	N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00086 - 0.00086	ND	NA	No Screening Level	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 1	0.00092 - 0.00092	ND	NA	No Screening Level	N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.0092 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 1	0.00098 - 0.00098	ND	NA	No Screening Level	N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	No Screening Level	N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 1	0.00071 - 0.00071	ND	NA	0.00024 USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.00012 USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

Preliminary Draft EPA and MDEQ Review

Table 2-10

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 1	0.0015 - 0.0015	ND	NA	2.80E-05 USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	0.2 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.0075 USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	0.011 USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 1	0.00081 - 0.00081	ND	NA	0.077 USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 1	0.023 - 0.023	ND	NA	0.011 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	No Screening Level	N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 38	0.0095 - 0.0095	ND	NA	0.013 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 38	0.0095 - 0.0095	ND	NA	8.00E-05 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 38	0.0095 - 0.0095	ND	NA	8.00E-05 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 38	0.0095 - 0.0095	ND	NA	0.0012 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 38	0.0095 - 0.0095	ND	NA	0.0012 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 38	0.0098 - 0.0098	ND	NA	0.002 USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 38	0.0098 - 0.0098	ND	NA	0.0055 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 38	0.0098 - 0.0098	ND	NA	No Screening Level	N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 38	0.0098 - 0.0098	ND	NA	No Screening Level	N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 38	0.0098 - 0.0098	ND	NA	No Screening Level	N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 38	0.026 - 0.026	ND	NA	0.00079 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 38	0.094 - 0.094	ND	NA	9.40E-05 USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 38	0.033 - 0.033	ND	NA	0.018 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 38	0.035 - 0.035	ND	NA	0.4 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 38	0.01 - 0.01	ND	NA	0.0012 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 38	0.0083 - 0.0083	ND	NA	0.0023 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 38	0.077 - 0.077	ND	NA	0.042 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 38	0.27 - 0.27	ND	NA	0.0044 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 38	0.014 - 0.014	ND	NA	0.00032 USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 38	0.019 - 0.019	ND	NA	6.70E-05 USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 38	0.008 - 0.008	ND	NA	0.39 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 38	0.0089 - 0.0089	ND	NA	0.0089 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.009	3.9	mg/kg	CFSB-004	9 / 38	0.0078 - 0.0078	3.9	NA	0.019 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 38	0.015 - 0.015	ND	NA	0.075 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 38	0.012 - 0.012	ND	NA	0.008 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 38	0.012 - 0.012	ND	NA	No Screening Level	N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 38	0.039 - 0.039	ND	NA	0.00082 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.012	1	mg/kg	CFSB-004	4 / 38	0.0094 - 0.0094	1	NA	No Screening Level	N	NSL
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 38	0.01 - 0.01	ND	NA	No Screening Level	N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 38	0.094 - 0.094	ND	NA	0.00026 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 38	0.011 - 0.011	ND	NA	No Screening Level	N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 38	0.015 - 0.015	ND	NA	0.17 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 38	0.009 - 0.009	ND	NA	0.00016 USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 38	0.011 - 0.011	ND	NA	No Screening Level	N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 38	0.013 - 0.013	ND	NA	0.0016 USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 38	0.17 - 0.17	ND	NA	No Screening Level	N	BSL-ND
	83-32-9	Acenaphthene	0.012	28	mg/kg	CFSB-004	23 / 38	0.0085 - 0.0086	28	NA	0.55 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.022	1	mg/kg	CFSB-004	3 / 38	0.009 - 0.012	1	NA	No Screening Level	N	NSL
	98-86-2	Acetophenone	0.0091	0.0091	mg/kg	CFSB-036	1 / 38	0.0077 - 0.0086	0.0091	NA	0.058 USEPA RSL RBSSL THQ=0.1, n	N	LDF
	120-12-7	Anthracene	0.039	48	mg/kg	CFSB-004	17 / 38	0.033 - 0.034	48	NA	5.8 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 38	0.016 - 0.016	ND	NA	0.0002 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Preliminary Under EPA and MDEQ Review

Table 2-10

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	100-52-7	Benzaldehyde	0.037	0.037	mg/kg	CFSB-021	1 / 38	0.027 - 0.031	0.037	NA	0.0041 USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.036	100	mg/kg	CFSB-004	32 / 38	0.029 - 0.03	100	NA	0.011 USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.017	100	mg/kg	CFSB-004	34 / 38	0.011 - 0.011	100	NA	0.018 MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.015	120	mg/kg	CFSB-004	35 / 38	0.014 - 0.015	120	NA	0.18 MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.021	62	mg/kg	CFSB-004	33 / 38	0.02 - 0.021	62	NA	No Screening Level	N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.018	50	mg/kg	CFSB-004	28 / 38	0.015 - 0.016	50	NA	1.8 MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.034	0.98	mg/kg	CFSB-036	4 / 38	0.011 - 0.011	0.98	NA	0.24 USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 38	0.03 - 0.03	ND	NA	0.00087 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 38	0.011 - 0.011	ND	NA	0.0013 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 38	0.0083 - 0.0083	ND	NA	3.60E-06 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 38	0.014 - 0.014	ND	NA	0.026 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.025	0.18	mg/kg	CFSB-001	8 / 38	0.014 - 0.014	0.18	NA	1.3 USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	0.039	0.066	mg/kg	CFSB-035	2 / 38	0.025 - 0.026	0.066	NA	0.25 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-74-8	Carbazole	0.0097	32	mg/kg	CFSB-004	30 / 38	0.0087 - 0.0089	32	NA	No Screening Level	N	NSL
	218-01-9	Chrysene	0.011	110	mg/kg	CFSB-004	36 / 38	0.0096 - 0.01	110	NA	9 USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.013	0.056	mg/kg	CFSB-033	5 / 38	0.011 - 0.011	0.056	NA	0.23 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	0.61	0.61	mg/kg	CFSB-009	1 / 38	0.018 - 0.019	0.61	NA	5.7 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.019	21	mg/kg	CFSB-004	28 / 38	0.018 - 0.019	21	NA	0.096 USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.012	15	mg/kg	CFSB-004	12 / 38	0.011 - 0.011	15	NA	0.015 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 38	0.01 - 0.01	ND	NA	0.61 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 38	0.01 - 0.01	ND	NA	No Screening Level	N	BSL-ND
	206-44-0	Fluoranthene	0.014	240	mg/kg	CFSB-004	35 / 38	0.01 - 0.011	240	NA	8.9 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.01	25	mg/kg	CFSB-004	19 / 38	0.0077 - 0.0077	25	NA	0.54 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 38	0.014 - 0.014	ND	NA	0.00012 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 38	0.0099 - 0.0099	ND	NA	0.00027 USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 38	0.022 - 0.022	ND	NA	0.00013 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 38	0.013 - 0.013	ND	NA	0.0002 USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.03	76	mg/kg	CFSB-004	32 / 38	0.023 - 0.024	76	NA	0.98 USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.011	1.4	mg/kg	CFSB-004	15 / 38	0.0075 - 0.0077	1.4	NA	0.026 USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 38	0.012 - 0.012	ND	NA	8.10E-06 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
Surface	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 38	0.032 - 0.032	ND	NA	0.067 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
Soil	91-20-3	Naphthalene	0.0097	10	mg/kg	CFSB-004	13 / 38	0.0089 - 0.009	10	NA	0.00054 USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 38	0.011 - 0.011	ND	NA	9.20E-05 USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 38	0.043 - 0.043	ND	NA	5.70E-05 USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.013	240	mg/kg	CFSB-004	35 / 38	0.0094 - 0.01	240	NA	No Screening Level	N	NSL
	108-95-2	Phenol	0.016	1.2	mg/kg	CFSB-004	2 / 38	0.011 - 0.013	1.2	NA	0.33 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	129-00-0	Pyrene	0.027	150	mg/kg	CFSB-004	34 / 38	0.016 - 0.016	150	NA	1.3 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 19	0.00028 - 0.00028	ND	NA	0.28 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 19	0.00013 - 0.00013	ND	NA	3.00E-05 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 19	0.00033 - 0.00033	ND	NA	2.6 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 19	0.00021 - 0.00021	ND	NA	1.30E-05 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 19	0.00025 - 0.00025	ND	NA	0.00078 USEPA RSL RBSSL THQ=0.1, c	N	BSL
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 19	0.0003 - 0.0003	ND	NA	0.01 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 19	8.2e-005 - 8.2e-005	ND	NA	0.0021 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 19	0.00024 - 0.00024	ND	NA	0.0012 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 19	0.00035 - 0.00035	ND	NA	1.40E-07 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 19	8.9e-005 - 8.9e-005	ND	NA	2.10E-06 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 19	0.0001 - 0.0001	ND	NA	0.03 USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table 2-10

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 19	8.2e-005 - 8.2e-005	ND	NA	4.80E-05 USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 19	0.00013 - 0.00013	ND	NA	4.70E-05 USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 19	8.9e-005 - 8.9e-005	ND	NA	No Screening Level	N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 19	9.7e-005 - 9.7e-005	ND	NA	0.00046 USEPA RSL RBSSL THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	ND	ND	ND	ND	0 / 19	0.0007 - 0.0007	ND	NA	0.00088 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-64-1	Acetone	0.0079	0.048	mg/kg	CFSB-008	18 / 19	0.00079 - 0.0011	0.048	NA	0.29 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-43-2	Benzene	0.00017	0.00051	mg/kg	CFSB-008	8 / 19	0.00015 - 0.00016	0.00051	NA	0.00023 USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 19	0.00013 - 0.00013	ND	NA	0.0021 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 19	0.00028 - 0.00028	ND	NA	3.60E-05 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 19	9.7e-005 - 9.7e-005	ND	NA	0.00087 USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	0.00045	0.00045	mg/kg	CFSB-034	1 / 19	0.00024 - 0.0003	0.00045	NA	0.00019 USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	75-15-0	Carbon Disulfide	0.00039	0.0033	mg/kg	CFSB-033	7 / 19	0.00032 - 0.00033	0.0033	NA	0.024 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 19	0.00032 - 0.00032	ND	NA	0.00018 USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 19	0.0001 - 0.0001	ND	NA	0.0053 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 19	0.00026 - 0.00028	ND	NA	0.59 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 19	0.00016 - 0.00018	ND	NA	6.10E-05 USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 19	0.00028 - 0.00028	ND	NA	0.0049 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 19	0.00016 - 0.00016	ND	NA	0.0011 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 19	0.00011 - 0.00011	ND	NA	No Screening Level	N	BSL-ND
	110-82-7	Cyclohexane	ND	ND	ND	ND	0 / 19	0.00034 - 0.00034	ND	NA	1.3 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 19	0.00011 - 0.00011	ND	NA	0.00023 USEPA RSL RBSSL THQ=0.1, c*	N	BSL

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Table 2-10

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 19	0.00024 - 0.00024	ND	NA	0.03 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	ND	ND	ND	ND	0 / 19	0.00013 - 0.00013	ND	NA	0.0017 USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	ND	ND	ND	ND	0 / 19	0.00013 - 0.00013	ND	NA	0.074 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	0.00014	0.00065	mg/kg	CFSB-036	9 / 19	8.2e-005 - 9e-005	0.00065	NA	No Screening Level	N	NSL
	79-20-9	Methyl Acetate	0.0028	0.013	mg/kg	CFSB-022	6 / 19	0.00067 - 0.0007	0.013	NA	0.41 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0009	0.0018	mg/kg	CFMW-023A	3 / 19	0.00057 - 0.00061	0.0018	NA	0.12 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 19	0.0017 - 0.0017	ND	NA	0.14 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.00043	0.001	mg/kg	CFSB-004	4 / 19	0.00037 - 0.00043	0.001	NA	No Screening Level	N	NSL
	75-09-2	Methylene Chloride	0.00056	0.00056	mg/kg	CFSB-033	1 / 19	0.00024 - 0.00027	0.00056	NA	0.0027 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	0.00022	0.00022	mg/kg	CFSB-036	1 / 19	0.00012 - 0.00016	0.00022	NA	0.019 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 19	0.00011 - 0.00011	ND	NA	0.13 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 19	0.00013 - 0.00013	ND	NA	0.0032 USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 19	0.00021 - 0.00021	ND	NA	0.0018 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00016	0.00098	mg/kg	CFSB-004	15 / 19	0.00014 - 0.00017	0.00098	NA	0.076 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 19	0.00029 - 0.00029	ND	NA	0.011 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 19	7.4e-005 - 7.4e-005	ND	NA	No Screening Level	N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 19	0.00019 - 0.00019	ND	NA	0.0001 USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 19	0.00025 - 0.00025	ND	NA	0.33 USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 19	0.00029 - 0.00029	ND	NA	6.50E-06 USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-11

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Central Landfills Area
Exposure Medium: Subsurface Soil 0 to 12 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	57-12-5	Cyanide	0.016	1.4	mg/kg	CFMW-010	65 / 88	0.015 - 0.015	1.4	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	0.35	210	mg/kg	CFSB-034	88 / 88	0.19 - 0.19	210	NA	12	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	5380	25700	mg/kg	CFMW-010	88 / 88	5.6 - 5.6	25700	25941	3000	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.48	0.57	mg/kg	CFSB-036	2 / 88	0.31 - 0.37	0.57	0.4	0.035	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-38-2	Arsenic	2.8	12	mg/kg	CFSB-003	88 / 88	0.34 - 0.34	12	22.5	0.0015	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	29.5	319	mg/kg	CFSB-009	88 / 88	0.5 - 0.5	319	428	16	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.2	0.99	mg/kg	CFMW-029	88 / 88	0.096 - 0.096	0.99	1.4	1.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.27	0.78	mg/kg	CFSB-004	3 / 88	0.24 - 0.25	0.78	0.7	0.069	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	1210	95300	mg/kg	CFMW-022	88 / 88	27.3 - 27.3	95300	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	6.3	84.8	mg/kg	CFSB-036	88 / 88	0.59 - 0.59	84.8	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	3.2	11.7	mg/kg	CFSB-005	88 / 88	0.59 - 0.59	11.7	10	0.027	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	6.3	7260	mg/kg	CFSB-002	88 / 88	0.51 - 0.51	7260	165	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-DC Only
	7439-89-6	Iron	8950	37100	mg/kg	CFSB-036	88 / 88	19.8 - 19.8	37100	24400	35	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	3.7	84.2	mg/kg	CFSB-008	95 / 95	0.17 - 0.17	84.2	29.8	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	7430	20000	mg/kg	CFSB-001	88 / 88	27.4 - 27.4	20000	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	147	886	mg/kg	CFSB-004	88 / 88	1.2 - 1.2	886	880	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.011	0.076	mg/kg	CFMW-016A	69 / 88	0.011 - 0.011	0.076	NC	0.0033	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	7.2	89	mg/kg	CFMW-023A	88 / 88	0.6 - 0.6	89	31.4	2.6	USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	384	1710	mg/kg	CFSB-035	88 / 88	25.9 - 25.9	1710	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.34	1.2	mg/kg	CFSB-009	10 / 88	0.29 - 0.31	1.2	0.7	0.052	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 88	0.57 - 0.57	ND	0.3	0.08	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	31.3	508	mg/kg	CFSB-035	47 / 88	29.3 - 29.8	508	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.13	0.15	mg/kg	CFMW-010	6 / 88	0.12 - 0.12	0.15	0.41	0.0014	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	3.5	23.7	mg/kg	CFMW-010	88 / 88	0.59 - 0.59	23.7	52.6	8.6	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	25.2	114	mg/kg	CFMW-029	88 / 88	1.9 - 1.9	114	118	37	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 10	0.00086 - 0.00086	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 10	0.00065 - 0.00065	ND	NA	4.20E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 10	0.00099 - 0.00099	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 10	0.00069 - 0.00069	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 10	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 10	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 10	0.00078 - 0.00078	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 9	0.00093 - 0.00093	ND	NA	0.000071	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 10	0.00083 - 0.00083	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 10	0.0009 - 0.0009	ND	NA	0.0092	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 10	0.00088 - 0.00088	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 10	0.00099 - 0.00099	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 10	0.00064 - 0.00064	ND	NA	0.00024	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND

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Table 2-11
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Central Landfills Area
Exposure Medium: Subsurface Soil 0 to 12 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 10	0.00092 - 0.00092	ND	NA	1.20E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 10	0.0014 - 0.0014	ND	NA	0.000028	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 10	0.0015 - 0.0015	ND	NA	0.2	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 10	0.00094 - 0.00094	ND	NA	0.0075	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 10	0.001 - 0.001	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 10	0.00073 - 0.00073	ND	NA	0.077	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 10	0.021 - 0.021	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 10	0.0015 - 0.0015	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 88	0.0093 - 0.0093	ND	NA	1.30E-02	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 88	0.0093 - 0.0093	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 88	0.0093 - 0.0093	ND	NA	0.00008	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 88	0.0093 - 0.0093	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 88	0.0093 - 0.0093	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 88	0.0096 - 0.0096	ND	NA	0.002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 88	0.0096 - 0.0096	ND	NA	0.0055	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 88	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 88	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 88	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 88	0.026 - 0.026	ND	NA	7.90E-04	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 88	0.092 - 0.092	ND	NA	0.000094	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 88	0.032 - 0.032	ND	NA	0.018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 88	0.034 - 0.034	ND	NA	0.4	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 88	0.0098 - 0.0098	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 88	0.0081 - 0.0081	ND	NA	0.0023	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 88	0.076 - 0.076	ND	NA	0.042	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 86	0.26 - 0.26	ND	NA	0.0044	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 88	0.014 - 0.014	ND	NA	3.20E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 88	0.018 - 0.018	ND	NA	0.000067	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 88	0.0078 - 0.0078	ND	NA	0.39	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 88	0.0088 - 0.0088	ND	NA	0.0089	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0084	3.9	mg/kg	CFSB-004	20 / 88	0.0076 - 0.0078	3.9	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 88	0.015 - 0.015	ND	NA	0.075	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 88	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 88	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 88	0.039 - 0.039	ND	NA	0.00082	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.012	1	mg/kg	CFSB-004	6 / 88	0.0092 - 0.0094	1	NA	No Screening Level		N	NSL
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 88	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 88	0.092 - 0.092	ND	NA	0.00026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 88	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
Soil	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 88	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 88	0.0089 - 0.0089	ND	NA	0.00016	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 88	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 88	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 88	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.01	28	mg/kg	CFSB-004	40 / 88	0.0083 - 0.0085	28	NA	0.55	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.022	1	mg/kg	CFSB-004	3 / 88	0.0089 - 0.012	1	NA	No Screening Level		N	LDF
	98-86-2	Acetophenone	0.0091	0.0091	mg/kg	CFSB-036	1 / 88	0.0075 - 0.0086	0.0091	NA	0.058	USEPA RSL RBSSL (THQ=0.1, n	N	LDF
	120-12-7	Anthracene	0.039	48	mg/kg	CFSB-004	27 / 88	0.033 - 0.033	48	NA	5.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly

Preliminary - Under EPA & MDEQ Review

Table 2-11
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Central Landfills Area
Exposure Medium: Subsurface Soil 0 to 12 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 88	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.037	0.037	mg/kg	CFSB-021	1 / 88	0.026 - 0.031	0.037	NA	0.0041	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.036	100	mg/kg	CFSB-004	56 / 88	0.029 - 0.029	100	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.012	100	mg/kg	CFSB-004	62 / 88	0.01 - 0.011	100	NA	0.029	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.015	120	mg/kg	CFSB-004	65 / 88	0.013 - 0.014	120	NA	0.3	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.021	62	mg/kg	CFSB-004	57 / 88	0.02 - 0.02	62	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.018	50	mg/kg	CFSB-004	52 / 88	0.015 - 0.015	50	NA	2.9	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.013	0.98	mg/kg	CFSB-036	7 / 88	0.011 - 0.011	0.98	NA	0.24	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.035	0.035	mg/kg	CFMW-016A	1 / 88	0.029 - 0.031	0.035	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 88	0.011 - 0.011	ND	NA	1.30E-03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 88	0.0081 - 0.0081	ND	NA	0.0000036	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 88	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.025	0.18	mg/kg	CFSB-001	14 / 88	0.013 - 0.014	0.18	NA	1.3	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	0.039	0.066	mg/kg	CFSB-035	2 / 88	0.025 - 0.026	0.066	NA	0.25	USEPA RSL RBSSL (THQ=0.1, n	N	LDF
	86-74-8	Carbazole	0.0097	32	mg/kg	CFSB-004	48 / 88	0.0086 - 0.0087	32	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.01	110	mg/kg	CFSB-004	68 / 88	0.0094 - 0.0095	110	NA	9	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.013	0.056	mg/kg	CFSB-033	7 / 88	0.01 - 0.011	0.056	NA	0.23	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	0.096	0.61	mg/kg	CFSB-009	2 / 88	0.018 - 0.018	0.61	NA	5.7	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.019	21	mg/kg	CFSB-004	48 / 88	0.018 - 0.018	21	NA	0.096	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.012	15	mg/kg	CFSB-004	23 / 88	0.01 - 0.011	15	NA	0.015	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 88	0.0098 - 0.0098	ND	NA	0.61	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 88	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.011	240	mg/kg	CFSB-004	67 / 88	0.01 - 0.01	240	NA	8.9	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.0084	25	mg/kg	CFSB-004	35 / 88	0.0075 - 0.0077	25	NA	0.54	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 88	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 88	0.0097 - 0.0097	ND	NA	0.00027	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 88	0.022 - 0.022	ND	NA	0.00013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 88	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.03	76	mg/kg	CFSB-004	56 / 88	0.023 - 0.023	76	NA	0.98	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.011	1.4	mg/kg	CFSB-004	17 / 88	0.0074 - 0.0075	1.4	NA	2.60E-02	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly

Preliminary/Under EPA and MDEQ Review

Table 2-11
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Central Landfills Area
Exposure Medium: Subsurface Soil 0 to 12 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 88	0.012 - 0.012	ND	NA	0.0000081	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 88	0.031 - 0.031	ND	NA	0.067	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.0097	10	mg/kg	CFSB-004	23 / 88	0.0088 - 0.0089	10	NA	5.40E-04	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 88	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 88	0.042 - 0.042	ND	NA	0.000057	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.012	240	mg/kg	CFSB-004	64 / 88	0.0092 - 0.0093	240	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.016	1.2	mg/kg	CFSB-004	2 / 88	0.011 - 0.013	1.2	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	129-00-0	Pyrene	0.018	150	mg/kg	CFSB-004	61 / 88	0.016 - 0.016	150		1.3	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 60	0.00016 - 0.00016	ND		0.28	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 60	7.4e-005 - 7.4e-005	ND		0.00003	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 60	0.00019 - 0.00019	ND		2.6	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 60	0.00012 - 0.00012	ND		0.000013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 60	0.00015 - 0.00015	ND		0.00078	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 60	0.00018 - 0.00018	ND		0.01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 60	4.8e-005 - 4.8e-005	ND		0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 60	0.00014 - 0.00014	ND		0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 60	0.0002 - 0.0002	ND		0.00000014	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 60	5.2e-005 - 5.2e-005	ND		0.0000021	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 60	6.1e-005 - 6.1e-005	ND		0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 60	4.8e-005 - 4.8e-005	ND		0.000048	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 60	7.4e-005 - 7.4e-005	ND		0.000047	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 60	5.2e-005 - 5.2e-005	ND		No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 60	5.6e-005 - 5.6e-005	ND		0.00046	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	ND	ND	ND	ND	0 / 60	0.00041 - 0.00041	ND		0.00088	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-64-1	Acetone	0.0043	0.13	mg/kg	CFMW-008A	53 / 60	0.00046 - 0.00066	0.13		0.29	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	71-43-2	Benzene	0.00017	0.0097	mg/kg	CFMW-008A	20 / 60	8.7e-005 - 0.00015	0.0097		0.00023	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 60	7.4e-005 - 7.4e-005	ND		0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 60	0.00016 - 0.00016	ND		0.000036	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 60	5.6e-005 - 5.6e-005	ND		0.00087	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	0.00045	0.00045	mg/kg	CFSB-034	1 / 60	0.00014 - 0.0003	0.00045		0.00019	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	75-15-0	Carbon Disulfide	0.00032	0.0041	mg/kg	CFMW-012A	21 / 60	0.00019 - 0.00032	0.0041		0.024	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 60	0.00019 - 0.00019	ND		0.00018	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 60	6.1e-005 - 6.1e-005	ND		0.0053	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 60	0.00015 - 0.00015	ND		0.59	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 60	9.1e-005 - 9.1e-005	ND		0.000061	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 60	0.00016 - 0.00016	ND		0.0049	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 60	9.5e-005 - 9.5e-005	ND		0.0011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 60	6.5e-005 - 6.5e-005	ND		No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	0.00045	0.00052	mg/kg	CFMW-008A	2 / 60	0.0002 - 0.00045	0.00052		1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
Soil	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 60	6.5e-005 - 6.5e-005	ND		0.00023	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 60	0.00014 - 0.00014	ND		0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	0.00042	0.0024	mg/kg	CFMW-008A	2 / 60	7.8e-005 - 0.00015	0.0024		0.0017	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	98-82-8	Isopropylbenzene (Cumene)	0.00034	0.00034	mg/kg	CFMW-008A	1 / 60	7.4e-005 - 0.00017	0.00034		0.074	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	0.00012	0.0038	mg/kg	CFMW-008A	19 / 60	4.8e-005 - 8.9e-005	0.0038		No Screening Level		N	NSL
	79-20-9	Methyl Acetate	0.0028	0.017	mg/kg	CFMW-008A	9 / 60	0.00039 - 0.0007	0.017		0.41	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0009	0.012	mg/kg	CFMW-008A	11 / 60	0.00033 - 0.00059	0.012		0.12	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 60	0.00096 - 0.00096	ND		0.14	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.00042	0.001	mg/kg	CFSB-004	9 / 60	0.00022 - 0.00042	0.001		No Screening Level		N	NSL

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Table 2-11

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Central Landfills Area
Exposure Medium: Subsurface Soil 0 to 12 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	75-09-2	Methylene Chloride	0.0015	0.0015	mg/kg	CFMW-002	3 / 60	0.00014 - 0.00027	0.0015		0.0027	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	0.00018	0.0016	mg/kg	CFMW-008A	5 / 60	6.9e-005 - 0.00013	0.0016		0.019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 60	6.5e-005 - 6.5e-005	ND		0.13	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 60	7.4e-005 - 7.4e-005	ND		0.0032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	0.00034	0.00034	mg/kg	CFMW-008A	1 / 60	0.00012 - 0.00028	0.00034		0.0018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00015	0.012	mg/kg	CFMW-008A	43 / 60	8.2e-005 - 0.00014	0.012		0.076	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 60	0.00017 - 0.00017	ND		0.011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 60	4.3e-005 - 4.3e-005	ND		No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 60	0.00011 - 0.00011	ND		0.0001	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 60	0.00015 - 0.00015	ND		0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 60	0.00017 - 0.00017	ND		0.0000065	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-12

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Water Central Landfills Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	57-12-5	Cyanide	D	ND	ND	ND	ND	0 / 3	2 - 2	ND	NA	0.15 USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	16984-48-8	Fluoride	D	128	177	µg/l	CFSWP-010	3 / 3	60 - 60	177	NA	80 USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	57-12-5	Cyanide	T	ND	ND	ND	ND	0 / 10	2 - 2	ND	NA	0.15 USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	16984-48-8	Fluoride	T	38.7	2600	µg/l	CFSWP-010	10 / 10	15 - 15	2600	NA	80 USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	D	ND	ND	ND	ND	0 / 3	18.2 - 18.2	ND	NA	2000 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	D	ND	ND	ND	ND	0 / 3	0.62 - 0.62	ND	NA	0.78 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	D	ND	ND	ND	ND	0 / 3	0.64 - 0.64	ND	NA	0.052 USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	7440-39-3	Barium	D	85	86.6	µg/l	CFSWP-012	3 / 3	1.2 - 1.2	86.6	NA	380 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	D	ND	ND	ND	ND	0 / 3	0.24 - 0.24	ND	NA	2.5 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	ND	ND	ND	ND	0 / 3	0.71 - 0.71	ND	NA	0.92 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	D	48600	48700	µg/l	CFSWP-010	3 / 3	60.5 - 60.5	48700	NA	No Screening Level	N	NSL
	7440-47-3	Chromium, Total	D	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	100 MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	D	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	0.6 USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	D	ND	ND	ND	ND	0 / 3	1.4 - 1.4	ND	NA	80 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	ND	ND	ND	ND	0 / 3	42.4 - 42.4	ND	NA	1400 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	D	ND	ND	ND	ND	0 / 3	0.38 - 0.38	ND	NA	15 MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	D	10900	11100	µg/l	CFSWP-010	3 / 3	63.6 - 63.6	11100	NA	No Screening Level	N	NSL
	7439-96-5	Manganese	D	ND	ND	ND	ND	0 / 3	2.5 - 2.5	ND	NA	43 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 3	0.17 - 0.17	ND	NA	0.05 MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	D	ND	ND	ND	ND	0 / 3	1.4 - 1.4	ND	NA	39 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	D	410	419	µg/l	CFSWP-010	3 / 3	91.4 - 91.4	419	NA	No Screening Level	N	NSL
	7782-49-2	Selenium	D	ND	ND	ND	ND	0 / 3	0.73 - 0.73	ND	NA	10 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	9.4 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	D	2010	2060	µg/l	CFSWP-011	3 / 3	69 - 69	2060	NA	No Screening Level	N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 3	0.26 - 0.26	ND	NA	0.02 USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	ND	ND	ND	ND	0 / 3	1.9 - 1.9	ND	NA	8.6 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	D	ND	ND	ND	ND	0 / 3	7 - 7	ND	NA	600 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	T	27.4	507	µg/l	CFSWP-010	7 / 10	13.5 - 18.2	507	NA	2000 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	T	ND	ND	ND	ND	0 / 10	0.62 - 0.62	ND	NA	0.78 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	T	0.8	0.8	µg/l	CFSWP-012	1 / 10	0.64 - 0.71	0.8	NA	0.052 USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	T	63.4	88.8	µg/l	CFSWP-012	10 / 10	1.2 - 1.2	88.8	NA	380 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	T	ND	ND	ND	ND	0 / 10	0.24 - 0.24	ND	NA	2.5 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	ND	ND	ND	ND	0 / 10	0.71 - 0.71	ND	NA	0.92 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	T	38300	50700	µg/l	CFSWP-010	10 / 10	60.5 - 60.5	50700	NA	No Screening Level	N	NSL
	7440-47-3	Chromium, Total	T	ND	ND	ND	ND	0 / 10	1.3 - 1.3	ND	NA	100 MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	T	ND	ND	ND	ND	0 / 10	1.3 - 1.3	ND	NA	0.6 USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	T	1.5	4.1	µg/l	CFSWP-012	3 / 10	1.4 - 1.4	4.1	NA	80 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	49.3	392	µg/l	CFSWP-010	4 / 10	42.4 - 42.4	392	NA	1400 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	T	0.54	0.54	µg/l	CFSWP-010	1 / 10	0.38 - 0.38	0.54	NA	15 MDEQ Circular DEQ-7 Surface Water, t	N	BSL

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Table 2-12

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills Area
Exposure Medium: Surface Water Central Landfills Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	7439-95-4	Magnesium	T	6510	12100	µg/l	CFSWP-010	10 / 10	63.6 - 63.6	12100	NA	No Screening Level	N	NSL
	7439-96-5	Manganese	T	3.1	19.6	µg/l	CFSWP-010	10 / 10	2.5 - 2.5	19.6	NA	43 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 10	0.14 - 0.14	ND	NA	0.05 MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	T	ND	ND	ND	ND	0 / 10	1.4 - 1.4	ND	NA	39 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	T	433	1100	µg/l	CFSWP-010	10 / 10	74.8 - 74.8	1100	NA	No Screening Level	N	NSL
	7782-49-2	Selenium	T	ND	ND	ND	ND	0 / 10	0.73 - 0.73	ND	NA	10 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 10	1.3 - 1.3	ND	NA	9.4 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	2080	2370	µg/l	CFSWP-011	10 / 10	69 - 69	2370	NA	No Screening Level	N	NSL
	7440-28-0	Thallium	T	ND	ND	ND	ND	0 / 10	0.26 - 0.26	ND	NA	0.02 USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	T	2.1	2.1	µg/l	CFSWP-012	3 / 10	1.4 - 1.9	2.1	NA	8.6 USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	T	ND	ND	ND	ND	0 / 10	6.5 - 6.5	ND	NA	600 USEPA RSL Tapwater (THQ=0.1), n	N	BSL

Footnotes:

T = total
D = dissolved
NA = not applicable
ND - Non-detect

THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1 x 10^-6)
MDEQ Circular DEQ-7 Groundawter = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-13
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Exposure Central Landfills Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	57-12-5	Cyanide	0.3	0.85	mg/kg	CFSDP-010	4 / 4	'0.031 - 0.031	0.85	NA	2.3E+00	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	16984-48-8	Fluoride	1.3	4.27	mg/kg	CFSDP-010	4 / 4	'0.22 - 0.22	4.27	NA	3.1E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	14700	22700	mg/kg	CFSDP-010	4 / 4	'8.9 - 8.9	22700	NA	7.7E+03	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 4	'0.32 - 0.32	ND	NA	3.1E+00	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	4.3	5.8	mg/kg	CFSDP-012	4 / 4	'0.32 - 0.32	5.8	NA	6.8E-01	USEPA RSL Res Soil (THQ=0.1), c**R	Y	Carcinogen
	7440-39-3	Barium	180	257	mg/kg	CFSDP-010	4 / 4	'0.63 - 0.63	257	NA	1.5E+03	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	0.64	0.98	mg/kg	CFSDP-010	4 / 4	'0.097 - 0.097	0.98	NA	1.6E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 4	'0.33 - 0.33	ND	NA	7.1E+00	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	20600	30100	mg/kg	CFSDP-010	4 / 4	'43.4 - 43.4	30100	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	11.8	15.2	mg/kg	CFSDP-012	4 / 4	'0.6 - 0.6	15.2	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	7.5	8.6	mg/kg	CFSDP-012	4 / 4	'0.6 - 0.6	8.6	NA	2.3E+00	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	20.1	23.3	mg/kg	CFSDP-010	4 / 4	'0.61 - 0.61	23.3	NA	3.1E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7439-89-6	Iron	16800	20200	mg/kg	CFSDP-012	4 / 4	'18.9 - 18.9	20200	NA	5.5E+03	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	13	18.5	mg/kg	CFSDP-012	4 / 4	'0.18 - 0.18	18.5	NA	4.0E+02	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	10400	12200	mg/kg	CFSDP-011	4 / 4	'30 - 30	12200	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	640	1280	mg/kg	CFSDP-012	4 / 4	'1.2 - 1.2	1280	NA	1.8E+02	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	0.029	0.045	mg/kg	CFSDP-012	4 / 4	'0.013 - 0.013	0.045	NA	1.1E+00	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-02-0	Nickel	23.7	43.8	mg/kg	CFSDP-010	4 / 4	'0.61 - 0.61	43.8	NA	1.5E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	2023695	Potassium	922	1330	mg/kg	CFSDP-010	4 / 4	'29.5 - 29.5	1330	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.34	0.46	mg/kg	CFSDP-010	3 / 4	'0.29 - 0.32	0.46	NA	3.9E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-22-4	Silver	ND	ND	ND	ND	0 / 4	'0.62 - 0.62	ND	NA	3.9E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	60	104	mg/kg	CFSDP-010	4 / 4	'42.8 - 42.8	104	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 4	'0.13 - 0.13	ND	NA	7.8E-02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	11.5	18	mg/kg	CFSDP-010	4 / 4	'0.88 - 0.88	18	NA	3.9E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	81.1	129	mg/kg	CFSDP-010	4 / 4	'3.2 - 3.2	129	NA	2.3E+03	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 4	'0.00099 - 0.00099	ND	NA	3.9E-02	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 4	'0.00074 - 0.00074	ND	NA	8.6E-02	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 4	'0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 4	'0.00079 - 0.00079	ND	NA	3.0E-01	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 4	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 4	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 4	'0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 4	'0.0011 - 0.0011	ND	NA	3.4E-02	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 4	'0.00095 - 0.00095	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 4	'0.001 - 0.001	ND	NA	1.9E+00	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 4	'0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 4	'0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 4	'0.00073 - 0.00073	ND	NA	5.7E-01	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 4	'0.001 - 0.001	ND	NA	1.3E-01	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 4	'0.0016 - 0.0016	ND	NA	7.0E-02	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 4	'0.0017 - 0.0017	ND	NA	3.2E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 4	'0.0011 - 0.0011	ND	NA	2.3E+00	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 4	'0.0012 - 0.0012	ND	NA	2.0E+00	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 4	'0.00084 - 0.00084	ND	NA	1.9E+00	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 4	'0.024 - 0.024	ND	NA	4.9E-01	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 4	'0.0018 - 0.0018	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	4.1E-01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	2.0E-01	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	1.7E-01	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	2.3E-01	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	2.3E-01	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	1.2E-01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	2.4E-01	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND

Preliminary - Subject EPA and MDEQ Review

Table 2-13
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Exposure Central Landfills Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 4	'0.03 - 0.03	ND	NA	2.3E+00	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 4	'0.11 - 0.11	ND	NA	5.3E+00	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 4	'0.038 - 0.038	ND	NA	1.9E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 4	'0.04 - 0.04	ND	NA	6.3E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	6.3E+00	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
Sediment	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 4	'0.0095 - 0.0095	ND	NA	1.9E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 4	'0.089 - 0.089	ND	NA	1.3E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 4	'0.31 - 0.31	ND	NA	1.3E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 4	'0.016 - 0.016	ND	NA	1.7E+00	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 4	'0.021 - 0.021	ND	NA	3.6E-01	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 4	'0.0092 - 0.0092	ND	NA	4.8E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 4	'0.01 - 0.01	ND	NA	3.9E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	91-57-6	2-Methylnaphthalene	0.012	0.012	mg/kg	CFSDP-011	1 / 4	'0.0089 - 0.0094	0.012	NA	2.4E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 4	'0.018 - 0.018	ND	NA	3.2E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 4	'0.013 - 0.013	ND	NA	6.3E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 4	'0.014 - 0.014	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 4	'0.045 - 0.045	ND	NA	1.2E+00	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 4	'0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 4	'0.11 - 0.11	ND	NA	5.1E-01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	'0.013 - 0.013	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 4	'0.017 - 0.017	ND	NA	6.3E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 4	'0.01 - 0.01	ND	NA	2.7E+00	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	'0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 4	'0.015 - 0.015	ND	NA	2.5E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 4	'0.19 - 0.19	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.037	0.075	mg/kg	CFSDP-011	4 / 4	'0.0098 - 0.0098	0.075	NA	3.6E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 4	'0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	0.011	0.011	mg/kg	CFSDP-010	1 / 4	'0.0088 - 0.01	0.011	NA	7.8E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	0.082	0.14	mg/kg	CFSDP-011	4 / 4	'0.038 - 0.038	0.14	NA	1.8E+03	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 4	'0.018 - 0.018	ND	NA	2.4E+00	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL
	100-52-7	Benzaldehyde	0.069	0.069	mg/kg	CFSDP-010	1 / 4	'0.031 - 0.035	0.069	NA	1.7E+02	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	56-55-3	Benzo(A)Anthracene	0.55	0.82	mg/kg	CFSDP-010	4 / 4	'0.034 - 0.034	0.82	NA	1.1E+00	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	50-32-8	Benzo(A)Pyrene	0.74	1.1	mg/kg	CFSDP-010	4 / 4	'0.012 - 0.012	1.1	NA	1.1E-01	USEPA RSL Res Soil (THQ=0.1), c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	1.1	1.8	mg/kg	CFSDP-010	4 / 4	'0.016 - 0.016	1.8	NA	1.1E+00	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.69	1.3	mg/kg	CFSDP-010	4 / 4	'0.023 - 0.023	1.3	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.45	0.49	mg/kg	CFSDP-011	4 / 4	'0.018 - 0.018	0.49	NA	1.1E+01	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	0.027	0.031	mg/kg	CFSDP-012	2 / 4	'0.012 - 0.013	0.031	NA	2.9E+02	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 4	'0.034 - 0.034	ND	NA	4.7E+00	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 4	'0.013 - 0.013	ND	NA	1.9E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 4	'0.0095 - 0.0095	ND	NA	2.3E-01	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 4	'0.017 - 0.017	ND	NA	3.1E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.031	0.045	mg/kg	CFSDP-012	2 / 4	'0.016 - 0.017	0.045	NA	3.9E+01	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 4	'0.029 - 0.029	ND	NA	3.1E+03	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	0.091	0.1	mg/kg	CFSDP-012	4 / 4	'0.01 - 0.01	0.1	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.82	1.1	mg/kg	CFSDP-010	4 / 4	'0.011 - 0.011	1.1	NA	1.1E+02	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	0.018	0.039	mg/kg	CFSDP-012	2 / 4	'0.012 - 0.013	0.039	NA	6.3E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 4	'0.02 - 0.02	ND	NA	6.3E+01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.15	0.28	mg/kg	CFSDP-010	4 / 4	'0.021 - 0.021	0.28	NA	1.1E-01	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.014	0.024	mg/kg	CFSDP-011	3 / 4	'0.012 - 0.014	0.024	NA	7.3E+00	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	5.1E+03	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 4	'0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND

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Table 2-13
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Central Landfills Area Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Exposure Central Landfills Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	206-44-0	Fluoranthene	0.92	1.1	mg/kg	CFSDP-011	4 / 4	'0.012 - 0.012	1.1	NA	2.4E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-73-7	Fluorene	0.024	0.053	mg/kg	CFSDP-011	4 / 4	'0.0088 - 0.0088	0.053	NA	2.4E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 4	'0.016 - 0.016	ND	NA	2.1E-01	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 4	'0.011 - 0.011	ND	NA	1.2E+00	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 4	'0.025 - 0.025	ND	NA	1.8E-01	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 4	'0.015 - 0.015	ND	NA	1.8E+00	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.76	1.3	mg/kg	CFSDP-010	4 / 4	'0.027 - 0.027	1.3	NA	1.1E+00	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	78-59-1	Isophorone	0.011	0.014	mg/kg	CFSDP-010	4 / 4	'0.0087 - 0.0087	0.014	NA	5.7E+02	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 4	'0.014 - 0.014	ND	NA	7.8E-02	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 4	'0.037 - 0.037	ND	NA	1.1E+02	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	91-20-3	Naphthalene	0.011	0.02	mg/kg	CFSDP-011	4 / 4	'0.01 - 0.01	0.02	NA	3.8E+00	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 4	'0.013 - 0.013	ND	NA	5.1E+00	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 4	'0.049 - 0.049	ND	NA	1.0E+00	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL
	85-01-8	Phenanthrene	0.49	0.69	mg/kg	CFSDP-011	4 / 4	'0.011 - 0.011	0.69	NA	No Screening Level		N	NSL
Sediment	108-95-2	Phenol	ND	ND	ND	ND	0 / 4	'0.013 - 0.013	ND	NA	1.9E+03	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	1	1.5	mg/kg	CFSDP-010	4 / 4	'0.018 - 0.018	1.5	NA	1.8E+02	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
c = carcinogenic basis
n = non-carcinogenic basis
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-14

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Surface Soil 0 to 0.5 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.066	0.066	mg/kg	CFMW-003A	1 / 1	'0.019 - 0.019	0.066	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	4.17	4.17	mg/kg	CFMW-003A	1 / 1	'0.22 - 0.22	4.17	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	6230	6230	mg/kg	CFMW-003A	1 / 1	'8.9 - 8.9	6230	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 1	'0.5 - 0.5	ND	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	4.1	4.1	mg/kg	CFMW-003A	1 / 1	'0.54 - 0.54	4.1	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	94.1	94.1	mg/kg	CFMW-003A	1 / 1	'0.8 - 0.8	94.1	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.29	0.29	mg/kg	CFMW-003A	1 / 1	'0.15 - 0.15	0.29	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 1	'0.38 - 0.38	ND	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	75000	75000	mg/kg	CFMW-003A	1 / 1	'43.3 - 43.3	75000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	6.5	6.5	mg/kg	CFMW-003A	1 / 1	'0.94 - 0.94	6.5	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	3.6	3.6	mg/kg	CFMW-003A	1 / 1	'0.93 - 0.93	3.6	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	10.8	10.8	mg/kg	CFMW-003A	1 / 1	'0.81 - 0.81	10.8	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	9890	9890	mg/kg	CFMW-003A	1 / 1	'31.3 - 31.3	9890	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	8.1	8.1	mg/kg	CFMW-003A	1 / 1	'0.27 - 0.27	8.1	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	11800	11800	mg/kg	CFMW-003A	1 / 1	'43.4 - 43.4	11800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	284	284	mg/kg	CFMW-003A	1 / 1	'1.9 - 1.9	284	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.055	0.055	mg/kg	CFMW-003A	1 / 1	'0.013 - 0.013	0.055	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	7.8	7.8	mg/kg	CFMW-003A	1 / 1	'0.94 - 0.94	7.8	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	464	464	mg/kg	CFMW-003A	1 / 1	'41.1 - 41.1	464	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	ND	ND	ND	ND	0 / 1	'0.47 - 0.47	ND	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-22-4	Silver	ND	ND	ND	ND	0 / 1	'0.91 - 0.91	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	80.6	80.6	mg/kg	CFMW-003A	1 / 1	'46.4 - 46.4	80.6	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 1	'0.19 - 0.19	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	4.6	4.6	mg/kg	CFMW-003A	1 / 1	'0.94 - 0.94	4.6	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	41.3	41.3	mg/kg	CFMW-003A	1 / 1	'2.9 - 2.9	41.3	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 1	'0.00099 - 0.00099	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	'0.00074 - 0.00074	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 1	'0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	'0.00079 - 0.00079	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 1	'0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 1	'0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	'0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 1	'0.0011 - 0.0011	ND	NA	0.000071	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 1	'0.00095 - 0.00095	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 1	'0.001 - 0.001	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 1	'0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 1	'0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 1	'0.00073 - 0.00073	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND

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Table 2-14

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Surface Soil 0 to 0.5 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 1	'0.001 - 0.001	ND	NA	1.20E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 1	'0.0016 - 0.0016	ND	NA	0.000028	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 1	'0.0017 - 0.0017	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 1	'0.0011 - 0.0011	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 1	'0.0012 - 0.0012	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 1	'0.00084 - 0.00084	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 1	'0.024 - 0.024	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 1	'0.0018 - 0.0018	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	1.30E-02	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	0.00008	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 1	'0.03 - 0.03	ND	NA	7.90E-04	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 1	'0.11 - 0.11	ND	NA	0.000094	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 1	'0.038 - 0.038	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 1	'0.04 - 0.04	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 1	'0.0095 - 0.0095	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 1	'0.088 - 0.088	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 1	'0.3 - 0.3	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 1	'0.016 - 0.016	ND	NA	3.20E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 1	'0.021 - 0.021	ND	NA	0.000067	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 1	'0.0091 - 0.0091	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 1	'0.01 - 0.01	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 1	'0.0089 - 0.0089	ND	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 1	'0.018 - 0.018	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 1	'0.013 - 0.013	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 1	'0.014 - 0.014	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 1	'0.045 - 0.045	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 1	'0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 1	'0.11 - 0.11	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 1	'0.013 - 0.013	ND	NA	No Screening Level		N	BSL-ND
Surface Soil	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 1	'0.017 - 0.017	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 1	'0.01 - 0.01	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 1	'0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 1	'0.015 - 0.015	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 1	'0.19 - 0.19	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 1	'0.0097 - 0.0097	ND	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 1	'0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 1	'0.0088 - 0.0088	ND	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 1	'0.038 - 0.038	ND	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table 2-14

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Surface Soil 0 to 0.5 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 1	'0.018 - 0.018	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 1	'0.031 - 0.031	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	ND	ND	ND	ND	0 / 1	'0.034 - 0.034	ND	NA	0.041	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	50-32-8	Benzo(A)Pyrene	0.032	0.032	mg/kg	CFMW-003A	1 / 1	'0.012 - 0.012	0.032	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.044	0.044	mg/kg	CFMW-003A	1 / 1	'0.016 - 0.016	0.044	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.033	0.033	mg/kg	CFMW-003A	1 / 1	'0.023 - 0.023	0.033	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	ND	ND	ND	ND	0 / 1	'0.018 - 0.018	ND	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 1	'0.012 - 0.012	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 1	'0.034 - 0.034	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 1	'0.013 - 0.013	ND	NA	1.30E-03	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 1	'0.0095 - 0.0095	ND	NA	0.0000036	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 1	'0.017 - 0.017	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.064	0.064	mg/kg	CFMW-003A	1 / 1	'0.016 - 0.016	0.064	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 1	'0.029 - 0.029	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 1	'0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.035	0.035	mg/kg	CFMW-003A	1 / 1	'0.011 - 0.011	0.035	NA	9	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 1	'0.012 - 0.012	ND	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 1	'0.02 - 0.02	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 1	'0.021 - 0.021	ND	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 1	'0.012 - 0.012	ND	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 1	'0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.033	0.033	mg/kg	CFMW-003A	1 / 1	'0.012 - 0.012	0.033	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 1	'0.0088 - 0.0088	ND	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 1	'0.016 - 0.016	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 1	'0.011 - 0.011	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 1	'0.025 - 0.025	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 1	'0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	ND	ND	ND	ND	0 / 1	'0.027 - 0.027	ND	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 1	'0.0086 - 0.0086	ND	NA	2.60E-02	USEPA RSL RBSSL THQ=0.1, c**	N	BSL

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Table 2-14

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Surface Soil 0 to 0.5 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 1	'0.014 - 0.014	ND	NA	0.0000081	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 1	'0.037 - 0.037	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 1	'0.01 - 0.01	ND	NA	5.46E-04	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 1	'0.013 - 0.013	ND	NA	8.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 1	'0.049 - 0.049	ND	NA	0.000057	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.018	0.018	mg/kg	CFMW-003A	1 / 1	'0.011 - 0.011	0.018	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 1	'0.013 - 0.013	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.042	0.042	mg/kg	CFMW-003A	1 / 1	'0.018 - 0.018	0.042	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL

Footnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk

USEPA = US Environmental Protection Agency

RSL = Regional Screening Level

MDEQ = Montana Department of Environmental Quaility

(1) Maximum detection value

(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})

USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level

MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.

c = carcinogenic basis

n = non-carcinogenic basis

dc - direct contact

(3) COPC Flag

Y = Yes

N = No

(4) Rationale for Selection or Deletion

BSL - Detections and Detection Limits Below Screening Level

BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.

ASL = Detections Above Screening Level

ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.

ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded

ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level

LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set

Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA

NSL = no screening level available

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Table 2-15
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Surface Soil 0 to 2 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.053	0.066	mg/kg	CFMW-003A	2 / 2	'0.019 - 0.019	0.066	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	4.17	37.8	mg/kg	CFMW-003A	2 / 2	'0.2 - 0.2	37.8	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	6230	12700	mg/kg	CFMW-003A	2 / 2	'5.9 - 5.9	12700	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 2	'0.33 - 0.33	ND	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	4.1	4.4	mg/kg	CFMW-003A	2 / 2	'0.36 - 0.36	4.4	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	74.4	94.1	mg/kg	CFMW-003A	2 / 2	'0.53 - 0.53	94.1	429	15	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.29	0.4	mg/kg	CFMW-003A	2 / 2	'0.1 - 0.1	0.4	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 2	'0.25 - 0.25	ND	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	28000	75000	mg/kg	CFMW-003A	2 / 2	'28.9 - 28.9	75000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	6.5	10.4	mg/kg	CFMW-003A	2 / 2	'0.63 - 0.63	10.4	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	3.6	5.5	mg/kg	CFMW-003A	2 / 2	'0.62 - 0.62	5.5	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	10.8	15.6	mg/kg	CFMW-003A	2 / 2	'0.54 - 0.54	15.6	163	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	9890	15400	mg/kg	CFMW-003A	2 / 2	'20.9 - 20.9	15400	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	8.1	8.4	mg/kg	CFMW-003A	2 / 2	'0.18 - 0.18	8.4	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	11800	14100	mg/kg	CFMW-003A	2 / 2	'29 - 29	14100	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	284	416	mg/kg	CFMW-003A	2 / 2	'1.3 - 1.3	416	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.023	0.055	mg/kg	CFMW-003A	2 / 2	'0.013 - 0.013	0.055	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	7.8	12.4	mg/kg	CFMW-003A	2 / 2	'0.63 - 0.63	12.4	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	464	976	mg/kg	CFMW-003A	2 / 2	'27.5 - 27.5	976	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	ND	ND	ND	ND	0 / 2	'0.31 - 0.31	ND	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-22-4	Silver	ND	ND	ND	ND	0 / 2	'0.61 - 0.61	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	36.1	80.6	mg/kg	CFMW-003A	2 / 2	'31 - 31	80.6	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 2	'0.13 - 0.13	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	4.6	8.8	mg/kg	CFMW-003A	2 / 2	'0.63 - 0.63	8.8	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	41.3	45.4	mg/kg	CFMW-003A	2 / 2	'2 - 2	45.4	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 1	'0.00099 - 0.00099	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	'0.00074 - 0.00074	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 1	'0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	'0.00079 - 0.00079	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 1	'0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 1	'0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	'0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 1	'0.0011 - 0.0011	ND	NA	0.000071	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 1	'0.00095 - 0.00095	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 1	'0.001 - 0.001	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 1	'0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 1	'0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 1	'0.00073 - 0.00073	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND

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Table 2-15
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Surface Soil 0 to 2 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 1	'0.001 - 0.001	ND	NA	1.20E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 1	'0.0016 - 0.0016	ND	NA	0.000028	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 1	'0.0017 - 0.0017	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 1	'0.0011 - 0.0011	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 1	'0.0012 - 0.0012	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 1	'0.00084 - 0.00084	ND	NA	0.07	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 1	'0.024 - 0.024	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 1	'0.0018 - 0.0018	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	1.30E-02	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	0.00008	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 2	'0.028 - 0.028	ND	NA	7.90E-04	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 2	'0.099 - 0.099	ND	NA	0.000094	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 2	'0.035 - 0.035	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 2	'0.037 - 0.037	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 2	'0.011 - 0.011	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 2	'0.0088 - 0.0088	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 2	'0.082 - 0.082	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 2	'0.28 - 0.28	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 2	'0.015 - 0.015	ND	NA	3.20E-04	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 2	'0.02 - 0.02	ND	NA	0.000067	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 2	'0.0084 - 0.0084	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 2	'0.0095 - 0.0095	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 2	'0.0082 - 0.0082	ND	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 2	'0.016 - 0.016	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 2	'0.012 - 0.012	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 2	'0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 2	'0.042 - 0.042	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 2	'0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 2	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 2	'0.099 - 0.099	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 2	'0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
Surface Soil	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 2	'0.016 - 0.016	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 2	'0.0096 - 0.0096	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 2	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 2	'0.014 - 0.014	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 2	'0.18 - 0.18	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 2	'0.009 - 0.009	ND	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 2	'0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 2	'0.0081 - 0.0081	ND	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 2	'0.035 - 0.035	ND	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 2	'0.017 - 0.017	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 2	'0.028 - 0.028	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	ND	ND	ND	ND	0 / 2	'0.031 - 0.031	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	50-32-8	Benzo(A)Pyrene	0.032	0.032	mg/kg	CFMW-003A	1 / 2	'0.011 - 0.012	0.032	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.015	0.044	mg/kg	CFMW-003A	2 / 2	'0.015 - 0.015	0.044	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.033	0.033	mg/kg	CFMW-003A	1 / 2	'0.021 - 0.023	0.033	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	ND	ND	ND	ND	0 / 2	'0.016 - 0.016	ND	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 2	'0.011 - 0.011	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL

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Table 2-15
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Surface Soil 0 to 2 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 2	'0.032 - 0.032	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 2	'0.012 - 0.012	ND	NA	1.30E-03	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 2	'0.0088 - 0.0088	ND	NA	0.0000036	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 2	'0.015 - 0.015	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.043	0.064	mg/kg	CFMW-003A	2 / 2	'0.015 - 0.015	0.064	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 2	'0.027 - 0.027	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 2	'0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.035	0.035	mg/kg	CFMW-003A	1 / 2	'0.01 - 0.011	0.035	NA	9	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 2	'0.011 - 0.011	ND	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 2	'0.019 - 0.019	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 2	'0.019 - 0.019	ND	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 2	'0.011 - 0.011	ND	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 2	'0.011 - 0.011	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 2	'0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.033	0.033	mg/kg	CFMW-003A	1 / 2	'0.011 - 0.012	0.033	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 2	'0.0081 - 0.0081	ND	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 2	'0.015 - 0.015	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 2	'0.01 - 0.01	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 2	'0.023 - 0.023	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 2	'0.014 - 0.014	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	ND	ND	ND	ND	0 / 2	'0.025 - 0.025	ND	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 2	'0.008 - 0.008	ND	NA	2.60E-02	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
Surface	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 2	'0.012 - 0.012	ND	NA	0.0000081	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 2	'0.034 - 0.034	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 2	'0.0095 - 0.0095	ND	NA	5.40E-04	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 2	'0.012 - 0.012	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 2	'0.045 - 0.045	ND	NA	0.000057	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.018	0.018	mg/kg	CFMW-003A	1 / 2	'0.0099 - 0.011	0.018	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 2	'0.012 - 0.012	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.042	0.042	mg/kg	CFMW-003A	1 / 2	'0.017 - 0.018	0.042	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 1	'0.00029 - 0.00029	ND	NA	0.28	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 1	'0.00013 - 0.00013	ND	NA	0.00003	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 1	'0.00034 - 0.00034	ND	NA	2.6	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 1	'0.00022 - 0.00022	ND	NA	0.000013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 1	'0.00026 - 0.00026	ND	NA	0.00078	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 1	'0.00032 - 0.00032	ND	NA	0.01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 1	'8.5e-005 - 8.5e-005	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 1	'0.00025 - 0.00025	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 1	'0.00036 - 0.00036	ND	NA	0.00000014	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 1	'9.3e-005 - 9.3e-005	ND	NA	0.0000021	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 1	'0.00011 - 0.00011	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 1	'8.5e-005 - 8.5e-005	ND	NA	0.000048	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 1	'0.00013 - 0.00013	ND	NA	0.000047	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 1	'9.3e-005 - 9.3e-005	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 1	'0.0001 - 0.0001	ND	NA	0.00046	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	ND	ND	ND	ND	0 / 1	'0.00073 - 0.00073	ND	NA	0.00088	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	67-64-1	Acetone	0.0091	0.0091	mg/kg	CFMW-003A	1 / 1	'0.00082 - 0.00082	0.0091	NA	0.29	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-43-2	Benzene	ND	ND	ND	ND	0 / 1	'0.00015 - 0.00015	ND	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 1	'0.00013 - 0.00013	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 1	'0.00029 - 0.00029	ND	NA	0.000036	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 1	'0.0001 - 0.0001	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 1	'0.00025 - 0.00025	ND	NA	0.00019	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	0.00035	0.00035	mg/kg	CFMW-003A	1 / 1	'0.00033 - 0.00033	0.00035	NA	0.024	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 1	'0.00033 - 0.00033	ND	NA	0.00018	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 1	'0.00011 - 0.00011	ND	NA	0.0053	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 1	'0.00027 - 0.00027	ND	NA	0.59	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table 2-15

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Surface Soil 0 to 2 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 1	'0.00016 - 0.00016	ND	NA	0.000061	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 1	'0.00029 - 0.00029	ND	NA	0.0049	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 1	'0.00017 - 0.00017	ND	NA	0.0011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 1	'0.00012 - 0.00012	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	ND	ND	ND	ND	0 / 1	'0.00035 - 0.00035	ND	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
Surface Soil	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 1	'0.00012 - 0.00012	ND	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 1	'0.00025 - 0.00025	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	ND	ND	ND	ND	0 / 1	'0.00014 - 0.00014	ND	NA	0.0017	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	ND	ND	ND	ND	0 / 1	'0.00013 - 0.00013	ND	NA	0.074	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	ND	ND	ND	ND	0 / 1	'8.5e-005 - 8.5e-005	ND	NA	No Screening Level		N	BSL-ND
	79-20-9	Methyl Acetate	ND	ND	ND	ND	0 / 1	'0.00069 - 0.00069	ND	NA	0.41	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	ND	ND	ND	ND	0 / 1	'0.00059 - 0.00059	ND	NA	0.12	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 1	'0.0017 - 0.0017	ND	NA	0.14	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	ND	ND	ND	ND	0 / 1	'0.00039 - 0.00039	ND	NA	No Screening Level		N	BSL-ND
	75-09-2	Methylene Chloride	ND	ND	ND	ND	0 / 1	'0.00025 - 0.00025	ND	NA	0.0027	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	ND	ND	ND	ND	0 / 1	'0.00012 - 0.00012	ND	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 1	'0.00012 - 0.00012	ND	NA	0.13	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 1	'0.00013 - 0.00013	ND	NA	0.0032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 1	'0.00022 - 0.00022	ND	NA	0.0018	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-88-3	Toluene	ND	ND	ND	ND	0 / 1	'0.00015 - 0.00015	ND	NA	0.076	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 1	'0.0003 - 0.0003	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 1	'7.7e-005 - 7.7e-005	ND	NA	No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 1	'0.0002 - 0.0002	ND	NA	0.0001	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 1	'0.00026 - 0.00026	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 1	'0.0003 - 0.0003	ND	NA	0.0000065	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-16

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Subsurface Soil 0 to 12 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	57-12-5	Cyanide	0.038	0.066	mg/kg	CFMW-003A	3 / 4	0.017 - 0.019	0.066	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	2.76	37.8	mg/kg	CFMW-003A	4 / 4	0.2 - 0.2	37.8	NA	12	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	5610	12700	mg/kg	CFMW-003A	4 / 4	5.9 - 5.9	12700	25941	3000	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 4	0.33 - 0.33	ND	0.4	0.035	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	4	4.7	mg/kg	CFMW-003A	4 / 4	0.36 - 0.36	4.7	22.5	0.0015	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	39	94.1	mg/kg	CFMW-003A	4 / 4	0.53 - 0.53	94.1	429	16	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.22	0.4	mg/kg	CFMW-003A	4 / 4	0.1 - 0.1	0.4	1.1	1.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 4	0.25 - 0.25	ND	0.7	0.069	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	28000	75000	mg/kg	CFMW-003A	4 / 4	28.9 - 28.9	75000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	6.5	10.4	mg/kg	CFMW-003A	4 / 4	0.63 - 0.63	10.4	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	3.6	5.8	mg/kg	CFMW-003A	4 / 4	0.62 - 0.62	5.8	10	0.027	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	9.4	15.6	mg/kg	CFMW-003A	4 / 4	0.54 - 0.54	15.6	185	2.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	9890	16100	mg/kg	CFMW-003A	4 / 4	20.9 - 20.9	16100	24400	35	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	6.2	10.3	mg/kg	CFMW-003A	4 / 4	0.18 - 0.18	10.3	29.8	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	9140	17800	mg/kg	CFMW-003A	4 / 4	29 - 29	17800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	284	521	mg/kg	CFMW-003A	4 / 4	1.3 - 1.3	521	880	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.023	0.055	mg/kg	CFMW-003A	4 / 4	0.013 - 0.013	0.055	NC	0.0033	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	7.3	12.4	mg/kg	CFMW-003A	4 / 4	0.63 - 0.63	12.4	31.4	2.6	USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	464	1150	mg/kg	CFMW-003A	4 / 4	27.5 - 27.5	1150	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	ND	ND	ND	ND	0 / 4	0.31 - 0.31	ND	0.7	0.052	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-22-4	Silver	ND	ND	ND	ND	0 / 4	0.61 - 0.61	ND	0.3	0.08	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	36.1	80.6	mg/kg	CFMW-003A	2 / 4	31 - 36.9	80.6	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 4	0.13 - 0.13	ND	0.41	0.0014	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	4.6	8.8	mg/kg	CFMW-003A	4 / 4	0.63 - 0.63	8.8	52.6	8.6	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	23.4	47.9	mg/kg	CFMW-003A	4 / 4	2 - 2	47.9	118	37	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 1	0.00099 - 0.00099	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00074 - 0.00074	ND	NA	4.20E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00079 - 0.00079	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	0.000071	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 1	0.00095 - 0.00095	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.0092	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 1	0.00073 - 0.00073	ND	NA	0.00024	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND

Preliminary - Under EPA and MDEQ Review

Table 2-16
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Subsurface Soil 0 to 12 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	1.20E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 1	0.0016 - 0.0016	ND	NA	0.000028	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	0.2	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	0.0075	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 1	0.0012 - 0.0012	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 1	0.00084 - 0.00084	ND	NA	0.077	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 1	0.024 - 0.024	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 1	0.0018 - 0.0018	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 4	0.0097 - 0.0097	ND	NA	1.30E-02	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 4	0.0097 - 0.0097	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 4	0.0097 - 0.0097	ND	NA	0.00008	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 4	0.0097 - 0.0097	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 4	0.0097 - 0.0097	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.0055	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 4	0.027 - 0.027	ND	NA	7.90E-04	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 4	0.096 - 0.096	ND	NA	0.000094	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 4	0.034 - 0.034	ND	NA	0.018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 4	0.036 - 0.036	ND	NA	0.4	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 4	0.0085 - 0.0085	ND	NA	0.0023	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 4	0.079 - 0.079	ND	NA	0.042	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 4	0.27 - 0.27	ND	NA	0.0044	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 4	0.014 - 0.014	ND	NA	3.20E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 4	0.019 - 0.019	ND	NA	0.000067	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 4	0.0081 - 0.0081	ND	NA	0.39	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 4	0.0091 - 0.0091	ND	NA	0.0089	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 4	0.0079 - 0.0079	ND	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 4	0.016 - 0.016	ND	NA	0.075	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	0.008	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 4	0.04 - 0.04	ND	NA	0.00082	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 4	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 4	0.096 - 0.096	ND	NA	0.00026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
Soil	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 4	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 4	0.0092 - 0.0092	ND	NA	0.00016	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 4	0.014 - 0.014	ND	NA	0.0016	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 4	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 4	0.0087 - 0.0087	ND	NA	0.55	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 4	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 4	0.0078 - 0.0078	ND	NA	0.058	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 4	0.034 - 0.034	ND	NA	5.8	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 4	0.016 - 0.016	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 4	0.027 - 0.027	ND	NA	0.0041	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	ND	ND	ND	ND	0 / 4	0.03 - 0.03	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	50-32-8	Benzo(A)Pyrene	0.032	0.032	mg/kg	CFMW-003A	1 / 4	0.011 - 0.012	0.032	NA	0.029	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.015	0.044	mg/kg	CFMW-003A	2 / 4	0.014 - 0.015	0.044	NA	0.3	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.033	0.033	mg/kg	CFMW-003A	1 / 4	0.021 - 0.023	0.033	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	ND	ND	ND	ND	0 / 4	0.016 - 0.016	ND	NA	2.9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.24	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL

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Table 2-16

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Subsurface Soil 0 to 12 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 4	0.031 - 0.031	ND	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	1.30E-03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 4	0.0085 - 0.0085	ND	NA	0.0000036	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 4	0.015 - 0.015	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.043	0.064	mg/kg	CFMW-003A	2 / 4	0.014 - 0.015	0.064	NA	1.3	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 4	0.026 - 0.026	ND	NA	0.25	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.035	0.035	mg/kg	CFMW-003A	1 / 4	0.0098 - 0.011	0.035	NA	9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.23	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 4	0.018 - 0.018	ND	NA	5.7	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 4	0.019 - 0.019	ND	NA	0.096	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.015	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.61	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.033	0.033	mg/kg	CFMW-003A	1 / 4	0.011 - 0.012	0.033	NA	8.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 4	0.0078 - 0.0078	ND	NA	0.54	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 4	0.015 - 0.015	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.00027	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 4	0.022 - 0.022	ND	NA	0.00013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 4	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	ND	ND	ND	ND	0 / 4	0.024 - 0.024	ND	NA	0.98	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 4	0.0077 - 0.0077	ND	NA	2.60E-02	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
Soil	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	0.0000081	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 4	0.033 - 0.033	ND	NA	0.067	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 4	0.0091 - 0.0091	ND	NA	5.40E-04	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 4	0.043 - 0.043	ND	NA	0.000057	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.018	0.018	mg/kg	CFMW-003A	1 / 4	0.0096 - 0.011	0.018	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.042	0.042	mg/kg	CFMW-003A	1 / 4	0.016 - 0.018	0.042		1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 3	0.00029 - 0.00029	ND		0.28	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 3	0.00013 - 0.00013	ND		0.00003	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 3	0.00034 - 0.00034	ND		2.6	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 3	0.00022 - 0.00022	ND		0.000013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 3	0.00026 - 0.00026	ND		0.00078	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 3	0.00032 - 0.00032	ND		0.01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 3	8.5e-005 - 8.5e-005	ND		0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 3	0.00025 - 0.00025	ND		0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 3	0.00036 - 0.00036	ND		0.00000014	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 3	9.3e-005 - 9.3e-005	ND		0.0000021	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 3	0.00011 - 0.00011	ND		0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 3	8.5e-005 - 8.5e-005	ND		0.000048	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 3	0.00013 - 0.00013	ND		0.000047	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 3	9.3e-005 - 9.3e-005	ND		No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 3	0.0001 - 0.0001	ND		0.00046	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	ND	ND	ND	ND	0 / 3	0.00073 - 0.00073	ND		0.00088	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	67-64-1	Acetone	0.006	0.0091	mg/kg	CFMW-003A	3 / 3	0.00082 - 0.00082	0.0091		0.29	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	71-43-2	Benzene	ND	ND	ND	ND	0 / 3	0.00015 - 0.00015	ND		0.00023	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 3	0.00013 - 0.00013	ND		0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 3	0.00029 - 0.00029	ND		0.000036	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 3	0.0001 - 0.0001	ND		0.00087	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 3	0.00025 - 0.00025	ND		0.00019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	0.00035	0.0006	mg/kg	CFMW-003A	2 / 3	0.00033 - 0.00039	0.0006		0.024	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 3	0.00033 - 0.00033	ND		0.00018	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 3	0.00011 - 0.00011	ND		0.0053	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 3	0.00027 - 0.00027	ND		0.59	USEPA RSL RBSSL (THQ=0.1, n	N	BSL

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Table 2-16

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Industrial Landfill Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Industrial Landfill Area
Exposure Medium: Subsurface Soil 0 to 12 ft bgs

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 3	0.00016 - 0.00016	ND		0.000061	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 3	0.00029 - 0.00029	ND		0.0049	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 3	0.00017 - 0.00017	ND		0.0011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 3	0.00012 - 0.00012	ND		No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	ND	ND	ND	ND	0 / 3	0.00035 - 0.00035	ND		1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
Soil	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 3	0.00012 - 0.00012	ND		0.00023	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 3	0.00025 - 0.00025	ND		0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	ND	ND	ND	ND	0 / 3	0.00014 - 0.00014	ND		0.0017	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	ND	ND	ND	ND	0 / 3	0.00013 - 0.00013	ND		0.074	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	ND	ND	ND	ND	0 / 3	8.5e-005 - 8.5e-005	ND		No Screening Level		N	BSL-ND
	79-20-9	Methyl Acetate	ND	ND	ND	ND	0 / 3	0.00069 - 0.00069	ND		0.41	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	ND	ND	ND	ND	0 / 3	0.00059 - 0.00059	ND		0.12	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 3	0.0017 - 0.0017	ND		0.14	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	ND	ND	ND	ND	0 / 3	0.00039 - 0.00039	ND		No Screening Level		N	BSL-ND
	75-09-2	Methylene Chloride	ND	ND	ND	ND	0 / 3	0.00025 - 0.00025	ND		0.0027	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	ND	ND	ND	ND	0 / 3	0.00012 - 0.00012	ND		0.019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 3	0.00012 - 0.00012	ND		0.13	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 3	0.00013 - 0.00013	ND		0.0032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 3	0.00022 - 0.00022	ND		0.0018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-88-3	Toluene	ND	ND	ND	ND	0 / 3	0.00015 - 0.00015	ND		0.076	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 3	0.0003 - 0.0003	ND		0.011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 3	7.7e-005 - 7.7e-005	ND		No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 3	0.0002 - 0.0002	ND		0.0001	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 3	0.00026 - 0.00026	ND		0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 3	0.0003 - 0.0003	ND		0.0000065	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1E-10)
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-17

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Eastern Undeveloped Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Eastern Undeveloped Area
Exposure Medium: Surface Water Eastern Undeveloped Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	57-12-5	Cyanide	D	ND	ND	ND	ND	0 / 1	2 - 2	ND	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	16984-48-8	Fluoride	D	185	185	µg/l	CFSWP-009	1 / 1	60 - 60	185	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	57-12-5	Cyanide	T	ND	ND	ND	ND	0 / 3	2 - 2	ND	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	16984-48-8	Fluoride	T	80.3	188	µg/l	CFSWP-009	3 / 3	15 - 15	188	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	D	ND	ND	ND	ND	0 / 1	18.2 - 18.2	ND	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	D	ND	ND	ND	ND	0 / 1	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	D	0.69	0.69	µg/l	CFSWP-009	1 / 1	0.64 - 0.64	0.69	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	D	116	116	µg/l	CFSWP-009	1 / 1	1.2 - 1.2	116	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	D	ND	ND	ND	ND	0 / 1	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	ND	ND	ND	ND	0 / 1	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	D	52200	52200	µg/l	CFSWP-009	1 / 1	60.5 - 60.5	52200	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	D	ND	ND	ND	ND	0 / 1	1.3 - 1.3	ND	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	D	ND	ND	ND	ND	0 / 1	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	D	ND	ND	ND	ND	0 / 1	1.4 - 1.4	ND	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	ND	ND	ND	ND	0 / 1	42.4 - 42.4	ND	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	D	ND	ND	ND	ND	0 / 1	0.38 - 0.38	ND	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	D	12800	12800	µg/l	CFSWP-009	1 / 1	63.6 - 63.6	12800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	D	ND	ND	ND	ND	0 / 1	2.5 - 2.5	ND	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 1	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	D	ND	ND	ND	ND	0 / 1	1.4 - 1.4	ND	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	D	511	511	µg/l	CFSWP-009	1 / 1	91.4 - 91.4	511	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	D	ND	ND	ND	ND	0 / 1	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 1	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	D	2250	2250	µg/l	CFSWP-009	1 / 1	69 - 69	2250	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 1	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	ND	ND	ND	ND	0 / 1	1.9 - 1.9	ND	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	D	ND	ND	ND	ND	0 / 1	7 - 7	ND	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	T	16.8	64.4	µg/l	CFSWP-009	3 / 3	13.5 - 13.5	64.4	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	T	ND	ND	ND	ND	0 / 3	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	T	0.95	0.95	µg/l	CFSWP-009	1 / 3	0.64 - 0.71	0.95	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	T	77.1	116	µg/l	CFSWP-009	3 / 3	1.2 - 1.2	116	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	T	ND	ND	ND	ND	0 / 3	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	ND	ND	ND	ND	0 / 3	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	T	46800	53000	µg/l	CFSWP-009	3 / 3	60.5 - 60.5	53000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	T	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	T	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	T	ND	ND	ND	ND	0 / 3	1.4 - 1.4	ND	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	ND	ND	ND	ND	0 / 3	42.4 - 42.4	ND	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	T	ND	ND	ND	ND	0 / 3	0.38 - 0.38	ND	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL

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Table 2-17

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Eastern Undeveloped Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Eastern Undeveloped Area
Exposure Medium: Surface Water Eastern Undeveloped Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	7439-95-4	Magnesium	T	10600	13200	µg/l	CFSWP-009	3 / 3	63.6 - 63.6	13200	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	T	3	3.4	µg/l	CFSWP-009	2 / 3	2.5 - 3	3.4	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 3	0.14 - 0.14	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	T	ND	ND	ND	ND	0 / 3	1.4 - 1.4	ND	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	T	460	560	µg/l	CFSWP-009	3 / 3	74.8 - 74.8	560	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	T	ND	ND	ND	ND	0 / 3	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	2340	2380	µg/l	CFSWP-009	3 / 3	69 - 69	2380	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	T	ND	ND	ND	ND	0 / 3	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	T	2.2	2.2	µg/l	CFSWP-009	1 / 3	1.4 - 1.9	2.2	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	T	ND	ND	ND	ND	0 / 3	6.5 - 6.5	ND	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

Footnotes:

T = total
D = dissolved
NA = not applicable
ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
MDEQ Circular DEQ-7 Groundawter = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-18

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Eastern Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Eastern Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	57-12-5	Cyanide	0.34	0.34	mg/kg	CFSDP-009	1 / 1	0.03 - 0.03	0.34	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	16984-48-8	Fluoride	1.62	1.62	mg/kg	CFSDP-009	1 / 1	0.22 - 0.22	1.62	NA	12	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	17400	17400	mg/kg	CFSDP-009	1 / 1	9 - 9	17400	NA	3000	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 1	0.32 - 0.32	ND	NA	0.035	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-38-2	Arsenic	6.8	6.8	mg/kg	CFSDP-009	1 / 1	0.32 - 0.32	6.8	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), c**R	Y	Carcinogen
	7440-39-3	Barium	295	295	mg/kg	CFSDP-009	1 / 1	0.64 - 0.64	295	NA	16	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	0.66	0.66	mg/kg	CFSDP-009	1 / 1	0.098 - 0.098	0.66	NA	1.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 1	0.34 - 0.34	ND	NA	0.069	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-70-2	Calcium	11500	11500	mg/kg	CFSDP-009	1 / 1	43.9 - 43.9	11500	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	11.8	11.8	mg/kg	CFSDP-009	1 / 1	0.61 - 0.61	11.8	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	5.8	5.8	mg/kg	CFSDP-009	1 / 1	0.61 - 0.61	5.8	NA	0.027	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	19.8	19.8	mg/kg	CFSDP-009	1 / 1	0.61 - 0.61	19.8	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-89-6	Iron	14100	14100	mg/kg	CFSDP-009	1 / 1	19.1 - 19.1	14100	NA	35	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	13	13	mg/kg	CFSDP-009	1 / 1	0.18 - 0.18	13	NA	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	8750	8750	mg/kg	CFSDP-009	1 / 1	30.4 - 30.4	8750	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	517	517	mg/kg	CFSDP-009	1 / 1	1.2 - 1.2	517	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	0.038	0.038	mg/kg	CFSDP-009	1 / 1	0.013 - 0.013	0.038	NA	0.0033	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-02-0	Nickel	16	16	mg/kg	CFSDP-009	1 / 1	0.62 - 0.62	16	NA	2.6	USEPA RSL Res Soil (THQ=0.1), n	Y	Carcinogen
	7440-09-7	Potassium	978	978	mg/kg	CFSDP-009	1 / 1	29.8 - 29.8	978	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.54	0.54	mg/kg	CFSDP-009	1 / 1	0.3 - 0.3	0.54	NA	0.052	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-22-4	Silver	ND	ND	ND	ND	0 / 1	0.62 - 0.62	ND	NA	0.08	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-23-5	Sodium	171	171	mg/kg	CFSDP-009	1 / 1	43.3 - 43.3	171	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 1	0.13 - 0.13	ND	NA	0.0014	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	12.1	12.1	mg/kg	CFSDP-009	1 / 1	0.89 - 0.89	12.1	NA	8.6	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-66-6	Zinc	59	59	mg/kg	CFSDP-009	1 / 1	3.2 - 3.2	59	NA	37	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 1	0.00097 - 0.00097	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00073 - 0.00073	ND	NA	4.20E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00087 - 0.00087	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	7.10E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 1	0.00093 - 0.00093	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.0092	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 1	0.00099 - 0.00099	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 1	0.00072 - 0.00072	ND	NA	0.00024	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND

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Table 2-18

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Eastern Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Eastern Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 1	0.0016 - 0.0016	ND	NA	2.80E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	0.2	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	0.0075	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 1	0.0012 - 0.0012	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 1	0.00083 - 0.00083	ND	NA	0.077	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 1	0.023 - 0.023	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	0.013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	0.002	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	0.0055	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 1	0.029 - 0.029	ND	NA	0.00079	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 1	0.11 - 0.11	ND	NA	9.40E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 1	0.037 - 0.037	ND	NA	0.018	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 1	0.039 - 0.039	ND	NA	0.4	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 1	0.0093 - 0.0093	ND	NA	0.0023	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 1	0.087 - 0.087	ND	NA	0.042	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 1	0.3 - 0.3	ND	NA	0.0044	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 1	0.016 - 0.016	ND	NA	0.00032	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 1	0.021 - 0.021	ND	NA	6.70E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 1	0.009 - 0.009	ND	NA	0.39	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 1	0.01 - 0.01	ND	NA	0.0089	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 1	0.0087 - 0.0087	ND	NA	0.019	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 1	0.017 - 0.017	ND	NA	0.075	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 1	0.013 - 0.013	ND	NA	0.008	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 1	0.013 - 0.013	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 1	0.044 - 0.044	ND	NA	0.00082	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 1	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 1	0.11 - 0.11	ND	NA	0.00026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 1	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 1	0.017 - 0.017	ND	NA	0.17	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

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Table 2-18

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Eastern Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Eastern Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 1	0.01 - 0.01	ND	NA	0.00016	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 1	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 1	0.015 - 0.015	ND	NA	0.0016	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 1	0.19 - 0.19	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 1	0.0096 - 0.0096	ND	NA	0.55	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 1	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 1	0.0086 - 0.0086	ND	NA	0.058	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 1	0.038 - 0.038	ND	NA	5.8	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 1	0.018 - 0.018	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 1	0.03 - 0.03	ND	NA	0.0041	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.1	0.1	mg/kg	CFSDP-009	1 / 1	0.033 - 0.033	0.1	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.12	0.12	mg/kg	CFSDP-009	1 / 1	0.012 - 0.012	0.12	NA	0.018	USEPA RSL Res Soil (THQ=0.1), c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.21	0.21	mg/kg	CFSDP-009	1 / 1	0.015 - 0.015	0.21	NA	0.18	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.11	0.11	mg/kg	CFSDP-009	1 / 1	0.023 - 0.023	0.11	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.069	0.069	mg/kg	CFSDP-009	1 / 1	0.017 - 0.017	0.069	NA	1.8	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 1	0.012 - 0.012	ND	NA	0.24	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 1	0.034 - 0.034	ND	NA	0.00087	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 1	0.012 - 0.012	ND	NA	0.0013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 1	0.0093 - 0.0093	ND	NA	3.60E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 1	0.016 - 0.016	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	ND	ND	ND	ND	0 / 1	0.015 - 0.015	ND	NA	1.3	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 1	0.028 - 0.028	ND	NA	0.25	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	0.011	0.011	mg/kg	CFSDP-009	1 / 1	0.0098 - 0.0098	0.011	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.14	0.14	mg/kg	CFSDP-009	1 / 1	0.011 - 0.011	0.14	NA	9	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 1	0.012 - 0.012	ND	NA	0.23	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 1	0.02 - 0.02	ND	NA	5.7	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 1	0.021 - 0.021	ND	NA	0.096	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 1	0.012 - 0.012	ND	NA	0.015	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	0.61	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.13	0.13	mg/kg	CFSDP-009	1 / 1	0.012 - 0.012	0.13	NA	8.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 1	0.0086 - 0.0086	ND	NA	0.54	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 1	0.016 - 0.016	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 1	0.011 - 0.011	ND	NA	0.00027	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 1	0.025 - 0.025	ND	NA	0.00013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 1	0.014 - 0.014	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.12	0.12	mg/kg	CFSDP-009	1 / 1	0.026 - 0.026	0.12	NA	0.98	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 1	0.0085 - 0.0085	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 1	0.013 - 0.013	ND	NA	8.10E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND

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Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Eastern Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 1	0.036 - 0.036	ND	NA	0.067	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 1	0.01 - 0.01	ND	NA	0.00054	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 1	0.012 - 0.012	ND	NA	9.20E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 1	0.048 - 0.048	ND	NA	5.70E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	0.065	0.065	mg/kg	CFSDP-009	1 / 1	0.011 - 0.011	0.065	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 1	0.013 - 0.013	ND	NA	0.33	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	0.19	0.19	mg/kg	CFSDP-009	1 / 1	0.018 - 0.018	0.19	NA	1.3	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

Footnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk

USEPA = US Environmental Protection Agency

RSL = Regional Screening Level

(1) Maximum detection value

(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})

c = carcinogenic basis

n = non-carcinogenic basis

(3) COPC Flag

Y = Yes

N = No

(4) Rationale for Selection or Deletion

BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

Preliminary - Under EPA and MDEQ Review

Table 2-19
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.12	0.12	mg/kg	CFSB-011	1 / 2	0.021 - 0.026	0.12	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	8.33	12.2	mg/kg	CFSB-122	2 / 2	0.22 - 0.22	12.2	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	16400	20200	mg/kg	CFSB-122	2 / 2	8.7 - 8.7	20200	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 2	0.48 - 0.48	ND	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	2.8	5.2	mg/kg	CFSB-011	2 / 2	0.52 - 0.52	5.2	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	253	289	mg/kg	CFSB-122	2 / 2	0.78 - 0.78	289	429	150	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.58	0.63	mg/kg	CFSB-122	2 / 2	0.15 - 0.15	0.63	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 2	0.37 - 0.37	ND	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	3070	3300	mg/kg	CFSB-122	2 / 2	42.1 - 42.1	3300	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	5.4	10.9	mg/kg	CFSB-011	2 / 2	0.91 - 0.91	10.9	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	2.9	6.6	mg/kg	CFSB-011	2 / 2	0.9 - 0.9	6.6	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	9.1	13.1	mg/kg	CFSB-011	2 / 2	0.79 - 0.79	13.1	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	8140	17000	mg/kg	CFSB-011	2 / 2	30.4 - 30.4	17000	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	6.4	10.4	mg/kg	CFSB-011	2 / 2	0.26 - 0.26	10.4	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	2940	7080	mg/kg	CFSB-011	2 / 2	42.2 - 42.2	7080	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	49.4	457	mg/kg	CFSB-011	2 / 2	1.9 - 1.9	457	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.02	0.02	mg/kg	CFSB-011	1 / 2	0.013 - 0.019	0.02	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	6.4	12.2	mg/kg	CFSB-011	2 / 2	0.92 - 0.92	12.2	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	519	1120	mg/kg	CFSB-011	2 / 2	40 - 40	1120	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.5	0.5	mg/kg	CFSB-011	1 / 2	0.45 - 0.46	0.5	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 2	0.83 - 0.83	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	64.6	552	mg/kg	CFSB-122	2 / 2	45.1 - 45.1	552	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 2	0.18 - 0.18	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	7.7	11	mg/kg	CFSB-011	2 / 2	0.91 - 0.91	11	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	13.6	70.8	mg/kg	CFSB-011	2 / 2	2.9 - 2.9	70.8	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00097 - 0.00097	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 1	0.0015 - 0.0015	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 1	0.0014 - 0.0014	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 1	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 1	0.0014 - 0.0014	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 1	0.0015 - 0.0015	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 1	0.00095 - 0.00095	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 1	0.0014 - 0.0014	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 1	0.0021 - 0.0021	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 1	0.0023 - 0.0023	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 1	0.0014 - 0.0014	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 1	0.0015 - 0.0015	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 1	0.031 - 0.031	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 1	0.0023 - 0.0023	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND

Preliminary Under EPA and MDEQ Review

Table 2-19
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 2	0.029 - 0.029	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 2	0.11 - 0.11	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 2	0.037 - 0.037	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 2	0.039 - 0.039	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 2	0.0093 - 0.0093	ND	NA	0.0037	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 2	0.087 - 0.087	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 2	0.3 - 0.3	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 2	0.016 - 0.016	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 2	0.021 - 0.021	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 2	0.009 - 0.009	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 2	0.01 - 0.01	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 2	0.0087 - 0.0087	ND	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 2	0.017 - 0.017	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 2	0.013 - 0.013	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 2	0.013 - 0.013	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 2	0.044 - 0.044	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 2	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 2	0.11 - 0.11	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 2	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 2	0.017 - 0.017	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL
Surface	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 2	0.01 - 0.01	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
Soil	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 2	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 2	0.015 - 0.015	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 2	0.19 - 0.19	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 2	0.0096 - 0.0096	ND	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 2	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 2	0.0086 - 0.0086	ND	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 2	0.038 - 0.038	ND	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 2	0.018 - 0.018	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 2	0.03 - 0.03	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.041	0.041	mg/kg	CFSB-011	1 / 2	0.033 - 0.044	0.041	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.045	0.045	mg/kg	CFSB-011	1 / 2	0.012 - 0.016	0.045	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.11	0.11	mg/kg	CFSB-011	1 / 2	0.015 - 0.021	0.11	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.051	0.051	mg/kg	CFSB-011	1 / 2	0.023 - 0.03	0.051	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.033	0.033	mg/kg	CFSB-011	1 / 2	0.017 - 0.023	0.033	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 2	0.012 - 0.012	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 2	0.034 - 0.034	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 2	0.012 - 0.012	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 2	0.0093 - 0.0093	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 2	0.016 - 0.016	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.085	0.085	mg/kg	CFSB-011	1 / 2	0.015 - 0.021	0.085	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 2	0.028 - 0.028	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 2	0.0098 - 0.0098	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.084	0.084	mg/kg	CFSB-011	1 / 2	0.011 - 0.014	0.084	NA	9	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 2	0.012 - 0.012	ND	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 2	0.02 - 0.02	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 2	0.021 - 0.021	ND	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 2	0.012 - 0.012	ND	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.059	0.059	mg/kg	CFSB-011	1 / 2	0.012 - 0.016	0.059	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 2	0.0086 - 0.0086	ND	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 2	0.016 - 0.016	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND

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Table 2-19

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 2	0.025 - 0.025	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 2	0.014 - 0.014	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.056	0.056	mg/kg	CFSB-011	1 / 2	0.026 - 0.035	0.056	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	78-59-1	Isophorone	0.0089	0.0089	mg/kg	CFSB-011	1 / 2	0.0085 - 0.011	0.0089	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 2	0.013 - 0.013	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 2	0.036 - 0.036	ND	NA	0.0074	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 2	0.01 - 0.01	ND	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 2	0.012 - 0.012	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 2	0.048 - 0.048	ND	NA	3.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.036	0.036	mg/kg	CFSB-011	1 / 2	0.011 - 0.014	0.036	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 2	0.013 - 0.013	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.063	0.063	mg/kg	CFSB-011	1 / 2	0.018 - 0.024	0.063	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quality
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-20
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.044	0.12	mg/kg	CFSB-011	2 / 4	0.018 - 0.024	0.12	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	5.57	12.2	mg/kg	CFSB-122	4 / 4	0.2 - 0.2	12.2	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	14400	20200	mg/kg	CFSB-122	4 / 4	6.4 - 6.4	20200	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 4	0.36 - 0.36	ND	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	2.2	6.1	mg/kg	CFSB-011	4 / 4	0.39 - 0.39	6.1	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	195	289	mg/kg	CFSB-122	4 / 4	0.58 - 0.58	289	429	763	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.47	0.63	mg/kg	CFSB-122	4 / 4	0.11 - 0.11	0.63	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 4	0.27 - 0.27	ND	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	3070	3300	mg/kg	CFSB-011	4 / 4	31.3 - 31.3	3300	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	4.9	13.5	mg/kg	CFSB-011	4 / 4	0.68 - 0.68	13.5	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	2.8	6.6	mg/kg	CFSB-011	4 / 4	0.67 - 0.67	6.6	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	9.1	20.6	mg/kg	CFSB-011	4 / 4	0.59 - 0.59	20.6	155	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	7710	17100	mg/kg	CFSB-011	4 / 4	22.6 - 22.6	17100	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	5.1	11.1	mg/kg	CFSB-011	4 / 4	0.19 - 0.19	11.1	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	2940	8700	mg/kg	CFSB-011	4 / 4	31.4 - 31.4	8700	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	44.4	457	mg/kg	CFSB-011	4 / 4	1.4 - 1.4	457	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.014	0.02	mg/kg	CFSB-011	2 / 4	0.012 - 0.017	0.02	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	5.8	12.2	mg/kg	CFSB-011	4 / 4	0.68 - 0.68	12.2	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	519	1140	mg/kg	CFSB-011	4 / 4	29.7 - 29.7	1140	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.42	0.5	mg/kg	CFSB-011	2 / 4	0.34 - 0.46	0.5	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 4	0.66 - 0.66	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	45.5	555	mg/kg	CFSB-122	4 / 4	33.6 - 33.6	555	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 4	0.14 - 0.14	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	7.4	12.6	mg/kg	CFSB-011	4 / 4	0.68 - 0.68	12.6	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	12.6	70.8	mg/kg	CFSB-011	4 / 4	2.1 - 2.1	70.8	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.00097 - 0.00097	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 1	0.0015 - 0.0015	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.001 - 0.001	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 1	0.0017 - 0.0017	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 1	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 1	0.0014 - 0.0014	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 1	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 1	0.0014 - 0.0014	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 1	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 1	0.0015 - 0.0015	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 1	0.00095 - 0.00095	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 1	0.0014 - 0.0014	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table 2-20
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 1	0.0021 - 0.0021	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 1	0.0023 - 0.0023	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 1	0.0014 - 0.0014	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 1	0.0015 - 0.0015	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 1	0.0011 - 0.0011	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 1	0.031 - 0.031	ND	NA	0.01	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 1	0.0023 - 0.0023	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 4	0.0099 - 0.0099	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 4	0.0099 - 0.0099	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 4	0.0099 - 0.0099	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 4	0.0099 - 0.0099	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 4	0.0099 - 0.0099	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 4	0.027 - 0.027	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 4	0.098 - 0.098	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 4	0.034 - 0.034	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 4	0.036 - 0.036	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 4	0.081 - 0.081	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 4	0.28 - 0.28	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 4	0.015 - 0.015	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 4	0.019 - 0.019	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 4	0.0083 - 0.0083	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 4	0.0093 - 0.0093	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 4	0.0081 - 0.0081	ND	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 4	0.016 - 0.016	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 4	0.041 - 0.041	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 4	0.0097 - 0.0097	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 4	0.098 - 0.098	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 4	0.016 - 0.016	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table 2-20
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 4	0.0094 - 0.0094	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 4	0.014 - 0.014	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 4	0.18 - 0.18	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 4	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 4	0.008 - 0.008	ND	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 4	0.035 - 0.035	ND	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 4	0.016 - 0.016	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 4	0.028 - 0.028	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.041	0.041	mg/kg	CFSB-011	1 / 4	0.031 - 0.033	0.041	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.02	0.045	mg/kg	CFSB-011	2 / 4	0.011 - 0.015	0.045	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.049	0.11	mg/kg	CFSB-011	2 / 4	0.014 - 0.019	0.11	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.023	0.051	mg/kg	CFSB-011	2 / 4	0.021 - 0.029	0.051	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.033	0.033	mg/kg	CFSB-011	1 / 4	0.016 - 0.017	0.033	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	0.046	0.046	mg/kg	CFSB-122	1 / 4	0.031 - 0.043	0.046	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 4	0.015 - 0.015	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.085	0.085	mg/kg	CFSB-011	1 / 4	0.013 - 0.015	0.085	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 4	0.026 - 0.026	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 4	0.0091 - 0.0091	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.041	0.084	mg/kg	CFSB-011	2 / 4	0.01 - 0.014	0.084	NA	9	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	0.48	0.48	mg/kg	CFSB-122	1 / 4	0.011 - 0.015	0.48	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 4	0.019 - 0.019	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 4	0.019 - 0.019	ND	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	84-66-2	Diethyl Phthalate	0.032	0.032	mg/kg	CFSB-122	1 / 4	0.01 - 0.014	0.032	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.028	0.059	mg/kg	CFSB-011	2 / 4	0.011 - 0.015	0.059	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 4	0.008 - 0.008	ND	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 4	0.015 - 0.015	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 4	0.023 - 0.023	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 4	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.024	0.056	mg/kg	CFSB-011	2 / 4	0.024 - 0.033	0.056	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	78-59-1	Isophorone	0.0089	0.0089	mg/kg	CFSB-011	1 / 4	0.0079 - 0.0085	0.0089	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 4	0.033 - 0.033	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 4	0.0093 - 0.0093	ND	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 4	0.044 - 0.044	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.018	0.036	mg/kg	CFSB-011	2 / 4	0.0097 - 0.013	0.036	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.029	0.063	mg/kg	CFSB-011	2 / 4	0.017 - 0.023	0.063	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 2	0.00055 - 0.00055	ND	NA	0.28	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 2	0.00024 - 0.00024	ND	NA	3.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 2	0.00063 - 0.00063	ND	NA	2.6	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 2	0.0004 - 0.0004	ND	NA	1.30E-05	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 2	0.00049 - 0.00049	ND	NA	0.00078	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 2	0.00059 - 0.00059	ND	NA	0.01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 2	0.00016 - 0.00016	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 2	0.00046 - 0.00046	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 2	0.00067 - 0.00067	ND	NA	1.40E-07	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 2	0.00017 - 0.00017	ND	NA	2.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 2	0.0002 - 0.0002	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table 2-20
Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 2	0.00016 - 0.00016	ND	NA	4.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 2	0.00024 - 0.00024	ND	NA	4.70E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 2	0.00017 - 0.00017	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 2	0.00019 - 0.00019	ND	NA	0.00046	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	ND	ND	ND	ND	0 / 2	0.0013 - 0.0013	ND	NA	0.00088	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-64-1	Acetone	0.012	0.042	mg/kg	CFSB-011	2 / 2	0.0015 - 0.0015	0.042	NA	0.0[illegible]	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-43-2	Benzene	0.00041	0.00041	mg/kg	CFSB-011	1 / 2	0.00029 - 0.00029	0.00041	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 2	0.00024 - 0.00024	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 2	0.00055 - 0.00055	ND	NA	3.60E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 2	0.00019 - 0.00019	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 2	0.00046 - 0.00046	ND	NA	0.00019	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	ND	ND	ND	ND	0 / 2	0.00062 - 0.00062	ND	NA	0.024	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 2	0.00062 - 0.00062	ND	NA	0.00018	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 2	0.0002 - 0.0002	ND	NA	0.0053	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 2	0.0005 - 0.0005	ND	NA	0.59	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 2	0.0003 - 0.0003	ND	NA	6.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 2	0.00055 - 0.00055	ND	NA	0.0049	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 2	0.00032 - 0.00032	ND	NA	0.0011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 2	0.00022 - 0.00022	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	ND	ND	ND	ND	0 / 2	0.00066 - 0.00066	ND	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 2	0.00022 - 0.00022	ND	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c*	N	BSL

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Table 2-20

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 2	0.00046 - 0.00046	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	ND	ND	ND	ND	0 / 2	0.00026 - 0.00026	ND	NA	0.0017	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	ND	ND	ND	ND	0 / 2	0.00024 - 0.00024	ND	NA	0.074	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	ND	ND	ND	ND	0 / 2	0.00016 - 0.00016	ND	NA	No Screening Level		N	BSL-ND
	79-20-9	Methyl Acetate	0.27	0.27	mg/kg	CFSB-011	1 / 2	0.0013 - 0.0013	0.27	NA	0.41	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	ND	ND	ND	ND	0 / 2	0.0011 - 0.0011	ND	NA	0.12	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 2	0.0032 - 0.0032	ND	NA	0.14	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	ND	ND	ND	ND	0 / 2	0.00072 - 0.00072	ND	NA	No Screening Level		N	BSL-ND
	75-09-2	Methylene Chloride	ND	ND	ND	ND	0 / 2	0.00046 - 0.00046	ND	NA	0.0027	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	ND	ND	ND	ND	0 / 2	0.00023 - 0.00023	ND	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 2	0.00022 - 0.00022	ND	NA	0.13	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 2	0.00024 - 0.00024	ND	NA	0.0032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 2	0.0004 - 0.0004	ND	NA	0.0018	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-88-3	Toluene	ND	ND	ND	ND	0 / 2	0.00027 - 0.00027	ND	NA	0.076	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 2	0.00056 - 0.00056	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 2	0.00014 - 0.00014	ND	NA	No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 2	0.00037 - 0.00037	ND	NA	0.0001	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 2	0.00049 - 0.00049	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 2	0.00056 - 0.00056	ND	NA	6.50E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-21

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	57-12-5	Cyanide	0.022	0.12	mg/kg	CFSB-011	7 / 10	0.016 - 0.017	0.12	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	0.57	27.6	mg/kg	CFMW-011A	10 / 10	0.2 - 0.2	27.6	NA	12	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	4740	20200	mg/kg	CFSB-122	10 / 10	5.9 - 5.9	20200	26941	3000	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 10	0.33 - 0.33	ND	0.4	0.035	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	2.2	6.1	mg/kg	CFSB-011	10 / 10	0.36 - 0.36	6.1	22.5	0.0015	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	43	289	mg/kg	CFSB-122	10 / 10	0.53 - 0.53	289	429	16	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.24	0.63	mg/kg	CFSB-122	10 / 10	0.1 - 0.1	0.63	1.1	1.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 10	0.25 - 0.25	ND	0.7	0.069	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	1560	45500	mg/kg	CFMW-011A	10 / 10	28.9 - 28.9	45500	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	4.9	13.5	mg/kg	CFSB-011	10 / 10	0.63 - 0.63	13.5	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	2.8	8.5	mg/kg	CFMW-011A	10 / 10	0.62 - 0.62	8.5	10	0.027	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	9.1	20.6	mg/kg	CFSB-011	10 / 10	0.54 - 0.54	20.6	165	2.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	7710	17100	mg/kg	CFSB-011	10 / 10	20.9 - 20.9	17100	24400	35	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	5.1	12.9	mg/kg	CFMW-011A	11 / 11	0.18 - 0.18	12.9	29.8	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	2940	17100	mg/kg	CFMW-011A	10 / 10	29 - 29	17100	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	44.4	490	mg/kg	CFMW-011A	10 / 10	1.3 - 1.3	490	880	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.012	0.02	mg/kg	CFSB-011	5 / 10	0.011 - 0.013	0.02	NC	0.0033	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	5.8	12.2	mg/kg	CFSB-011	10 / 10	0.63 - 0.63	12.2	31.4	2.6	USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	2023695	Potassium	427	1360	mg/kg	CFMW-011A	10 / 10	27.5 - 27.5	1360	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.42	0.5	mg/kg	CFSB-011	2 / 10	0.31 - 0.34	0.5	0.7	0.052	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 10	0.61 - 0.61	ND	0.3	0.08	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	45.5	555	mg/kg	CFSB-122	6 / 10	31 - 33.6	555	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 10	0.13 - 0.13	ND	0.41	0.0014	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	6	13.2	mg/kg	CFMW-011A	10 / 10	0.63 - 0.63	13.2	52.6	8.6	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	12.6	70.8	mg/kg	CFSB-011	10 / 10	2 - 2	70.8	118	37	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 2	0.001 - 0.001	ND	NA	1.50E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.00076 - 0.00076	ND	NA	0.000042	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 2	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.00081 - 0.00081	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 2	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 2	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.00091 - 0.00091	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 2	0.0011 - 0.0011	ND	NA	0.000071	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 2	0.00097 - 0.00097	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 2	0.0011 - 0.0011	ND	NA	0.0092	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 2	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 2	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 2	0.00075 - 0.00075	ND	NA	0.00024	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND

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Table 2-21

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 2	0.0011 - 0.0011	ND	NA	1.20E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 2	0.0016 - 0.0016	ND	NA	0.000028	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 2	0.0018 - 0.0018	ND	NA	0.2	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 2	0.0011 - 0.0011	ND	NA	0.0075	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 2	0.0012 - 0.0012	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 2	0.00086 - 0.00086	ND	NA	0.077	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 2	0.024 - 0.024	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 2	0.0018 - 0.0018	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 10	0.0091 - 0.0091	ND	NA	1.30E-02	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 10	0.0091 - 0.0091	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 10	0.0091 - 0.0091	ND	NA	0.00008	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 10	0.0091 - 0.0091	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 10	0.0091 - 0.0091	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 10	0.0094 - 0.0094	ND	NA	0.002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 10	0.0094 - 0.0094	ND	NA	0.0055	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 10	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 10	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 10	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 10	0.025 - 0.025	ND	NA	7.90E-04	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 10	0.091 - 0.091	ND	NA	0.000094	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 10	0.032 - 0.032	ND	NA	0.018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 10	0.034 - 0.034	ND	NA	0.4	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 10	0.0096 - 0.0096	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 10	0.008 - 0.008	ND	NA	0.0023	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 10	0.074 - 0.074	ND	NA	0.042	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 9	0.28 - 0.28	ND	NA	0.0044	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 10	0.013 - 0.013	ND	NA	3.20E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 10	0.018 - 0.018	ND	NA	0.000067	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 10	0.0077 - 0.0077	ND	NA	0.39	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 10	0.0086 - 0.0086	ND	NA	0.0089	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 10	0.0075 - 0.0075	ND	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 10	0.015 - 0.015	ND	NA	0.075	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 10	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 10	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 10	0.038 - 0.038	ND	NA	0.00082	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEP	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 10	0.009 - 0.009	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 10	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 10	0.09 - 0.09	ND	NA	0.00026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 10	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND

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Table 2-21

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 10	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 10	0.0087 - 0.0087	ND	NA	0.00016	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 10	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 10	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 10	0.16 - 0.16	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 10	0.0082 - 0.0082	ND	NA	0.55	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 10	0.0087 - 0.0087	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 10	0.0074 - 0.0074	ND	NA	0.058	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 10	0.032 - 0.032	ND	NA	5.8	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 10	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 10	0.026 - 0.026	ND	NA	0.0041	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.041	0.041	mg/kg	CFSB-011	1 / 10	0.028 - 0.033	0.041	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.02	0.045	mg/kg	CFSB-011	3 / 10	0.01 - 0.011	0.045	NA	0.029	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.016	0.11	mg/kg	CFSB-011	4 / 10	0.013 - 0.014	0.11	NA	0.3	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.023	0.051	mg/kg	CFSB-011	3 / 10	0.019 - 0.021	0.051	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.023	0.033	mg/kg	CFSB-011	2 / 10	0.015 - 0.017	0.033	NA	2.9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 10	0.01 - 0.01	ND	NA	0.24	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	0.046	0.046	mg/kg	CFSB-122	1 / 10	0.029 - 0.043	0.046	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 10	0.011 - 0.011	ND	NA	1.30E-03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 10	0.008 - 0.008	ND	NA	0.0000036	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 10	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.085	0.085	mg/kg	CFSB-011	1 / 10	0.013 - 0.015	0.085	NA	1.3	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 10	0.024 - 0.024	ND	NA	0.25	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 10	0.0084 - 0.0084	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.041	0.084	mg/kg	CFSB-011	3 / 10	0.0092 - 0.01	0.084	NA	9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	0.48	0.48	mg/kg	CFSB-122	1 / 10	0.01 - 0.015	0.48	NA	0.23	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 10	0.017 - 0.017	ND	NA	5.7	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 10	0.018 - 0.018	ND	NA	0.096	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 10	0.01 - 0.01	ND	NA	0.015	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	84-66-2	Diethyl Phthalate	0.032	0.032	mg/kg	CFSB-122	1 / 10	0.0096 - 0.014	0.032	NA	0.61	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 10	0.0098 - 0.0098	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.028	0.059	mg/kg	CFSB-011	3 / 10	0.01 - 0.011	0.059	NA	8.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 10	0.0074 - 0.0074	ND	NA	0.54	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 10	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 10	0.0095 - 0.0095	ND	NA	0.00027	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 10	0.021 - 0.021	ND	NA	0.00013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 10	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.024	0.056	mg/kg	CFSB-011	2 / 10	0.023 - 0.024	0.056	NA	0.98	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	78-59-1	Isophorone	0.0089	0.0089	mg/kg	CFSB-011	1 / 10	0.0073 - 0.0085	0.0089	NA	2.60E-02	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL

Preliminary - Under EPA and DEQ Review

Table 2-21

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 10	0.011 - 0.011	ND	NA	0.0000081	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 10	0.031 - 0.031	ND	NA	0.067	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 10	0.0086 - 0.0086	ND	NA	5.40E-04	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 10	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 10	0.041 - 0.041	ND	NA	0.000057	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.018	0.036	mg/kg	CFSB-011	3 / 10	0.009 - 0.0097	0.036	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 10	0.011 - 0.011	ND	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.029	0.063	mg/kg	CFSB-011	3 / 10	0.015 - 0.017	0.063	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 7	0.00032 - 0.00032	ND	NA	2.80E-01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 7	0.00014 - 0.00014	ND	NA	0.00003	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 7	0.00037 - 0.00037	ND	NA	2.60E+00	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 7	0.00024 - 0.00024	ND	NA	0.000013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 7	0.00029 - 0.00029	ND	NA	0.00078	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 7	0.00035 - 0.00035	ND	NA	0.01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 7	9.3e-005 - 9.3e-005	ND	NA	0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 7	0.00027 - 0.00027	ND	NA	1.20E-03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 7	0.0004 - 0.0004	ND	NA	1.40E-07	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 7	0.0001 - 0.0001	ND	NA	0.0000021	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 7	0.00012 - 0.00012	ND	NA	3.00E-02	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 7	9.3e-005 - 9.3e-005	ND	NA	4.80E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 7	0.00014 - 0.00014	ND	NA	0.000047	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 7	0.0001 - 0.0001	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 7	0.00011 - 0.00011	ND	NA	0.00046	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	ND	ND	ND	ND	0 / 7	0.00079 - 0.00079	ND	NA	0.00088	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-64-1	Acetone	0.0047	0.045	mg/kg	CFMW-011A	7 / 7	0.00089 - 0.00089	0.045	NA	0.29	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	71-43-2	Benzene	0.00022	0.00044	mg/kg	CFSB-011	4 / 7	0.00017 - 0.00017	0.00044	NA	0.00023	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 7	0.00014 - 0.00014	ND	NA	2.10E-03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 7	0.00032 - 0.00032	ND	NA	0.000036	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 7	0.00011 - 0.00011	ND	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 7	0.00027 - 0.00027	ND	NA	0.00019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	ND	ND	ND	ND	0 / 7	0.00036 - 0.00036	ND	NA	0.024	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 7	0.00036 - 0.00036	ND	NA	0.00018	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 7	0.00012 - 0.00012	ND	NA	0.0053	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 7	0.0003 - 0.0003	ND	NA	5.90E-01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 7	0.00018 - 0.00018	ND	NA	0.000061	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 7	0.00032 - 0.00032	ND	NA	0.0049	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 7	0.00019 - 0.00019	ND	NA	0.0011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 7	0.00013 - 0.00013	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	0.00093	0.00093	mg/kg	CFSB-122	1 / 7	0.00039 - 0.00043	0.00093	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL

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Table 2-21

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 7	0.00013 - 0.00013	ND	NA	0.00023	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 7	0.00027 - 0.00027	ND	NA	0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	0.00025	0.00025	mg/kg	CFSB-122	1 / 7	0.00015 - 0.00017	0.00025	NA	0.0017	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	ND	ND	ND	ND	0 / 7	0.00014 - 0.00014	ND	NA	0.074	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	0.00012	0.0008	mg/kg	CFSB-122	2 / 7	9.3e-005 - 9.6e-005	0.0008	NA	No Screening Level		N	NSL
	79-20-9	Methyl Acetate	0.0019	0.27	mg/kg	CFSB-011	3 / 7	0.00076 - 0.00078	0.27	NA	0.41	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0018	0.0021	mg/kg	CFMW-011A	2 / 7	0.00065 - 0.00067	0.0021	NA	0.12	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 7	0.0019 - 0.0019	ND	NA	0.14	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.0007	0.0011	mg/kg	CFSB-122	2 / 7	0.00042 - 0.00043	0.0011	NA	No Screening Level		N	NSL
	75-09-2	Methylene Chloride	ND	ND	ND	ND	0 / 7	0.00027 - 0.00027	ND	NA	0.0027	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	0.00025	0.00025	mg/kg	CFSB-122	1 / 7	0.00014 - 0.00015	0.00025	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 7	0.00013 - 0.00013	ND	NA	0.13	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 7	0.00014 - 0.00014	ND	NA	0.0032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 7	0.00024 - 0.00024	ND	NA	0.0018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00024	0.001	mg/kg	CFSB-122	4 / 7	0.00016 - 0.00017	0.001	NA	0.076	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 7	0.00033 - 0.00033	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 7	8.4e-005 - 8.4e-005	ND	NA	No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 7	0.00022 - 0.00022	ND	NA	0.0001	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 7	0.00029 - 0.00029	ND	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 7	0.00033 - 0.00033	ND		6.50E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA

Preliminary - Under EPA and DEQ Review

Table 2-22

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Water North-Central Undeveloped Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	57-12-5	Cyanide	D	ND	ND	ND	ND	0 / 2	2 - 2	ND	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	16984-48-8	Fluoride	D	126	188	µg/l	CFSWP-013	2 / 2	60 - 60	188	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	57-12-5	Cyanide	T	ND	ND	ND	ND	0 / 11	2 - 2	ND	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	16984-48-8	Fluoride	T	38.3	473	µg/l	CFSWP-013	11 / 11	15 - 15	473	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	D	ND	ND	ND	ND	0 / 2	18.2 - 18.2	ND	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	D	ND	ND	ND	ND	0 / 2	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	D	0.93	0.93	µg/l	CFSWP-021	1 / 2	0.64 - 0.64	0.93	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	D	86.5	96.5	µg/l	CFSWP-021	2 / 2	1.2 - 1.2	96.5	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	D	ND	ND	ND	ND	0 / 2	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	ND	ND	ND	ND	0 / 2	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	D	48900	54100	µg/l	CFSWP-021	2 / 2	60.5 - 60.5	54100	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	D	ND	ND	ND	ND	0 / 2	1.3 - 1.3	ND	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	D	ND	ND	ND	ND	0 / 2	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	D	ND	ND	ND	ND	0 / 2	1.4 - 1.4	ND	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	ND	ND	ND	ND	0 / 2	42.4 - 42.4	ND	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	D	ND	ND	ND	ND	0 / 2	0.38 - 0.38	ND	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	D	11000	12100	µg/l	CFSWP-021	2 / 2	63.6 - 63.6	12100	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	D	3.2	3.4	µg/l	CFSWP-013	2 / 2	2.5 - 2.5	3.4	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 2	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	D	ND	ND	ND	ND	0 / 2	1.4 - 1.4	ND	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	D	397	419	µg/l	CFSWP-021	2 / 2	91.4 - 91.4	419	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	D	ND	ND	ND	ND	0 / 2	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 2	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	D	2070	10400	µg/l	CFSWP-021	2 / 2	69 - 69	10400	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 2	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	ND	ND	ND	ND	0 / 2	1.9 - 1.9	ND	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	D	ND	ND	ND	ND	0 / 2	7 - 7	ND	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	T	23.1	5750	µg/l	CFSWP-021	11 / 11	13.5 - 13.5	5750	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	T	ND	ND	ND	ND	0 / 11	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	T	0.87	3.7	µg/l	CFSWP-021	6 / 11	0.64 - 0.64	3.7	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	T	73	219	µg/l	CFSWP-021	11 / 11	1.2 - 1.2	219	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	T	ND	ND	ND	ND	0 / 11	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	ND	ND	ND	ND	0 / 11	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	T	40000	82100	µg/l	CFSWP-021	11 / 11	60.5 - 60.5	82100	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	T	1.4	3.4	µg/l	CFSWP-021	2 / 11	1.3 - 1.3	3.4	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	T	2	2.4	µg/l	CFSWP-013	2 / 11	1.3 - 1.3	2.4	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	T	2.2	11.7	µg/l	CFSWP-013	5 / 11	1.4 - 1.4	11.7	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	50.2	4760	µg/l	CFSWP-021	7 / 11	42.4 - 42.4	4760	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	T	0.66	4.5	µg/l	CFSWP-021	3 / 11	0.38 - 0.38	4.5	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	T	10300	19500	µg/l	CFSWP-021	11 / 11	63.6 - 63.6	19500	NA	No Screening Level		N	NSL

Preliminary Under EPA and MDEQ Review

Table 2-22

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area
Exposure Medium: Surface Water North-Central Undeveloped Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	7439-96-5	Manganese	T	3.3	3750	µg/l	CFSWP-013	10 / 11	2.5 - 2.5	3750	NA	43	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
Surface Water	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 11	0.14 - 0.14	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	T	2.1	3.9	µg/l	CFSWP-021	3 / 11	1.4 - 1.4	3.9	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	T	443	1250	µg/l	CFSWP-021	11 / 11	74.8 - 74.8	1250	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	T	ND	ND	ND	ND	0 / 11	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 11	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	1410	31000	µg/l	CFSWP-021	11 / 11	69 - 69	31000	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	T	ND	ND	ND	ND	0 / 11	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	T	1.8	3.9	µg/l	CFSWP-021	6 / 11	1.4 - 1.9	3.9	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	T	9.1	19.2	µg/l	CFSWP-021	4 / 11	6.5 - 7	19.2	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

Footnotes:

T = total
D = dissolved
NA = not applicable
ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
MDEQ Circular DEQ-7 Groundawter = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-23

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	57-12-5	Cyanide	0.24	1.5	mg/kg	CFSDP-013	3 / 3	0.033 - 0.033	1.5	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	16984-48-8	Fluoride	1.81	3.79	mg/kg	CFSDP-022	3 / 3	0.33 - 0.33	3.79	NA	12	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	15500	34700	mg/kg	CFSDP-022	3 / 3	8.8 - 8.8	34700	NA	3000	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 3	0.31 - 0.31	ND	NA	0.035	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-38-2	Arsenic	4.1	7.6	mg/kg	CFSDP-021	3 / 3	0.32 - 0.32	7.6	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), c**R	Y	Carcinogen
	7440-39-3	Barium	191	905	mg/kg	CFSDP-022	3 / 3	0.63 - 0.63	905	NA	16	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	0.62	1.1	mg/kg	CFSDP-022	3 / 3	0.096 - 0.096	1.1	NA	1.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 3	0.33 - 0.33	ND	NA	0.069	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-70-2	Calcium	10900	28500	mg/kg	CFSDP-013	3 / 3	43.2 - 43.2	28500	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	9.1	15	mg/kg	CFSDP-013	3 / 3	0.6 - 0.6	15	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	4	7.6	mg/kg	CFSDP-013	3 / 3	0.6 - 0.6	7.6	NA	0.027	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	12.3	32.1	mg/kg	CFSDP-022	3 / 3	0.6 - 0.6	32.1	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-89-6	Iron	12700	16300	mg/kg	CFSDP-013	3 / 3	18.8 - 18.8	16300	NA	35	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	10.6	17.4	mg/kg	CFSDP-013	2 / 3	0.18 - 0.18	17.4	NA	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	5590	11500	mg/kg	CFSDP-013	3 / 3	29.9 - 29.9	11500	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	175	1140	mg/kg	CFSDP-013	3 / 3	1.2 - 1.2	1140	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	0.012	0.045	mg/kg	CFSDP-013	3 / 3	0.012 - 0.012	0.045	NA	0.0033	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-02-0	Nickel	9.8	18.1	mg/kg	CFSDP-013	3 / 3	0.61 - 0.61	18.1	NA	2.6	USEPA RSL Res Soil (THQ=0.1), n	Y	Carcinogen
	7440-09-7	Potassium	1040	1700	mg/kg	CFSDP-013	3 / 3	29.3 - 29.3	1700	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.81	1.4	mg/kg	CFSDP-013	2 / 3	0.29 - 0.41	1.4	NA	0.052	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-22-4	Silver	ND	ND	ND	ND	0 / 3	0.61 - 0.61	ND	NA	0.08	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-23-5	Sodium	120	477	mg/kg	CFSDP-022	3 / 3	42.6 - 42.6	477	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 3	0.12 - 0.12	ND	NA	0.0014	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	11	13.3	mg/kg	CFSDP-022	3 / 3	0.87 - 0.87	13.3	NA	8.6	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-66-6	Zinc	41	89.8	mg/kg	CFSDP-013	3 / 3	3.1 - 3.1	89.8	NA	37	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 3	0.00093 - 0.00093	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.0007 - 0.0007	ND	NA	4.20E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 3	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.00075 - 0.00075	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 3	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.00084 - 0.00084	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 3	0.001 - 0.001	ND	NA	7.10E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 3	0.0009 - 0.0009	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 3	0.00098 - 0.00098	ND	NA	0.0092	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 3	0.00095 - 0.00095	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 3	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 3	0.00069 - 0.00069	ND	NA	0.00024	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 3	0.00099 - 0.00099	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND

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Table 2-23

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 3	0.0015 - 0.0015	ND	NA	2.80E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 3	0.0016 - 0.0016	ND	NA	0.2	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 3	0.001 - 0.001	ND	NA	0.0075	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 3	0.0011 - 0.0011	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 3	0.00079 - 0.00079	ND	NA	0.077	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 3	0.022 - 0.022	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 3	0.0017 - 0.0017	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 3	0.01 - 0.01	ND	NA	0.013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 3	0.01 - 0.01	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 3	0.01 - 0.01	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 3	0.01 - 0.01	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 3	0.01 - 0.01	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	0.002	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	0.0055	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 3	0.028 - 0.028	ND	NA	0.00079	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 3	0.1 - 0.1	ND	NA	9.40E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 3	0.036 - 0.036	ND	NA	0.018	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.038 - 0.038	ND	NA	0.4	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 3	0.009 - 0.009	ND	NA	0.0023	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 3	0.083 - 0.083	ND	NA	0.042	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 2	0.29 - 0.29	ND	NA	0.0044	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.015 - 0.015	ND	NA	0.00032	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.02 - 0.02	ND	NA	6.70E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 3	0.0086 - 0.0086	ND	NA	0.39	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 3	0.0096 - 0.0096	ND	NA	0.0089	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 3	0.0084 - 0.0084	ND	NA	0.019	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 3	0.017 - 0.017	ND	NA	0.075	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	0.008	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 3	0.042 - 0.042	ND	NA	0.00082	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 3	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 3	0.1 - 0.1	ND	NA	0.00026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 3	0.016 - 0.016	ND	NA	0.17	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

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Table 2-23

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 3	0.0098 - 0.0098	ND	NA	0.00016	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.0016	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 3	0.18 - 0.18	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 3	0.0092 - 0.0092	ND	NA	0.55	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 3	0.0098 - 0.0098	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 3	0.0083 - 0.0083	ND	NA	0.058	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 3	0.036 - 0.036	ND	NA	5.8	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 3	0.017 - 0.017	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 3	0.029 - 0.029	ND	NA	0.0041	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.074	0.093	mg/kg	CFSDP-013	2 / 3	0.032 - 0.044	0.093	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.021	0.11	mg/kg	CFSDP-013	3 / 3	0.011 - 0.011	0.11	NA	0.018	USEPA RSL Res Soil (THQ=0.1), c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.036	0.19	mg/kg	CFSDP-013	3 / 3	0.015 - 0.015	0.19	NA	0.18	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.027	0.13	mg/kg	CFSDP-013	2 / 3	0.022 - 0.022	0.13	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.051	0.053	mg/kg	CFSDP-022	2 / 3	0.017 - 0.023	0.053	NA	1.8	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	0.24	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 3	0.032 - 0.032	ND	NA	0.00087	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	0.0013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 3	0.009 - 0.009	ND	NA	3.60E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 3	0.016 - 0.016	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	ND	ND	ND	ND	0 / 3	0.015 - 0.015	ND	NA	1.3	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	0.25	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	0.017	0.017	mg/kg	CFSDP-013	1 / 3	0.0094 - 0.015	0.017	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.019	0.13	mg/kg	CFSDP-022	3 / 3	0.01 - 0.01	0.13	NA	9	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	0.23	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 3	0.019 - 0.019	ND	NA	5.7	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 3	0.02 - 0.02	ND	NA	0.096	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	0.015	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	0.61	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.018	0.14	mg/kg	CFSDP-013	3 / 3	0.011 - 0.011	0.14	NA	8.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 3	0.0083 - 0.0083	ND	NA	0.54	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 3	0.015 - 0.015	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 3	0.011 - 0.011	ND	NA	0.00027	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 3	0.024 - 0.024	ND	NA	0.00013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.025	0.11	mg/kg	CFSDP-013	3 / 3	0.025 - 0.025	0.11	NA	0.98	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	78-59-1	Isophorone	0.015	0.016	mg/kg	CFSDP-013	2 / 3	0.0081 - 0.011	0.016	NA	0.026	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	8.10E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND

Preliminary Under EPA and DEQ Review

Table 2-23

Occurrence, Distribution, and Selection of Chemical of Potential Concern (North-Central Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North-Central Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 3	0.034 - 0.034	ND	NA	0.067	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 3	0.0096 - 0.0096	ND	NA	0.00054	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	9.20E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 3	0.046 - 0.046	ND	NA	5.70E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	0.011	0.067	mg/kg	CFSDP-013	3 / 3	0.01 - 0.01	0.067	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 3	0.012 - 0.012	ND	NA	0.33	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	0.027	0.13	mg/kg	CFSDP-013	3 / 3	0.017 - 0.017	0.13	NA	1.3	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
c = carcinogenic basis
n = non-carcinogenic basis
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

Preliminary - Under EPA and MDEQ Review

Table 2-24
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.024	0.68	mg/kg	CFSB-124	8 / 8	0.018 - 0.018	0.68	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	1.78	10.8	mg/kg	CFSB-124	8 / 8	0.19 - 0.19	10.8	NA	12	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7429-90-5	Aluminum	8330	29200	mg/kg	CFSB-126	8 / 8	6.2 - 6.2	29200	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 8	0.35 - 0.35	ND	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	2.1	7.1	mg/kg	CFSB-126	8 / 8	0.37 - 0.37	7.1	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	84.9	429	mg/kg	CFSB-127	8 / 8	0.55 - 0.55	429	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.32	1.2	mg/kg	CFSB-126	8 / 8	0.11 - 0.11	1.2	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 8	0.26 - 0.26	ND	0.7	0.0037	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	3520	18900	mg/kg	CFSB-132	8 / 8	30.1 - 30.1	18900	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	7.7	18.3	mg/kg	CFSB-124	8 / 8	0.65 - 0.65	18.3	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	3.5	7.2	mg/kg	CFSB-125	8 / 8	0.65 - 0.65	7.2	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	13.9	27	mg/kg	CFSB-124	8 / 8	0.57 - 0.57	27	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	11300	19900	mg/kg	CFSB-124	8 / 8	21.8 - 21.8	19900	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	10.2	15.9	mg/kg	CFSB-124	8 / 8	0.19 - 0.19	15.9	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	7440	11400	mg/kg	CFSB-124	8 / 8	30.2 - 30.2	11400	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	62.7	576	mg/kg	CFSB-125	8 / 8	1.3 - 1.3	576	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.018	0.04	mg/kg	CFSB-133	8 / 8	0.011 - 0.011	0.04	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	8.9	14.2	mg/kg	CFSB-124	8 / 8	0.66 - 0.66	14.2	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	737	1510	mg/kg	CFSB-124	8 / 8	28.6 - 28.6	1510	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.4	0.93	mg/kg	CFSB-124	6 / 8	0.32 - 0.35	0.93	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 8	0.63 - 0.63	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	51	136	mg/kg	CFSB-126	8 / 8	32.3 - 32.3	136	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 8	0.13 - 0.13	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	6.3	16.5	mg/kg	CFSB-125	8 / 8	0.65 - 0.65	16.5	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	34.1	79.6	mg/kg	CFSB-125	8 / 8	2.1 - 2.1	79.6	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 6	0.00091 - 0.00091	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00068 - 0.00068	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00073 - 0.00073	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00082 - 0.00082	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 6	0.00097 - 0.00097	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 6	0.00087 - 0.00087	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 6	0.00095 - 0.00095	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 6	0.00093 - 0.00093	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 6	0.00067 - 0.00067	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 6	0.00096 - 0.00096	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 6	0.0015 - 0.0015	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 6	0.00099 - 0.00099	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
Surface Soil	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 6	0.00077 - 0.00077	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 6	0.022 - 0.022	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 8	0.0096 - 0.0096	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 8	0.0096 - 0.0096	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 8	0.0096 - 0.0096	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 8	0.0096 - 0.0096	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 8	0.0096 - 0.0096	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 8	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 8	0.026 - 0.026	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 8	0.095 - 0.095	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

Preliminary, Under EPA and MDEQ Review

Table 2-24
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 8	0.033 - 0.033	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 8	0.035 - 0.035	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 8	0.01 - 0.01	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 8	0.0084 - 0.0084	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 8	0.078 - 0.078	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 8	0.27 - 0.27	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 8	0.014 - 0.014	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 8	0.019 - 0.019	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 8	0.0081 - 0.0081	ND	NA	0.63	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 8	0.009 - 0.009	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.016	0.023	mg/kg	CFSB-132	2 / 8	0.0079 - 0.0082	0.023	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 8	0.016 - 0.016	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 8	0.04 - 0.04	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 8	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 8	0.095 - 0.095	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 8	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 8	0.0092 - 0.0092	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 8	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 8	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 8	0.0086 - 0.0086	ND	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table 2-24
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 8	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
Soil	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 8	0.0078 - 0.0078	ND	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 8	0.034 - 0.034	ND	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 8	0.016 - 0.016	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 8	0.027 - 0.027	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.037	0.044	mg/kg	CFSB-125	2 / 8	0.03 - 0.031	0.044	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.014	0.051	mg/kg	CFSB-125	5 / 8	0.011 - 0.011	0.051	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.02	0.1	mg/kg	CFSB-125	6 / 8	0.014 - 0.014	0.1	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.037	0.074	mg/kg	CFSB-125	2 / 8	0.02 - 0.021	0.074	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.02	0.035	mg/kg	CFSB-125	3 / 8	0.016 - 0.016	0.035	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 8	0.03 - 0.03	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 8	0.0084 - 0.0084	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 8	0.015 - 0.015	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.016	0.016	mg/kg	CFSB-132	1 / 8	0.014 - 0.014	0.016	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 8	0.026 - 0.026	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 8	0.0088 - 0.0088	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.013	0.065	mg/kg	CFSB-125	6 / 8	0.0097 - 0.01	0.065	NA	9	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 8	0.018 - 0.018	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 8	0.019 - 0.019	ND	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 8	0.01 - 0.01	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 8	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.016	0.065	mg/kg	CFSB-125	6 / 8	0.011 - 0.011	0.065	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 8	0.0078 - 0.0078	ND	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 8	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 8	0.01 - 0.01	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 8	0.022 - 0.022	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 8	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.033	0.082	mg/kg	CFSB-125	2 / 8	0.024 - 0.025	0.082	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 8	0.0076 - 0.0076	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 8	0.032 - 0.032	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	0.01	0.01	mg/kg	CFSB-132	1 / 8	0.009 - 0.0094	0.01	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 8	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 8	0.043 - 0.043	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.016	0.031	mg/kg	CFSB-125	5 / 8	0.0095 - 0.0098	0.031	NA	No Screening Level		N	NSL

Preliminary, Under EPA and MDEQ Review

Table 2-24
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface	108-95-2	Phenol	ND	ND	ND	ND	0 / 8	0.012 - 0.012	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
Soil	129-00-0	Pyrene	0.02	0.067	mg/kg	CFSB-125	5 / 8	0.016 - 0.017	0.067	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

Preliminary - Under EPA and MDEQ Review

Table 2-25

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.024	0.68	mg/kg	CFSB-124	16 / 16	0.017 - 0.017	0.68	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	0.31	10.8	mg/kg	CFSB-124	16 / 16	0.19 - 0.19	10.8	NA	12	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7429-90-5	Aluminum	8330	30900	mg/kg	CFSB-120	16 / 16	6.2 - 6.2	30900	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 16	0.35 - 0.35	ND	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	2.1	7.1	mg/kg	CFSB-126	16 / 16	0.37 - 0.37	7.1	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	84.9	440	mg/kg	CFSB-120	16 / 16	0.55 - 0.55	440	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.32	1.2	mg/kg	CFSB-120	16 / 16	0.11 - 0.11	1.2	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 16	0.26 - 0.26	ND	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	2370	18900	mg/kg	CFSB-132	16 / 16	30.1 - 30.1	18900	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	7.7	20.9	mg/kg	CFSB-120	16 / 16	0.65 - 0.65	20.9	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	3.5	7.4	mg/kg	CFSB-126	16 / 16	0.65 - 0.65	7.4	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	10.6	27	mg/kg	CFSB-124	16 / 16	0.57 - 0.57	27	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	11300	19900	mg/kg	CFSB-124	16 / 16	21.8 - 21.8	19900	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	10.2	21.2	mg/kg	CFSB-127	16 / 16	0.19 - 0.19	21.2	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	7440	11400	mg/kg	CFSB-124	16 / 16	30.2 - 30.2	11400	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	62.7	659	mg/kg	CFSB-127	16 / 16	1.3 - 1.3	659	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.016	0.04	mg/kg	CFSB-133	16 / 16	0.011 - 0.011	0.04	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	8.9	14.2	mg/kg	CFSB-124	16 / 16	0.66 - 0.66	14.2	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	555	1510	mg/kg	CFSB-124	16 / 16	28.6 - 28.6	1510	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.39	1.1	mg/kg	CFSB-123	11 / 16	0.32 - 0.34	1.1	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 16	0.63 - 0.63	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	38.8	251	mg/kg	CFSB-120	16 / 16	32.3 - 32.3	251	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 16	0.13 - 0.13	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	6.3	16.5	mg/kg	CFSB-125	16 / 16	0.65 - 0.65	16.5	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	34.1	79.6	mg/kg	CFSB-125	16 / 16	2.1 - 2.1	79.6	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 6	0.00091 - 0.00091	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00068 - 0.00068	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00073 - 0.00073	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00082 - 0.00082	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 6	0.00097 - 0.00097	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 6	0.00087 - 0.00087	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 6	0.00095 - 0.00095	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 6	0.00093 - 0.00093	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 6	0.00067 - 0.00067	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 6	0.00096 - 0.00096	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table 2-25

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 6	0.0015 - 0.0015	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 6	0.00099 - 0.00099	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 6	0.00077 - 0.00077	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 6	0.022 - 0.022	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 16	0.0096 - 0.0096	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 16	0.0096 - 0.0096	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 16	0.0096 - 0.0096	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 16	0.0096 - 0.0096	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 16	0.0096 - 0.0096	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 16	0.0099 - 0.0099	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 16	0.0099 - 0.0099	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 16	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 16	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 16	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 16	0.026 - 0.026	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 16	0.095 - 0.095	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 16	0.033 - 0.033	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 16	0.035 - 0.035	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 16	0.01 - 0.01	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 16	0.0084 - 0.0084	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 16	0.078 - 0.078	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 16	0.27 - 0.27	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 16	0.014 - 0.014	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 16	0.019 - 0.019	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 16	0.0081 - 0.0081	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 16	0.009 - 0.009	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.013	0.023	mg/kg	CFSB-132	3 / 16	0.0079 - 0.0079	0.023	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 16	0.016 - 0.016	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 16	0.012 - 0.012	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 16	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 16	0.04 - 0.04	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 16	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 16	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 16	0.095 - 0.095	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 16	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 16	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL

Preliminary Under EPA and MDEQ Review

Table 2-25

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 16	0.0092 - 0.0092	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 16	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 16	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 16	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 16	0.0086 - 0.0086	ND	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 16	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 16	0.0078 - 0.0078	ND	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 16	0.034 - 0.034	ND	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 16	0.016 - 0.016	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 16	0.027 - 0.027	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.037	0.044	mg/kg	CFSB-125	2 / 16	0.03 - 0.031	0.044	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.013	0.051	mg/kg	CFSB-125	7 / 16	0.011 - 0.011	0.051	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.02	0.1	mg/kg	CFSB-125	8 / 16	0.014 - 0.014	0.1	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.022	0.074	mg/kg	CFSB-125	3 / 16	0.02 - 0.021	0.074	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.02	0.035	mg/kg	CFSB-125	3 / 16	0.016 - 0.016	0.035	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 16	0.011 - 0.011	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 16	0.03 - 0.03	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 16	0.011 - 0.011	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 16	0.0084 - 0.0084	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 16	0.015 - 0.015	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.016	0.016	mg/kg	CFSB-132	1 / 16	0.014 - 0.014	0.016	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 16	0.026 - 0.026	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 16	0.0088 - 0.0088	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.013	0.065	mg/kg	CFSB-125	9 / 16	0.0097 - 0.0098	0.065	NA	9	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 16	0.011 - 0.011	ND	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 16	0.018 - 0.018	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 16	0.019 - 0.019	ND	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 16	0.011 - 0.011	ND	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 16	0.01 - 0.01	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 16	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.013	0.065	mg/kg	CFSB-125	8 / 16	0.011 - 0.011	0.065	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 16	0.0078 - 0.0078	ND	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 16	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 16	0.01 - 0.01	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 16	0.022 - 0.022	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 16	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.033	0.082	mg/kg	CFSB-125	2 / 16	0.024 - 0.025	0.082	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 16	0.0076 - 0.0076	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 16	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Preliminary Under EPA and MDEQ Review

Table 2-25

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 16	0.032 - 0.032	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	0.01	0.01	mg/kg	CFSB-132	1 / 16	0.009 - 0.0091	0.01	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 16	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 16	0.043 - 0.043	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.013	0.031	mg/kg	CFSB-125	6 / 16	0.0095 - 0.0098	0.031	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 16	0.012 - 0.012	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.02	0.067	mg/kg	CFSB-125	6 / 16	0.016 - 0.017	0.067	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 8	0.00037 - 0.00037	ND	NA	0.28	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 8	0.00016 - 0.00016	ND	NA	3.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 8	0.00042 - 0.00042	ND	NA	2.6	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 8	0.00027 - 0.00027	ND	NA	1.30E-05	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 8	0.00033 - 0.00033	ND	NA	0.00078	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 8	0.0004 - 0.0004	ND	NA	0.01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 8	0.00011 - 0.00011	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 8	0.00031 - 0.00031	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 8	0.00045 - 0.00045	ND	NA	1.40E-07	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 8	0.00012 - 0.00012	ND	NA	2.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 8	0.00014 - 0.00014	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 8	0.00011 - 0.00011	ND	NA	4.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 8	0.00016 - 0.00016	ND	NA	4.70E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 8	0.00012 - 0.00012	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 8	0.00013 - 0.00013	ND	NA	0.00046	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	ND	ND	ND	ND	0 / 8	0.00091 - 0.00091	ND	NA	0.00088	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-64-1	Acetone	0.0094	0.093	mg/kg	CFSB-124	8 / 8	0.001 - 0.001	0.093	NA	0.29	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-43-2	Benzene	0.00029	0.0015	mg/kg	CFSB-123	8 / 8	0.00019 - 0.00019	0.0015	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 8	0.00016 - 0.00016	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 8	0.00037 - 0.00037	ND	NA	3.60E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 8	0.00013 - 0.00013	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 8	0.00031 - 0.00031	ND	NA	0.00019	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	ND	ND	ND	ND	0 / 8	0.00041 - 0.00041	ND	NA	0.024	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 8	0.00041 - 0.00041	ND	NA	0.00018	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 8	0.00014 - 0.00014	ND	NA	0.0053	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 8	0.00034 - 0.00034	ND	NA	0.59	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 8	0.0002 - 0.0002	ND	NA	6.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 8	0.00037 - 0.00037	ND	NA	0.0049	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 8	0.00021 - 0.00021	ND	NA	0.0011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 8	0.00014 - 0.00014	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	0.001	0.001	mg/kg	CFSB-125	1 / 8	0.00044 - 0.00047	0.001	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 8	0.00014 - 0.00014	ND	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

Preliminary-Under EPA and MDEQ Review

Table 2-25

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 8	0.00031 - 0.00031	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	ND	ND	ND	ND	0 / 8	0.00017 - 0.00017	ND	NA	0.0017	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	ND	ND	ND	ND	0 / 8	0.00016 - 0.00016	ND	NA	0.074	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	0.00051	0.00051	mg/kg	CFSB-125	1 / 8	0.00011 - 0.00011	0.00051	NA	No Screening Level		N	NSL
	79-20-9	Methyl Acetate	0.002	0.035	mg/kg	CFSB-124	5 / 8	0.00087 - 0.0009	0.035	NA	0.41	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	ND	ND	ND	ND	0 / 8	0.00074 - 0.00074	ND	NA	0.12	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 8	0.0021 - 0.0021	ND	NA	0.14	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.0015	0.0015	mg/kg	CFSB-125	1 / 8	0.00048 - 0.00051	0.0015	NA	No Screening Level		N	NSL
	75-09-2	Methylene Chloride	ND	ND	ND	ND	0 / 8	0.00031 - 0.00031	ND	NA	0.0027	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	ND	ND	ND	ND	0 / 8	0.00015 - 0.00015	ND	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 8	0.00014 - 0.00014	ND	NA	0.13	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 8	0.00016 - 0.00016	ND	NA	0.0032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 8	0.00027 - 0.00027	ND	NA	0.0018	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00018	0.0014	mg/kg	CFSB-125	3 / 8	0.00018 - 0.00019	0.0014	NA	0.076	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 8	0.00038 - 0.00038	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 8	9.6e-005 - 9.6e-005	ND	NA	No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 8	0.00025 - 0.00025	ND	NA	0.0001	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 8	0.00033 - 0.00033	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 8	0.00038 - 0.00038	ND	NA	6.50E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1×10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

Preliminary - Under EPA and MDEQ Review

Table 2-26

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	57-12-5	Cyanide	0.017	0.68	mg/kg	CFSB-124	30 / 34	0.016 - 0.017	0.68	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	0.31	15.4	mg/kg	CFMW-057A	32 / 34	0.19 - 0.21	15.4	NA	12	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	3840	30900	mg/kg	CFSB-120	34 / 34	5.9 - 5.9	30900	25941	3000	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 34	0.33 - 0.33	ND	0.4	0.035	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	2.1	9.2	mg/kg	CFSB-132	34 / 34	0.36 - 0.36	9.2	22.5	0.0015	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	30.3	440	mg/kg	CFSB-120	34 / 34	0.53 - 0.53	440	429	16	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.21	1.2	mg/kg	CFSB-120	34 / 34	0.1 - 0.1	1.2	1.1	1.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 34	0.25 - 0.25	ND	0.7	0.069	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	1470	39900	mg/kg	CFMW-059A	34 / 34	28.7 - 28.7	39900	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	6.7	21.3	mg/kg	CFSB-126	34 / 34	0.62 - 0.62	21.3	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	3.2	7.4	mg/kg	CFSB-126	34 / 34	0.62 - 0.62	7.4	10	0.027	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	3.7	27	mg/kg	CFSB-124	34 / 34	0.54 - 0.54	27	165	2.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	7100	19900	mg/kg	CFSB-124	34 / 34	20.8 - 20.8	19900	24400	35	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	3.1	21.2	mg/kg	CFSB-127	36 / 36	0.18 - 0.18	21.2	29.8	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	4660	13400	mg/kg	CFMW-059A	34 / 34	28.8 - 28.8	13400	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	62.7	682	mg/kg	CFMW-057A	34 / 34	1.3 - 1.3	682	880	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.011	0.04	mg/kg	CFSB-133	28 / 34	0.011 - 0.012	0.04	NC	0.0033	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	5.2	14.3	mg/kg	CFMW-056A	34 / 34	0.63 - 0.63	14.3	31.4	2.6	USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	2023695	Potassium	475	1510	mg/kg	CFSB-124	34 / 34	27.2 - 27.2	1510	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.39	1.1	mg/kg	CFSB-123	14 / 34	0.31 - 0.32	1.1	0.7	0.052	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 34	0.6 - 0.6	ND	0.3	0.08	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	34.6	251	mg/kg	CFSB-120	28 / 34	30.8 - 32.5	251	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 34	0.12 - 0.12	ND	0.41	0.0014	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	4.9	16.7	mg/kg	CFMW-057A	34 / 34	0.62 - 0.62	16.7	52.6	8.6	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	16.9	89	mg/kg	CFMW-056A	34 / 34	2 - 2	89	118	37	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 9	0.0009 - 0.0009	ND	NA	1.50E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 9	0.00068 - 0.00068	ND	NA	0.000042	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 9	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 9	0.00072 - 0.00072	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 9	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 9	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 9	0.00081 - 0.00081	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 9	0.00097 - 0.00097	ND	NA	0.000071	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 9	0.00087 - 0.00087	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 9	0.00095 - 0.00095	ND	NA	0.0092	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 9	0.00092 - 0.00092	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 9	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 9	0.00067 - 0.00067	ND	NA	0.00024	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND

Preliminary, Under EPA and MDEQ Review

Table 2-26

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 9	0.00096 - 0.00096	ND	NA	1.20E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 9	0.0015 - 0.0015	ND	NA	0.000028	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 9	0.0016 - 0.0016	ND	NA	0.2	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 9	0.00098 - 0.00098	ND	NA	0.0075	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 9	0.0011 - 0.0011	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 9	0.00077 - 0.00077	ND	NA	0.077	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 9	0.022 - 0.022	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 9	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 34	0.0092 - 0.0092	ND	NA	1.30E-02	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 34	0.0092 - 0.0092	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 34	0.0092 - 0.0092	ND	NA	0.00008	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 34	0.0092 - 0.0092	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 34	0.0092 - 0.0092	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 34	0.0095 - 0.0095	ND	NA	0.002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 34	0.0095 - 0.0095	ND	NA	0.0055	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 34	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 34	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 34	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 34	0.025 - 0.025	ND	NA	7.90E-04	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 34	0.091 - 0.091	ND	NA	0.000094	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 34	0.032 - 0.032	ND	NA	0.018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 34	0.034 - 0.034	ND	NA	0.4	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 34	0.0097 - 0.0097	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 34	0.008 - 0.008	ND	NA	0.0023	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 34	0.075 - 0.075	ND	NA	0.042	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 33	0.26 - 0.26	ND	NA	0.0044	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 34	0.013 - 0.013	ND	NA	3.20E-04	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 34	0.018 - 0.018	ND	NA	0.000067	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 34	0.0077 - 0.0077	ND	NA	0.39	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 34	0.0087 - 0.0087	ND	NA	0.0089	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.013	0.023	mg/kg	CFSB-132	3 / 34	0.0075 - 0.0079	0.023	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 34	0.015 - 0.015	ND	NA	0.075	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 34	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 34	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 34	0.038 - 0.038	ND	NA	0.00082	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 34	0.0091 - 0.0091	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 34	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 34	0.091 - 0.091	ND	NA	0.00026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 34	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND

Preliminary - Under EPA/MDEQ Review

Table 2-26

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 34	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 34	0.0088 - 0.0088	ND	NA	0.00016	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 34	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 34	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 34	0.16 - 0.16	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 34	0.0082 - 0.0082	ND	NA	0.55	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 34	0.0088 - 0.0088	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 34	0.0074 - 0.0074	ND	NA	0.058	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 34	0.032 - 0.032	ND	NA	5.8	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 34	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 34	0.026 - 0.026	ND	NA	0.0041	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.037	0.076	mg/kg	CFMW-056A	4 / 34	0.028 - 0.031	0.076	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.013	0.11	mg/kg	CFMW-056A	9 / 34	0.01 - 0.011	0.11	NA	0.029	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.02	0.24	mg/kg	CFMW-056A	10 / 34	0.013 - 0.014	0.24	NA	0.3	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.022	0.097	mg/kg	CFMW-056A	5 / 34	0.02 - 0.021	0.097	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.02	0.063	mg/kg	CFMW-056A	5 / 34	0.015 - 0.016	0.063	NA	2.9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 34	0.011 - 0.011	ND	NA	0.24	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 34	0.029 - 0.029	ND	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 34	0.011 - 0.011	ND	NA	1.30E-03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 34	0.008 - 0.008	ND	NA	0.0000036	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 34	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.016	0.016	mg/kg	CFSB-132	1 / 34	0.013 - 0.014	0.016	NA	1.3	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 34	0.025 - 0.025	ND	NA	0.25	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-74-8	Carbazole	0.012	0.016	mg/kg	CFMW-056A	2 / 34	0.0084 - 0.0095	0.016	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.013	0.15	mg/kg	CFMW-056A	11 / 34	0.0093 - 0.0098	0.15	NA	9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	0.011	0.013	mg/kg	CFMW-059A	2 / 34	0.01 - 0.011	0.013	NA	0.23	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 34	0.017 - 0.017	ND	NA	5.7	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.027	0.027	mg/kg	CFMW-056A	1 / 34	0.018 - 0.021	0.027	NA	0.096	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 34	0.01 - 0.01	ND	NA	0.015	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 34	0.0097 - 0.0097	ND	NA	0.61	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 34	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.013	0.15	mg/kg	CFMW-056A	10 / 34	0.01 - 0.011	0.15	NA	8.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 34	0.0074 - 0.0074	ND	NA	0.54	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 34	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 34	0.0096 - 0.0096	ND	NA	0.00027	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 34	0.021 - 0.021	ND	NA	0.00013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 34	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.033	0.086	mg/kg	CFMW-056A	4 / 34	0.023 - 0.025	0.086	NA	0.98	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 34	0.0073 - 0.0073	ND	NA	2.60E-02	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL

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Table 2-26

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 34	0.011 - 0.011	ND	NA	0.0000081	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 34	0.031 - 0.031	ND	NA	0.067	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	0.01	0.01	mg/kg	CFSB-132	1 / 34	0.0087 - 0.009	0.01	NA	5.40E-04	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 34	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 34	0.041 - 0.041	ND	NA	0.000057	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.013	0.077	mg/kg	CFMW-056A	8 / 34	0.0091 - 0.0098	0.077	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 34	0.011 - 0.011	ND	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.02	0.16	mg/kg	CFMW-056A	8 / 34	0.015 - 0.017	0.16	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 23	0.00029 - 0.00029	ND	NA	2.80E-01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 23	0.00013 - 0.00013	ND	NA	0.00003	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 23	0.00033 - 0.00033	ND	NA	2.60E+00	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 23	0.00021 - 0.00021	ND	NA	0.000013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 23	0.00026 - 0.00026	ND	NA	0.00078	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 23	0.00031 - 0.00031	ND	NA	0.01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 23	8.3e-005 - 8.3e-005	ND	NA	0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 23	0.00024 - 0.00024	ND	NA	1.20E-03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 23	0.00035 - 0.00035	ND	NA	1.40E-07	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 23	9e-005 - 9e-005	ND	NA	0.0000021	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 23	0.00011 - 0.00011	ND	NA	3.00E-02	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 23	8.3e-005 - 8.3e-005	ND	NA	4.80E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 23	0.00013 - 0.00013	ND	NA	0.000047	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 23	9e-005 - 9e-005	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	ND	ND	ND	ND	0 / 23	9.8e-005 - 9.8e-005	ND	NA	0.00046	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	ND	ND	ND	ND	0 / 23	0.00071 - 0.00071	ND	NA	0.00088	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-64-1	Acetone	0.0069	0.093	mg/kg	CFSB-124	21 / 23	0.0008 - 0.00099	0.093	NA	0.29	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	71-43-2	Benzene	0.00019	0.0015	mg/kg	CFSB-123	15 / 23	0.00015 - 0.00017	0.0015	NA	0.00023	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 23	0.00013 - 0.00013	ND	NA	2.10E-03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 23	0.00029 - 0.00029	ND	NA	0.000036	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 23	9.8e-005 - 9.8e-005	ND	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 23	0.00024 - 0.00024	ND	NA	0.00019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	0.00039	0.00079	mg/kg	CFSB-127	4 / 23	0.00032 - 0.00037	0.00079	NA	0.024	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 23	0.00032 - 0.00032	ND	NA	0.00018	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 23	0.00011 - 0.00011	ND	NA	0.0053	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 23	0.00026 - 0.00026	ND	NA	5.90E-01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 23	0.00016 - 0.00016	ND	NA	0.000061	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 23	0.00029 - 0.00029	ND	NA	0.0049	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 23	0.00017 - 0.00017	ND	NA	0.0011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 23	0.00011 - 0.00011	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	0.00044	0.0019	mg/kg	CFSB-132	6 / 23	0.00035 - 0.00042	0.0019	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL

Preliminary - Under EPA Provided Review

Table 2-26

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 23	0.00011 - 0.00011	ND	NA	0.00023	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 23	0.00024 - 0.00024	ND	NA	0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	0.00021	0.00067	mg/kg	CFSB-120	3 / 23	0.00014 - 0.00015	0.00067	NA	0.0017	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	ND	ND	ND	ND	0 / 23	0.00013 - 0.00013	ND	NA	0.074	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	0.0001	0.0024	mg/kg	CFSB-132	7 / 23	8.3e-005 - 9.6e-005	0.0024	NA	No Screening Level		N	NSL
	79-20-9	Methyl Acetate	0.002	0.035	mg/kg	CFSB-124	7 / 23	0.00068 - 0.00079	0.035	NA	0.41	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0022	0.0044	mg/kg	CFMW-057A	2 / 23	0.00058 - 0.00067	0.0044	NA	0.12	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 23	0.0017 - 0.0017	ND	NA	0.14	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.0005	0.0041	mg/kg	CFSB-132	8 / 23	0.00038 - 0.00043	0.0041	NA	No Screening Level		N	NSL
	75-09-2	Methylene Chloride	ND	ND	ND	ND	0 / 23	0.00024 - 0.00024	ND	NA	0.0027	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	0.00033	0.00073	mg/kg	CFSB-132	3 / 23	0.00012 - 0.00014	0.00073	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 23	0.00011 - 0.00011	ND	NA	0.13	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 23	0.00013 - 0.00013	ND	NA	0.0032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 23	0.00021 - 0.00021	ND	NA	0.0018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00018	0.0031	mg/kg	CFSB-132	14 / 23	0.00014 - 0.00016	0.0031	NA	0.076	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 23	0.00029 - 0.00029	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 23	7.5e-005 - 7.5e-005	ND	NA	No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 23	0.0002 - 0.0002	ND	NA	0.0001	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 23	0.00026 - 0.00026	ND	NA	3.30E-01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA

Preliminary - Under EPA and MDEQ Review

Table 2-26

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)

NSL = no screening level available

Preliminary - Under EPA and MDEQ Review

Table 2-27
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Water Western Undeveloped Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface	57-12-5	Cyanide	D	ND	ND	ND	ND	0 / 6	2 - 2	ND	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
Water	FREE CN	Cyanide (Free)	D	ND	ND	ND	ND	0 / 3	1.5 - 1.5	ND	NA	No Screening Level		N	BSL-ND
	16984-48-8	Fluoride	D	121	138	µg/l	CFSWP-016	6 / 6	60 - 60	138	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	57-12-5	Cyanide	T	2.3	15.3	µg/l	CFSWP-014	3 / 21	2 - 2	15.3	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	FREE CN	Cyanide (Free)	T	ND	ND	ND	ND	0 / 6	1.5 - 1.5	ND	NA	No Screening Level		N	BSL-ND
	16984-48-8	Fluoride	T	55.8	137	µg/l	CFSWP-016	21 / 21	30 - 30	137	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	D	ND	ND	ND	ND	0 / 6	18.2 - 18.2	ND	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	D	ND	ND	ND	ND	0 / 6	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-38-2	Arsenic	D	ND	ND	ND	ND	0 / 6	0.64 - 0.64	ND	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	7440-39-3	Barium	D	88.5	99.8	µg/l	CFSWP-025	6 / 6	1.2 - 1.2	99.8	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	D	ND	ND	ND	ND	0 / 6	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	ND	ND	ND	ND	0 / 6	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-70-2	Calcium	D	50100	50600	µg/l	CFSWP-015	6 / 6	60.5 - 60.5	50600	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	D	ND	ND	ND	ND	0 / 6	1.3 - 1.3	ND	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	D	ND	ND	ND	ND	0 / 6	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	D	ND	ND	ND	ND	0 / 6	1.4 - 1.4	ND	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	ND	ND	ND	ND	0 / 6	42.4 - 42.4	ND	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	D	ND	ND	ND	ND	0 / 6	0.38 - 0.38	ND	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	D	11400	11700	µg/l	CFSWP-015	6 / 6	63.6 - 63.6	11700	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	D	2.7	3.5	µg/l	CFSWP-016	6 / 6	2.5 - 2.5	3.5	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 6	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	D	ND	ND	ND	ND	0 / 6	1.4 - 1.4	ND	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	D	421	439	µg/l	CFSWP-014	6 / 6	91.4 - 91.4	439	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	D	ND	ND	ND	ND	0 / 6	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 6	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-23-5	Sodium	D	1940	2070	µg/l	CFSWP-014	6 / 6	69 - 69	2070	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 6	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	ND	ND	ND	ND	0 / 6	1.9 - 1.9	ND	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	D	ND	ND	ND	ND	0 / 6	7 - 7	ND	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	T	19.5	85.5	µg/l	CFSWP-016	15 / 21	18.2 - 18.2	85.5	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	T	0.62	0.78	µg/l	CFSWP-016	5 / 21	0.62 - 0.62	0.78	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	T	ND	ND	ND	ND	0 / 21	0.64 - 0.64	ND	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	7440-39-3	Barium	T	94.4	122	µg/l	CFSWP-025	21 / 21	1.2 - 1.2	122	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	T	ND	ND	ND	ND	0 / 21	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	ND	ND	ND	ND	0 / 21	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	T	43100	56800	µg/l	CFSWP-015	21 / 21	60.5 - 60.5	56800	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	T	2.4	37.7	µg/l	CFSWP-014	3 / 21	1.3 - 1.3	37.7	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	T	ND	ND	ND	ND	0 / 21	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	T	1.9	5.4	µg/l	CFSWP-014	3 / 21	1.4 - 1.4	5.4	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	51.7	304	µg/l	CFSWP-014	5 / 21	42.4 - 42.4	304	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	T	0.41	0.41	µg/l	CFSWP-014	1 / 21	0.38 - 0.38	0.41	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL

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Table 2-27
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area
Exposure Medium: Surface Water Western Undeveloped Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	7439-95-4	Magnesium	T	12200	14000	µg/l	CFSWP-015	21 / 21	63.6 - 63.6	14000	NA	No Screening Level		N	NSL
Surface	7439-96-5	Manganese	T	3.5	14.7	µg/l	CFSWP-016	21 / 21	2.5 - 2.5	14.7	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
Water	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 21	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	T	ND	ND	ND	ND	0 / 21	1.4 - 1.4	ND	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	T	357	656	µg/l	CFSWP-014	21 / 21	91.4 - 91.4	656	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	T	ND	ND	ND	ND	0 / 21	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 21	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	2200	5530	µg/l	CFSWP-014	21 / 21	69 - 69	5530	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	T	ND	ND	ND	ND	0 / 21	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	T	ND	ND	ND	ND	0 / 21	1.9 - 1.9	ND	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	T	13.5	16.4	µg/l	CFSWP-014	2 / 21	7 - 7	16.4	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

Footnotes:

T = total
D = dissolved
NA = not applicable
ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1 x 10⁻⁶)
MDEQ Circular DEQ-7 Groundawter = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-28

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	57-12-5	Cyanide	0.15	0.24	mg/kg	CFSDP-014	3 / 3	0.079 - 0.079	0.24	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	16984-48-8	Fluoride	1.41	1.71	mg/kg	CFSDP-016	3 / 3	0.54 - 0.54	1.71	NA	12	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	8250	10300	mg/kg	CFSDP-014	3 / 3	23.6 - 23.6	10300	NA	3000	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 3	0.84 - 0.84	ND	NA	0.035	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-38-2	Arsenic	2.1	2.3	mg/kg	CFSDP-014	3 / 3	0.85 - 0.85	2.3	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), c**R	Y	Carcinogen
	7440-39-3	Barium	151	173	mg/kg	CFSDP-014	3 / 3	1.7 - 1.7	173	NA	16	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	0.34	0.43	mg/kg	CFSDP-014	3 / 3	0.26 - 0.26	0.43	NA	1.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 3	0.89 - 0.89	ND	NA	0.069	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-70-2	Calcium	13800	16400	mg/kg	CFSDP-016	3 / 3	115 - 115	16400	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	7.7	9.7	mg/kg	CFSDP-014	3 / 3	1.6 - 1.6	9.7	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	3.2	4.2	mg/kg	CFSDP-014	3 / 3	1.6 - 1.6	4.2	NA	0.027	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	12.2	13.6	mg/kg	CFSDP-014	3 / 3	1.6 - 1.6	13.6	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-89-6	Iron	7770	10100	mg/kg	CFSDP-014	3 / 3	50.2 - 50.2	10100	NA	35	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	6.1	7.6	mg/kg	CFSDP-014	3 / 3	0.47 - 0.47	7.6	NA	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	5410	7710	mg/kg	CFSDP-014	3 / 3	79.9 - 79.9	7710	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	272	302	mg/kg	CFSDP-016	3 / 3	3.2 - 3.2	302	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	0.032	0.044	mg/kg	CFSDP-016	3 / 3	0.031 - 0.031	0.044	NA	0.0033	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-02-0	Nickel	6.9	8.6	mg/kg	CFSDP-014	3 / 3	1.6 - 1.6	8.6	NA	2.6	USEPA RSL Res Soil (THQ=0.1), n	Y	Carcinogen
	7440-09-7	Potassium	613	789	mg/kg	CFSDP-014	3 / 3	78.4 - 78.4	789	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	ND	ND	ND	ND	0 / 3	0.78 - 0.78	ND	NA	0.052	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-22-4	Silver	ND	ND	ND	ND	0 / 3	1.6 - 1.6	ND	NA	0.08	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-23-5	Sodium	128	148	mg/kg	CFSDP-016	2 / 3	114 - 116	148	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 3	0.33 - 0.33	ND	NA	0.0014	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	5.4	7.2	mg/kg	CFSDP-014	3 / 3	2.3 - 2.3	7.2	NA	8.6	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	37.3	48.9	mg/kg	CFSDP-016	3 / 3	8.4 - 8.4	48.9	NA	37	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 3	0.0024 - 0.0024	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.0018 - 0.0018	ND	NA	4.20E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 3	0.0028 - 0.0028	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.002 - 0.002	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 3	0.0032 - 0.0032	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 3	0.0033 - 0.0033	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.0022 - 0.0022	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 3	0.0026 - 0.0026	ND	NA	7.10E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 3	0.0024 - 0.0024	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 3	0.0026 - 0.0026	ND	NA	0.0092	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 3	0.0025 - 0.0025	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 3	0.0028 - 0.0028	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 3	0.0018 - 0.0018	ND	NA	0.00024	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 3	0.0026 - 0.0026	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND

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Table 2-28

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND	NA	2.80E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 3	0.0043 - 0.0043	ND	NA	0.2	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 3	0.0027 - 0.0027	ND	NA	0.0075	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 3	0.0029 - 0.0029	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 3	0.0021 - 0.0021	ND	NA	0.077	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 3	0.059 - 0.059	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 3	0.0044 - 0.0044	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	0.013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 3	0.028 - 0.028	ND	NA	0.002	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 3	0.028 - 0.028	ND	NA	0.0055	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 3	0.028 - 0.028	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 3	0.028 - 0.028	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 3	0.028 - 0.028	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 3	0.074 - 0.074	ND	NA	0.00079	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 3	0.27 - 0.27	ND	NA	9.40E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 3	0.094 - 0.094	ND	NA	0.018	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.099 - 0.099	ND	NA	0.4	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.028 - 0.028	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 3	0.024 - 0.024	ND	NA	0.0023	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 3	0.22 - 0.22	ND	NA	0.042	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 3	0.75 - 0.75	ND	NA	0.0044	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.04 - 0.04	ND	NA	0.00032	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.053 - 0.053	ND	NA	6.70E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 3	0.023 - 0.023	ND	NA	0.39	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 3	0.025 - 0.025	ND	NA	0.0089	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 3	0.022 - 0.022	ND	NA	0.019	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 3	0.043 - 0.043	ND	NA	0.075	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 3	0.033 - 0.033	ND	NA	0.008	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 3	0.034 - 0.034	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 3	0.11 - 0.11	ND	NA	0.00082	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 3	0.03 - 0.03	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 3	0.27 - 0.27	ND	NA	0.00026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.031 - 0.031	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 3	0.043 - 0.043	ND	NA	0.17	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

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Table 2-28

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 3	0.026 - 0.026	ND	NA	0.00016	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.03 - 0.03	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 3	0.038 - 0.038	ND	NA	0.0016	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 3	0.48 - 0.48	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 3	0.024 - 0.024	ND	NA	0.55	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 3	0.026 - 0.026	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 3	0.022 - 0.022	ND	NA	0.058	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 3	0.095 - 0.095	ND	NA	5.8	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 3	0.044 - 0.044	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	100-52-7	Benzaldehyde	0.15	0.17	mg/kg	CFSDP-016	2 / 3	0.076 - 0.079	0.17	NA	0.0041	USEPA RSL Res Soil (THQ=0.1), c**	Y	ASL
	56-55-3	Benzo(A)Anthracene	0.12	0.12	mg/kg	CFSDP-016	1 / 3	0.083 - 0.092	0.12	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.043	0.094	mg/kg	CFSDP-016	2 / 3	0.03 - 0.031	0.094	NA	0.018	USEPA RSL Res Soil (THQ=0.1), c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.12	0.12	mg/kg	CFSDP-016	1 / 3	0.039 - 0.043	0.12	NA	0.18	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	0.081	0.081	mg/kg	CFSDP-016	1 / 3	0.057 - 0.064	0.081	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	ND	ND	ND	ND	0 / 3	0.043 - 0.043	ND	NA	1.8	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.031 - 0.031	ND	NA	0.24	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 3	0.085 - 0.085	ND	NA	0.00087	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 3	0.031 - 0.031	ND	NA	0.0013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 3	0.024 - 0.024	ND	NA	3.60E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 3	0.041 - 0.041	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.04	0.04	mg/kg	CFSDP-015	1 / 3	0.039 - 0.04	0.04	NA	1.3	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 3	0.072 - 0.072	ND	NA	0.25	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 3	0.025 - 0.025	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.038	0.13	mg/kg	CFSDP-016	3 / 3	0.027 - 0.027	0.13	NA	9	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.03 - 0.03	ND	NA	0.23	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 3	0.051 - 0.051	ND	NA	5.7	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 3	0.052 - 0.052	ND	NA	0.096	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 3	0.03 - 0.03	ND	NA	0.015	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 3	0.028 - 0.028	ND	NA	0.61	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 3	0.029 - 0.029	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.042	0.19	mg/kg	CFSDP-016	3 / 3	0.03 - 0.03	0.19	NA	8.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 3	0.022 - 0.022	ND	NA	0.54	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 3	0.04 - 0.04	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 3	0.028 - 0.028	ND	NA	0.00027	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 3	0.062 - 0.062	ND	NA	0.00013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 3	0.037 - 0.037	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.087	0.087	mg/kg	CFSDP-016	1 / 3	0.066 - 0.074	0.087	NA	0.98	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	78-59-1	Isophorone	0.06	0.078	mg/kg	CFSDP-014	2 / 3	0.021 - 0.022	0.078	NA	0.026	USEPA RSL Res Soil (THQ=0.1), c**	Y	ASL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 3	0.034 - 0.034	ND	NA	8.10E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND

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Table 2-28

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Western Undeveloped Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Western Undeveloped Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 3	0.091 - 0.091	ND	NA	0.067	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 3	0.025 - 0.025	ND	NA	0.00054	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 3	0.031 - 0.031	ND	NA	9.20E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 3	0.12 - 0.12	ND	NA	5.70E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	0.039	0.17	mg/kg	CFSDP-016	3 / 3	0.027 - 0.027	0.17	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 3	0.033 - 0.033	ND	NA	0.33	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	0.069	0.16	mg/kg	CFSDP-016	2 / 3	0.045 - 0.047	0.16	NA	1.3	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
c = carcinogenic basis
n = non-carcinogenic basis
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-29

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.03	0.7	mg/kg	CFSB-101	10 / 11	0.016 - 0.02	0.7	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	1.8	28.4	mg/kg	CFSB-110	11 / 11	0.39 - 0.39	28.4	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	2570	11800	mg/kg	CFSB-101	11 / 11	7.6 - 7.6	11800	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 11	0.35 - 0.35	ND	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	0.46	4.8	mg/kg	CFSB-119	10 / 11	0.36 - 0.84	4.8	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	52.3	972	mg/kg	CFSB-113	11 / 11	0.68 - 0.68	972	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.16	0.65	mg/kg	CFSB-110	9 / 11	0.11 - 0.13	0.65	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 11	0.32 - 0.32	ND	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	8030	313000	mg/kg	CFSB-113	11 / 11	36.8 - 36.8	313000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	2.6	10.5	mg/kg	CFSB-110	11 / 11	0.67 - 0.67	10.5	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	1.2	5.5	mg/kg	CFSB-101	10 / 11	0.67 - 1.4	5.5	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	8.9	204	mg/kg	CFSB-110	11 / 11	0.68 - 0.68	204	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	1760	12600	mg/kg	CFSB-101	11 / 11	21.1 - 21.1	12600	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	3.4	22.3	mg/kg	CFSB-110	12 / 12	0.2 - 0.2	22.3	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	2510	9630	mg/kg	CFSB-118	11 / 11	33.7 - 33.7	9630	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	14.8	340	mg/kg	CFSB-114	11 / 11	1.4 - 1.4	340	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.018	0.14	mg/kg	CFSB-110	11 / 11	0.012 - 0.012	0.14	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	4.4	17.5	mg/kg	CFSB-104	11 / 11	0.68 - 0.68	17.5	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	238	1080	mg/kg	CFSB-101	11 / 11	33 - 33	1080	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.4	0.4	mg/kg	CFSB-113	1 / 11	0.33 - 0.38	0.4	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 11	0.69 - 0.69	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	54.3	268	mg/kg	CFSB-110	7 / 11	39.4 - 46.1	268	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 11	0.14 - 0.14	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	3.2	14.8	mg/kg	CFSB-116	11 / 11	0.79 - 0.79	14.8	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	16.3	131	mg/kg	CFSB-110	11 / 11	2.5 - 2.5	131	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00076 - 0.00076	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00081 - 0.00081	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 6	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 6	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00091 - 0.00091	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 6	0.00098 - 0.00098	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 6	0.00075 - 0.00075	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table 2-29

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 6	0.0018 - 0.0018	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 6	0.00086 - 0.00086	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 6	0.024 - 0.024	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 6	0.0018 - 0.0018	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 11	0.0097 - 0.0097	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 11	0.0097 - 0.0097	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 11	0.0097 - 0.0097	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 11	0.0097 - 0.0097	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 11	0.0097 - 0.0097	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 11	0.01 - 0.01	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 11	0.01 - 0.01	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 11	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 11	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 11	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 11	0.027 - 0.027	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 11	0.096 - 0.096	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 11	0.034 - 0.034	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 11	0.036 - 0.036	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 11	0.01 - 0.01	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 11	0.0084 - 0.0084	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 11	0.079 - 0.079	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 11	0.27 - 0.27	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 11	0.014 - 0.014	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 11	0.019 - 0.019	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 11	0.0081 - 0.0081	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 11	0.0091 - 0.0091	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.01	0.01	mg/kg	CFSB-101	1 / 11	0.0079 - 0.01	0.01	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 11	0.016 - 0.016	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 11	0.012 - 0.012	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 11	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 11	0.04 - 0.04	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 11	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 11	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 11	0.095 - 0.095	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 11	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 11	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table 2-29

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 11	0.0092 - 0.0092	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 11	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 11	0.014 - 0.014	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 11	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.01	0.02	mg/kg	CFSB-109	2 / 11	0.0087 - 0.01	0.02	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 11	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	0.011	0.011	mg/kg	CFSB-119	1 / 11	0.0078 - 0.0084	0.011	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 11	0.034 - 0.034	ND	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 11	0.016 - 0.016	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.038	0.088	mg/kg	CFSB-119	2 / 11	0.027 - 0.029	0.088	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.042	0.36	mg/kg	CFSB-109	10 / 11	0.03 - 0.036	0.36	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.07	0.48	mg/kg	CFSB-109	9 / 11	0.011 - 0.013	0.48	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.084	0.62	mg/kg	CFSB-109	10 / 11	0.014 - 0.016	0.62	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.057	0.9	mg/kg	CFSB-110	10 / 11	0.021 - 0.024	0.9	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.022	0.25	mg/kg	CFSB-109	10 / 11	0.016 - 0.018	0.25	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 11	0.011 - 0.011	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 11	0.03 - 0.03	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 11	0.011 - 0.011	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.017	0.017	mg/kg	CFSB-116	1 / 11	0.0084 - 0.013	0.017	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	ASL-SSLOnly
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 11	0.015 - 0.015	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	ND	ND	ND	ND	0 / 11	0.014 - 0.014	ND	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 11	0.026 - 0.026	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-74-8	Carbazole	0.0089	0.073	mg/kg	CFSB-109	8 / 11	0.0089 - 0.0097	0.073	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.067	0.55	mg/kg	CFSB-109	10 / 11	0.0097 - 0.011	0.55	NA	9	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	0.019	0.058	mg/kg	CFSB-110	3 / 11	0.011 - 0.013	0.058	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 11	0.018 - 0.018	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.035	0.14	mg/kg	CFSB-110	6 / 11	0.019 - 0.02	0.14	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 11	0.011 - 0.011	ND	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 11	0.01 - 0.01	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 11	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.053	0.56	mg/kg	CFSB-109	10 / 11	0.011 - 0.012	0.56	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-73-7	Fluorene	0.02	0.02	mg/kg	CFSB-109	1 / 11	0.0078 - 0.015	0.02	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 11	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 11	0.01 - 0.01	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 11	0.022 - 0.022	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 11	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.061	0.66	mg/kg	CFSB-110	10 / 11	0.024 - 0.028	0.66	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	78-59-1	Isophorone	0.02	0.024	mg/kg	CFSB-113	2 / 11	0.0077 - 0.0084	0.024	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 11	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

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Table 2-29

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 11	0.032 - 0.032	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.015	0.015	mg/kg	CFSB-116	1 / 11	0.0091 - 0.014	0.015	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 11	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 11	0.043 - 0.043	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.037	0.27	mg/kg	CFSB-109	10 / 11	0.0095 - 0.011	0.27	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 11	0.012 - 0.012	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.058	0.57	mg/kg	CFSB-109	10 / 11	0.016 - 0.019	0.57	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-30
Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.03	0.7	mg/kg	CFSB-101	20 / 22	0.016 - 0.017	0.7	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	1.26	28.4	mg/kg	CFSB-110	22 / 22	0.38 - 0.38	28.4	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	2560	11800	mg/kg	CFSB-101	22 / 22	7.5 - 7.5	11800	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 22	0.3 - 0.3	ND	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	0.46	5	mg/kg	CFSB-114	20 / 22	0.3 - 0.7	5	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	43.1	972	mg/kg	CFSB-113	22 / 22	0.6 - 0.6	972	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.11	0.65	mg/kg	CFSB-110	20 / 22	0.092 - 0.11	0.65	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 22	0.32 - 0.32	ND	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	5140	313000	mg/kg	CFSB-113	22 / 22	36.3 - 36.3	313000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	2.6	10.5	mg/kg	CFSB-110	22 / 22	0.57 - 0.57	10.5	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	1.2	5.9	mg/kg	CFSB-114	21 / 22	0.57 - 1.4	5.9	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	3.3	204	mg/kg	CFSB-110	22 / 22	0.57 - 0.57	204	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	1580	14000	mg/kg	CFSB-114	22 / 22	17.9 - 17.9	14000	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	2.1	22.3	mg/kg	CFSB-110	23 / 23	0.17 - 0.17	22.3	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	2510	10300	mg/kg	CFSB-113	22 / 22	28.5 - 28.5	10300	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	10.7	340	mg/kg	CFSB-114	22 / 22	0.2 - 1.2	340	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.015	0.14	mg/kg	CFSB-110	21 / 22	0.012 - 0.014	0.14	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	4.3	17.5	mg/kg	CFSB-104	22 / 22	0.58 - 0.58	17.5	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	194	1080	mg/kg	CFSB-101	22 / 22	28 - 28	1080	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.4	0.4	mg/kg	CFSB-113	1 / 22	0.28 - 0.38	0.4	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 22	0.59 - 0.59	ND	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	43.6	268	mg/kg	CFSB-110	13 / 22	38.9 - 39.3	268	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 22	0.12 - 0.12	ND	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	2.6	14.8	mg/kg	CFSB-116	22 / 22	0.78 - 0.78	14.8	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	13.1	131	mg/kg	CFSB-110	22 / 22	2.5 - 2.5	131	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00076 - 0.00076	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00081 - 0.00081	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 6	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 6	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 6	0.00091 - 0.00091	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 6	0.00098 - 0.00098	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 6	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 6	0.00075 - 0.00075	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table 2-30
Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 6	0.0016 - 0.0016	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 6	0.0018 - 0.0018	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 6	0.0011 - 0.0011	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 6	0.0012 - 0.0012	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 6	0.00086 - 0.00086	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 6	0.024 - 0.024	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 6	0.0018 - 0.0018	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 22	0.0094 - 0.0094	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 22	0.0094 - 0.0094	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 22	0.0094 - 0.0094	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 22	0.0094 - 0.0094	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 22	0.0094 - 0.0094	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 22	0.0097 - 0.0097	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 22	0.0097 - 0.0097	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 22	0.0097 - 0.0097	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 22	0.0097 - 0.0097	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 22	0.0097 - 0.0097	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 22	0.026 - 0.026	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 22	0.093 - 0.093	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 22	0.033 - 0.033	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 22	0.035 - 0.035	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 22	0.0099 - 0.0099	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 22	0.0082 - 0.0082	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 22	0.076 - 0.076	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 22	0.26 - 0.26	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 22	0.014 - 0.014	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 22	0.018 - 0.018	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 22	0.0079 - 0.0079	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 22	0.0088 - 0.0088	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.01	0.013	mg/kg	CFSB-118	2 / 22	0.0077 - 0.0084	0.013	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 22	0.015 - 0.015	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 22	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 22	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 22	0.039 - 0.039	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 22	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 22	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 22	0.093 - 0.093	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 22	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 22	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL

Preliminary Under EPA and MDEQ Review

Table 2-30
Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	0.019	0.019	mg/kg	CFSB-109	1 / 22	0.0089 - 0.013	0.019	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 22	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 22	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 22	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.01	0.02	mg/kg	CFSB-109	3 / 22	0.0084 - 0.01	0.02	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 22	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	0.011	0.011	mg/kg	CFSB-119	1 / 22	0.0076 - 0.0084	0.011	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-12-7	Anthracene	0.05	0.05	mg/kg	CFSB-109	1 / 22	0.033 - 0.05	0.05	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 22	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.038	0.088	mg/kg	CFSB-119	2 / 22	0.026 - 0.029	0.088	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.04	0.36	mg/kg	CFSB-109	15 / 22	0.029 - 0.03	0.36	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.018	0.48	mg/kg	CFSB-109	16 / 22	0.011 - 0.011	0.48	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.029	0.62	mg/kg	CFSB-109	18 / 22	0.014 - 0.014	0.62	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.057	1.1	mg/kg	CFSB-109	16 / 22	0.02 - 0.021	1.1	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.022	0.25	mg/kg	CFSB-109	16 / 22	0.015 - 0.016	0.25	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 22	0.011 - 0.011	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 22	0.03 - 0.03	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 22	0.011 - 0.011	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.017	0.017	mg/kg	CFSB-116	1 / 22	0.0082 - 0.013	0.017	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	ASL-SSLOnly
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 22	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	ND	ND	ND	ND	0 / 22	0.014 - 0.014	ND	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	0.046	0.046	mg/kg	CFSB-119	1 / 22	0.025 - 0.028	0.046	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-74-8	Carbazole	0.0089	0.1	mg/kg	CFSB-109	12 / 22	0.0086 - 0.0089	0.1	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.026	0.55	mg/kg	CFSB-109	18 / 22	0.0095 - 0.0097	0.55	NA	9	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	0.019	0.058	mg/kg	CFSB-110	7 / 22	0.01 - 0.011	0.058	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 22	0.018 - 0.018	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.035	0.17	mg/kg	CFSB-109	8 / 22	0.018 - 0.02	0.17	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 22	0.011 - 0.011	ND	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 22	0.0099 - 0.0099	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 22	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.026	0.56	mg/kg	CFSB-109	18 / 22	0.01 - 0.011	0.56	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-73-7	Fluorene	0.02	0.02	mg/kg	CFSB-109	1 / 22	0.0076 - 0.015	0.02	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 22	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 22	0.0098 - 0.0098	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 22	0.022 - 0.022	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 22	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.061	0.91	mg/kg	CFSB-109	16 / 22	0.023 - 0.024	0.91	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	78-59-1	Isophorone	0.0095	0.024	mg/kg	CFSB-113	3 / 22	0.0075 - 0.0077	0.024	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 22	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Preliminary Under EPA and MDEQ Review

Table 2-30
Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 22	0.032 - 0.032	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.015	0.015	mg/kg	CFSB-116	1 / 22	0.0088 - 0.014	0.015	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 22	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 22	0.042 - 0.042	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.013	0.27	mg/kg	CFSB-109	18 / 22	0.0092 - 0.0095	0.27	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 22	0.011 - 0.011	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.032	0.57	mg/kg	CFSB-109	18 / 22	0.016 - 0.016	0.57	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 11	0.00023 - 0.00023	ND	NA	0.28	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 11	0.0001 - 0.0001	ND	NA	3.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 11	0.00026 - 0.00026	ND	NA	2.6	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 11	0.00017 - 0.00017	ND	NA	1.30E-05	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 11	0.0002 - 0.0002	ND	NA	0.00078	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 11	0.00025 - 0.00025	ND	NA	0.01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 11	6.6e-005 - 6.6e-005	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 11	0.00019 - 0.00019	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 11	0.00028 - 0.00028	ND	NA	1.40E-07	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 11	7.2e-005 - 7.2e-005	ND	NA	2.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 11	8.4e-005 - 8.4e-005	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 11	6.6e-005 - 6.6e-005	ND	NA	4.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 11	0.0001 - 0.0001	ND	NA	4.70E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 11	7.2e-005 - 7.2e-005	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	0.00021	0.00021	mg/kg	CFSB-110	1 / 11	7.8e-005 - 0.0001	0.00021	NA	0.00046	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	ND	ND	ND	ND	0 / 11	0.00056 - 0.00056	ND	NA	0.00088	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-64-1	Acetone	0.011	0.16	mg/kg	CFSB-119	11 / 11	0.00064 - 0.00064	0.16	NA	0.29	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	71-43-2	Benzene	0.0002	0.0022	mg/kg	CFSB-119	10 / 11	0.00012 - 0.00036	0.0022	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 11	0.0001 - 0.0001	ND	NA	0.0021	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 11	0.00023 - 0.00023	ND	NA	3.60E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 11	7.8e-005 - 7.8e-005	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 11	0.00019 - 0.00019	ND	NA	0.00019	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	0.00051	0.0077	mg/kg	CFSB-118	9 / 11	0.00026 - 0.00046	0.0077	NA	0.024	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 11	0.00026 - 0.00026	ND	NA	0.00018	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 11	8.4e-005 - 8.4e-005	ND	NA	0.0053	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 11	0.00021 - 0.00021	ND	NA	0.59	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 11	0.00013 - 0.00013	ND	NA	6.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 11	0.00023 - 0.00023	ND	NA	0.0049	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 11	0.00013 - 0.00013	ND	NA	0.0011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 11	9e-005 - 9e-005	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	0.00073	0.004	mg/kg	CFSB-101	4 / 11	0.00028 - 0.00043	0.004	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 11	9e-005 - 9e-005	ND	NA	0.00023	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table 2-30
Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 11	0.00019 - 0.00019	ND	NA	0.03	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	0.00012	0.0012	mg/kg	CFSB-119	6 / 11	0.00011 - 0.00014	0.0012	NA	0.0017	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	ND	ND	ND	ND	0 / 11	0.0001 - 0.0001	ND	NA	0.074	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	0.00035	0.0033	mg/kg	CFSB-119	8 / 11	6.6e-005 - 8.8e-005	0.0033	NA	No Screening Level		N	NSL
	79-20-9	Methyl Acetate	0.0043	0.36	mg/kg	CFSB-119	4 / 11	0.00054 - 0.00072	0.36	NA	0.41	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0012	0.01	mg/kg	CFSB-119	8 / 11	0.00046 - 0.0008	0.01	NA	0.12	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 11	0.0013 - 0.0013	ND	NA	0.14	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.00056	0.006	mg/kg	CFSB-101	6 / 11	0.0003 - 0.00046	0.006	NA	No Screening Level		N	NSL
	75-09-2	Methylene Chloride	0.001	0.001	mg/kg	NULL	0 / 11	0.00019 - 0.00019	0.001	NA	0.0027	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	0.00011	0.0011	mg/kg	CFSB-119	6 / 11	9.6e-005 - 0.00013	0.0011	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 11	9e-005 - 9e-005	ND	NA	0.13	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 11	0.0001 - 0.0001	ND	NA	0.0032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 11	0.00017 - 0.0001	ND	NA	0.0018	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00044	0.0069	mg/kg	CFSB-119	10 / 11	0.00011 - 0.00034	0.0069	NA	0.076	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 11	0.00023 - 0.00023	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 11	6e-005 - 6e-005	ND	NA	No Screening Level		N	BSL-ND
	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 11	0.00016 - 0.00016	ND	NA	0.0001	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 11	0.0002 - 0.0002	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 11	0.00023 - 0.00023	ND	NA	6.50E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

otnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk

USEPA = US Environmental Protection Agency

RSL = Regional Screening Level

MDEQ = Montana Department of Environmental Quaility

(1) Maximum detection value

(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact

(3) COPC Flag
Y = Yes
N = No

(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA

Preliminary - Under EPA and MDEQ Review

Table 2-30
Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)

NSL = no screening level available

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Table 2-31

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: South Percolation Pond Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	57-12-5	Cyanide	0.022	0.7	mg/kg	CFSB-101	34 / 39	0.016 - 0.017	0.7	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	16984-48-8	Fluoride	0.8	28.4	mg/kg	CFSB-110	39 / 39	0.38 - 0.38	28.4	NA	12	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7429-90-5	Aluminum	2560	11800	mg/kg	CFSB-101	39 / 39	7 - 7	11800	25941	3000	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 39	0.27 - 0.27	ND	0.4	0.035	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-38-2	Arsenic	0.46	8.4	mg/kg	CFSB-104	37 / 39	0.27 - 0.7	8.4	22.5	0.0015	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	34.1	972	mg/kg	CFSB-113	39 / 39	0.53 - 0.53	972	429	16	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-41-7	Beryllium	0.11	0.65	mg/kg	CFSB-110	37 / 39	0.081 - 0.11	0.65	1.1	1.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 39	0.28 - 0.28	ND	0.7	0.069	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-70-2	Calcium	3670	313000	mg/kg	CFSB-113	39 / 39	33.9 - 33.9	313000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	2.6	15.2	mg/kg	CFSB-114	39 / 39	0.51 - 0.51	15.2	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	1.2	6.3	mg/kg	CFSB-104	38 / 39	0.51 - 1.4	6.3	10	0.027	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-50-8	Copper	3.3	204	mg/kg	CFSB-110	39 / 39	0.51 - 0.51	204	165	2.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	1580	15800	mg/kg	CFMW-064	39 / 39	15.9 - 15.9	15800	24400	35	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-92-1	Lead	1.8	22.3	mg/kg	CFSB-110	42 / 42	0.15 - 0.15	22.3	29.8	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	2510	16900	mg/kg	CFMW-064	39 / 39	25.3 - 25.3	16900	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	10.7	359	mg/kg	CFMW-064	39 / 39	1 - 1	359	880	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7439-97-6	Mercury	0.013	0.14	mg/kg	CFSB-110	32 / 39	0.011 - 0.012	0.14	NC	0.0033	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	3.5	18.1	mg/kg	CFMW-064	39 / 39	0.51 - 0.51	18.1	31.4	2.6	USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	7440-09-7	Potassium	168	1080	mg/kg	CFSB-101	39 / 39	24.8 - 24.8	1080	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.4	0.4	mg/kg	CFSB-113	1 / 39	0.25 - 0.38	0.4	0.7	0.052	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-22-4	Silver	ND	ND	ND	ND	0 / 39	0.52 - 0.52	ND	0.3	0.08	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-23-5	Sodium	38.9	268	mg/kg	CFSB-110	18 / 39	36.1 - 37.4	268	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 39	0.11 - 0.11	ND	0.41	0.0014	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	7440-62-2	Vanadium	2.6	16.2	mg/kg	CFMW-064	39 / 39	0.73 - 0.73	16.2	52.6	8.6	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	7440-66-6	Zinc	13.1	131	mg/kg	CFSB-110	39 / 39	2.3 - 2.3	131	118	37	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COPC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 8	0.00086 - 0.00086	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 8	0.00065 - 0.00065	ND	NA	4.20E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 8	0.00098 - 0.00098	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 8	0.00069 - 0.00069	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 8	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 8	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 8	0.00077 - 0.00077	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 8	0.00092 - 0.00092	ND	NA	7.10E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 8	0.00083 - 0.00083	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 8	0.0009 - 0.0009	ND	NA	0.0092	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 8	0.00088 - 0.00088	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 8	0.00098 - 0.00098	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 8	0.00064 - 0.00064	ND	NA	0.00024	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 8	0.00091 - 0.00091	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 8	0.0014 - 0.0014	ND	NA	2.80E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 8	0.0015 - 0.0015	ND	NA	0.2	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 8	0.00093 - 0.00093	ND	NA	0.0075	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 8	0.001 - 0.001	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL

Preliminary - Subject to EPA and MDEQ Review

Table 2-31

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: South Percolation Pond Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 8	0.00073 - 0.00073	ND	NA	0.077	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 8	0.021 - 0.021	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 8	0.0015 - 0.0015	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 39	0.0093 - 0.0093	ND	NA	0.013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 39	0.0093 - 0.0093	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 39	0.0093 - 0.0093	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 39	0.0093 - 0.0093	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 39	0.0093 - 0.0093	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 39	0.0096 - 0.0096	ND	NA	0.002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 39	0.0096 - 0.0096	ND	NA	0.0055	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 39	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 39	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 39	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 39	0.026 - 0.026	ND	NA	0.00079	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 39	0.092 - 0.092	ND	NA	9.40E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 39	0.032 - 0.032	ND	NA	0.018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 39	0.034 - 0.034	ND	NA	0.4	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 39	0.0098 - 0.0098	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 39	0.0081 - 0.0081	ND	NA	0.0023	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 39	0.076 - 0.076	ND	NA	0.042	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 39	0.26 - 0.26	ND	NA	0.0044	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 39	0.014 - 0.014	ND	NA	0.00032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 39	0.018 - 0.018	ND	NA	6.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 39	0.0078 - 0.0078	ND	NA	0.39	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 39	0.0088 - 0.0088	ND	NA	0.0089	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.01	0.029	mg/kg	CFSB-118	3 / 39	0.0076 - 0.0084	0.029	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 39	0.015 - 0.015	ND	NA	0.075	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 39	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 39	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 39	0.039 - 0.039	ND	NA	0.00082	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 39	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 39	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 39	0.092 - 0.092	ND	NA	0.00026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 39	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 39	0.015 - 0.015	ND	NA	0.17	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	106-47-8	4-Chloroaniline	0.019	0.019	mg/kg	CFSB-109	1 / 39	0.0089 - 0.013	0.019	NA	0.00016	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 39	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 39	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 39	0.17 - 0.17	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.01	0.024	mg/kg	CFMW-064	4 / 39	0.0084 - 0.01	0.024	NA	0.55	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 39	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	0.011	0.011	mg/kg	CFSB-119	1 / 39	0.0075 - 0.0084	0.011	NA	0.058	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-12-7	Anthracene	0.05	0.05	mg/kg	CFSB-109	1 / 39	0.033 - 0.05	0.05	NA	5.8	USEPA RSL RBSSL (THQ=0.1, n	N	BSL

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Table 2-31

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: South Percolation Pond Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 39	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.031	0.088	mg/kg	CFSB-119	4 / 39	0.026 - 0.027	0.088	NA	0.0041	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.04	0.36	mg/kg	CFSB-109	18 / 39	0.029 - 0.029	0.36	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.014	0.48	mg/kg	CFSB-109	25 / 39	0.01 - 0.011	0.48	NA	0.029	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.019	0.62	mg/kg	CFMW-064	28 / 39	0.013 - 0.014	0.62	NA	0.3	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.02	1.1	mg/kg	CFSB-109	23 / 39	0.02 - 0.02	1.1	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.016	0.25	mg/kg	CFSB-109	22 / 39	0.015 - 0.015	0.25	NA	2.9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	0.081	0.081	mg/kg	CFMW-061	1 / 39	0.011 - 0.011	0.081	NA	0.24	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 39	0.029 - 0.029	ND	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	0.015	0.015	mg/kg	CFSB-114	1 / 39	0.011 - 0.014	0.015	NA	0.0013	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.017	0.017	mg/kg	CFSB-116	1 / 39	0.0081 - 0.013	0.017	NA	3.60E-06	USEPA RSL RBSSL (THQ=0.1, c	N	ASL-SSLOnly
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 39	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.028	0.039	mg/kg	CFSB-114	2 / 39	0.013 - 0.014	0.039	NA	1.3	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	0.042	0.046	mg/kg	CFSB-119	2 / 39	0.025 - 0.027	0.046	NA	0.25	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-74-8	Carbazole	0.0089	0.1	mg/kg	CFSB-109	14 / 39	0.0086 - 0.0086	0.1	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.014	0.55	mg/kg	CFSB-109	27 / 39	0.0094 - 0.0095	0.55	NA	9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	0.013	0.058	mg/kg	CFSB-110	14 / 39	0.01 - 0.01	0.058	NA	0.23	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 39	0.018 - 0.018	ND	NA	5.7	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.019	0.17	mg/kg	CFSB-109	10 / 39	0.018 - 0.018	0.17	NA	0.096	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 39	0.01 - 0.01	ND	NA	0.015	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 39	0.0098 - 0.0098	ND	NA	0.61	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 39	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.011	0.56	mg/kg	CFSB-109	29 / 39	0.01 - 0.011	0.56	NA	8.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-73-7	Fluorene	0.015	0.02	mg/kg	CFSB-109	2 / 39	0.0075 - 0.0093	0.02	NA	0.54	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 39	0.014 - 0.014	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 39	0.0097 - 0.0097	ND	NA	0.00027	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 39	0.022 - 0.022	ND	NA	0.00013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 39	0.013 - 0.013	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.027	0.91	mg/kg	CFSB-109	22 / 39	0.023 - 0.023	0.91	NA	0.98	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	78-59-1	Isophorone	0.0095	0.024	mg/kg	CFSB-113	3 / 39	0.0074 - 0.0075	0.024	NA	0.026	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 39	0.012 - 0.012	ND	NA	8.10E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 39	0.031 - 0.031	ND	NA	0.067	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.015	0.015	mg/kg	CFSB-116	1 / 39	0.0088 - 0.014	0.015	NA	0.00054	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 39	0.011 - 0.011	ND	NA	9.20E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 39	0.042 - 0.042	ND	NA	5.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.01	0.27	mg/kg	CFSB-109	27 / 39	0.0092 - 0.0092	0.27	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 39	0.011 - 0.011	ND	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.024	0.57	mg/kg	CFSB-109	27 / 39	0.016 - 0.016	0.57	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	71-55-6	1,1,1-Trichloroethane	ND	ND	ND	ND	0 / 25	0.00023 - 0.00023	ND	NA	0.28	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0 / 25	0.0001 - 0.0001	ND	NA	3.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	0 / 25	0.00026 - 0.00026	ND	NA	2.6	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79-00-5	1,1,2-Trichloroethane	ND	ND	ND	ND	0 / 25	0.00017 - 0.00017	ND	NA	1.30E-05	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	ND	ND	ND	ND	0 / 25	0.0002 - 0.0002	ND	NA	0.00078	USEPA RSL RBSSL (THQ=0.1, c	N	BSL

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Table 2-31

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: South Percolation Pond Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	0 / 25	0.00025 - 0.00025	ND	NA	0.01	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	ND	ND	ND	ND	0 / 25	6.6e-005 - 6.6e-005	ND	NA	0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	ND	ND	ND	ND	0 / 25	0.00019 - 0.00019	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	ND	ND	ND	ND	0 / 25	0.00028 - 0.00028	ND	NA	1.40E-07	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	ND	ND	ND	ND	0 / 25	7.2e-005 - 7.2e-005	ND	NA	2.10E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	ND	ND	ND	ND	0 / 25	8.4e-005 - 8.4e-005	ND	NA	0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	107-06-2	1,2-Dichloroethane	ND	ND	ND	ND	0 / 25	6.6e-005 - 6.6e-005	ND	NA	4.80E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	ND	ND	ND	ND	0 / 25	0.0001 - 0.0001	ND	NA	4.70E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	ND	ND	ND	ND	0 / 25	7.2e-005 - 7.2e-005	ND	NA	No Screening Level		N	BSL-ND
	106-46-7	1,4-Dichlorobenzene	0.00021	0.00021	mg/kg	CFSB-110	1 / 25	7.8e-005 - 7.8e-005	0.00021	NA	0.00046	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	591-78-6	2-Hexanone	0.00076	0.0011	mg/kg	CFMW-061	2 / 25	0.00056 - 0.00067	0.0011	NA	0.00088	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	67-64-1	Acetone	0.0035	0.18	mg/kg	CFMW-064	26 / 26	0.00063 - 0.00063	0.18	NA	0.29	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	71-43-2	Benzene	0.00018	0.0022	mg/kg	CFSB-119	22 / 25	0.00012 - 0.0002	0.0022	NA	0.00023	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	74-97-5	Bromochloromethane	ND	ND	ND	ND	0 / 25	0.0001 - 0.0001	ND	NA	0.0021	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-27-4	Bromodichloromethane	ND	ND	ND	ND	0 / 25	0.00023 - 0.00023	ND	NA	3.60E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	75-25-2	Bromoform	ND	ND	ND	ND	0 / 25	7.8e-005 - 7.8e-005	ND	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	74-83-9	Bromomethane	ND	ND	ND	ND	0 / 25	0.00019 - 0.00019	ND	NA	0.00019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-15-0	Carbon Disulfide	0.0004	0.0077	mg/kg	CFSB-118	18 / 25	0.00026 - 0.00031	0.0077	NA	0.024	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	56-23-5	Carbon Tetrachloride	ND	ND	ND	ND	0 / 25	0.00026 - 0.00026	ND	NA	0.00018	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	108-90-7	Chlorobenzene	ND	ND	ND	ND	0 / 25	8.4e-005 - 8.4e-005	ND	NA	0.0053	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-00-3	Chloroethane	ND	ND	ND	ND	0 / 25	0.00021 - 0.00021	ND	NA	0.59	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	67-66-3	Chloroform	ND	ND	ND	ND	0 / 25	0.00013 - 0.00013	ND	NA	6.10E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	74-87-3	Chloromethane	ND	ND	ND	ND	0 / 25	0.00023 - 0.00023	ND	NA	0.0049	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	ND	ND	ND	ND	0 / 25	0.00013 - 0.00013	ND	NA	0.0011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	ND	ND	ND	ND	0 / 25	9e-005 - 9e-005	ND	NA	No Screening Level		N	BSL-ND
	110-82-7	Cyclohexane	0.00065	0.0077	mg/kg	CFMW-064	13 / 25	0.00028 - 0.00028	0.0077	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	124-48-1	Dibromochloromethane	ND	ND	ND	ND	0 / 25	9e-005 - 9e-005	ND	NA	0.00023	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	75-71-8	Dichlorodifluoromethane	ND	ND	ND	ND	0 / 25	0.00019 - 0.00019	ND	NA	0.03	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-41-4	Ethylbenzene	0.00012	0.0032	mg/kg	CFMW-064	16 / 25	0.00011 - 0.00014	0.0032	NA	0.0017	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	98-82-8	Isopropylbenzene (Cumene)	0.00039	0.00039	mg/kg	CFMW-064	1 / 25	0.0001 - 0.00026	0.00039	NA	0.074	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	79601-23-1	M,P-Xylene	0.00028	0.008	mg/kg	CFMW-064	21 / 25	6.6e-005 - 8.8e-005	0.008	NA	No Screening Level		N	NSL
	79-20-9	Methyl Acetate	0.0043	0.36	mg/kg	CFSB-119	5 / 25	0.00054 - 0.00054	0.36	NA	0.41	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	0.0012	0.014	mg/kg	CFMW-064	17 / 25	0.00046 - 0.00046	0.014	NA	0.12	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ND	ND	ND	ND	0 / 25	0.0013 - 0.0013	ND	NA	0.14	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-87-2	Methylcyclohexane	0.00056	0.012	mg/kg	CFMW-064	18 / 25	0.0003 - 0.0003	0.012	NA	No Screening Level		N	NSL
	75-09-2	Methylene Chloride	0.003	0.003	mg/kg	CFSB-102	1 / 26	0.00019 - 0.00036	0.003	NA	0.0027	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	0.0001	0.0028	mg/kg	CFMW-064	15 / 25	9.6e-005 - 0.00013	0.0028	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	100-42-5	Styrene	ND	ND	ND	ND	0 / 25	9e-005 - 9e-005	ND	NA	0.13	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	ND	ND	ND	ND	0 / 25	0.0001 - 0.0001	ND	NA	0.0032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	ND	ND	ND	ND	0 / 25	0.00017 - 0.00017	ND	NA	0.0018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	108-88-3	Toluene	0.00044	0.01	mg/kg	CFMW-064	23 / 25	0.00011 - 0.00019	0.01	NA	0.076	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	ND	ND	ND	ND	0 / 25	0.00023 - 0.00023	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	ND	ND	ND	ND	0 / 25	6e-005 - 6e-005	ND	NA	No Screening Level		N	BSL-ND

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Table 2-31

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: South Percolation Pond Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	79-01-6	Trichloroethylene (TCE)	ND	ND	ND	ND	0 / 25	0.00016 - 0.00016	ND	NA	0.0001	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	75-69-4	Trichlorofluoromethane	ND	ND	ND	ND	0 / 25	0.0002 - 0.0002	ND	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	75-01-4	Vinyl Chloride	ND	ND	ND	ND	0 / 25	0.00023 - 0.00023	ND	NA	6.50E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact

(3) COPC Flag
Y = Yes
N = No

(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COPC) = Detections exceed soil screening level and constituent a groundwater constituent of concern
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

Preliminary Under EPA and MDEQ Review

Table 2-32

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Water South Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	57-12-5	Cyanide	D	5.3	68.2	µg/l	CFSWP-018	2 / 3	2 - 2	68.2	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	FREE CN	Cyanide (Free)	D	1.7	1.7	µg/l	CFSWP-020	1 / 1	1.5 - 1.5	1.7	NA	No Screening Level		N	NSL
	16984-48-8	Fluoride	D	289	1860	µg/l	CFSWP-018	3 / 3	60 - 60	1860	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	57-12-5	Cyanide	T	11.3	77.2	µg/l	CFSWP-018	4 / 12	2 - 2	77.2	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	FREE CN	Cyanide (Free)	T	2.1	9	µg/l	CFSWP-020	2 / 2	1.5 - 1.5	9	NA	No Screening Level		N	NSL
	16984-48-8	Fluoride	T	250	1700	µg/l	CFSWP-018	12 / 12	15 - 15	1700	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	D	ND	ND	ND	ND	0 / 3	18.2 - 18.2	ND	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	D	ND	ND	ND	ND	0 / 3	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	D	ND	ND	ND	ND	0 / 3	0.64 - 0.64	ND	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	7440-39-3	Barium	D	194	270	µg/l	CFSWP-020	3 / 3	1.2 - 1.2	270	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	D	ND	ND	ND	ND	0 / 3	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	ND	ND	ND	ND	0 / 3	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	D	37800	49400	µg/l	CFSWP-018	3 / 3	60.5 - 60.5	49400	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	D	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	D	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	D	ND	ND	ND	ND	0 / 3	1.4 - 1.4	ND	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	60.5	60.5	µg/l	CFSWP-020	1 / 3	42.4 - 42.4	60.5	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	D	ND	ND	ND	ND	0 / 3	0.38 - 0.38	ND	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	D	12700	14800	µg/l	CFSWP-018	3 / 3	63.6 - 63.6	14800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	D	4.5	4.5	µg/l	CFSWP-020	1 / 3	2.5 - 2.5	4.5	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 3	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	D	ND	ND	ND	ND	0 / 3	1.4 - 1.4	ND	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	D	619	970	µg/l	CFSWP-018	3 / 3	91.4 - 91.4	970	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	D	ND	ND	ND	ND	0 / 3	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	D	3670	23500	µg/l	CFSWP-018	3 / 3	69 - 69	23500	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 3	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	ND	ND	ND	ND	0 / 3	1.9 - 1.9	ND	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	D	ND	ND	ND	ND	0 / 3	7 - 7	ND	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	T	15.3	615	µg/l	CFSWP-020	8 / 12	13.5 - 13.5	615	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	T	ND	ND	ND	ND	0 / 12	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	T	0.71	0.71	µg/l	CFSWP-018	1 / 12	0.64 - 0.71	0.71	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	T	156	424	µg/l	CFSWP-020	12 / 12	1.2 - 1.2	424	NA	380	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	T	ND	ND	ND	ND	0 / 12	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	ND	ND	ND	ND	0 / 12	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	T	38000	77000	µg/l	CFSWP-018	12 / 12	60.5 - 60.5	77000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	T	1.8	4.3	µg/l	CFSWP-019	3 / 12	1.3 - 1.3	4.3	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	T	ND	ND	ND	ND	0 / 12	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	T	1.6	9.8	µg/l	CFSWP-018	9 / 12	1.4 - 1.4	9.8	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	43.1	451	µg/l	CFSWP-020	9 / 12	42.4 - 42.4	451	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

Preliminary - Subject to PA and MDEQ Review

Table 2-32

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Water South Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	7439-92-1	Lead	T	0.91	1.7	µg/l	CFSWP-018	3 / 12	0.38 - 0.38	1.7	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	T	12600	17200	µg/l	CFSWP-018	12 / 12	63.6 - 63.6	17200	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	T	3.4	10.1	µg/l	CFSWP-020	9 / 12	2.5 - 2.5	10.1	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 12	0.14 - 0.14	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	T	1.6	1.6	µg/l	CFSWP-018	1 / 12	1.4 - 1.4	1.6	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	T	600	1060	µg/l	CFSWP-018	12 / 12	74.8 - 74.8	1060	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	T	ND	ND	ND	ND	0 / 12	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 12	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	4080	25800	µg/l	CFSWP-018	12 / 12	69 - 69	25800	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	T	ND	ND	ND	ND	0 / 12	0.26 - 0.26	ND		0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	T	2.1	2.1	µg/l	CFSWP-019	3 / 12	1.4 - 1.9	2.1		8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	T	15.2	18.2	µg/l	CFSWP-018	2 / 12	6.5 - 7	18.2		600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	72-20-8	Endrin	N	ND	ND	ND	ND	0 / 1	0.004 - 0.004	ND		0.059	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL
	309-00-2	Aldrin	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.00049	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	NA	ND	ND	ND	ND	0 / 3	0.006 - 0.006	ND		0.0072	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	959-98-8	Alpha Endosulfan	NA	ND	ND	ND	ND	0 / 3	0.005 - 0.005	ND		20	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	NA	ND	ND	ND	ND	0 / 3	0.005 - 0.005	ND		0.025	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	33213-65-9	Beta Endosulfan	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		20	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	5103-71-9	cis-Chlordane	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.008	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	NA	ND	ND	ND	ND	0 / 3	0.006 - 0.006	ND		No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.00052	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	NA	ND	ND	ND	ND	0 / 3	0.005 - 0.005	ND		20	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	72-20-8	Endrin	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.059	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL
	7421-93-4	Endrin Aldehyde	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		1	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL
	53494-70-5	Endrin Ketone	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.042	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	76-44-8	Heptachlor	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.00079	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.00039	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	72-43-5	Methoxychlor	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.02	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	72-54-8	P,P'-DDD	NA	ND	ND	ND	ND	0 / 3	0.005 - 0.005	ND		0.0012	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	72-55-9	P,P'-DDE	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.00018	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	50-29-3	P,P'-DDT	NA	ND	ND	ND	ND	0 / 3	0.004 - 0.004	ND		0.0022	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	8001-35-2	Toxaphene	NA	ND	ND	ND	ND	0 / 3	0.06 - 0.06	ND		0.007	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	5103-74-2	trans-Chlordane	NA	ND	ND	ND	ND	0 / 3	0.005 - 0.005	ND		No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	NA	ND	ND	ND	ND	0 / 3	0.098 - 0.098	ND		0.14	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	NA	ND	ND	ND	ND	0 / 3	0.098 - 0.098	ND		0.0047	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	NA	ND	ND	ND	ND	0 / 3	0.098 - 0.098	ND		0.0047	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	NA	ND	ND	ND	ND	0 / 3	0.098 - 0.098	ND		0.0078	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	NA	ND	ND	ND	ND	0 / 3	0.098 - 0.098	ND		0.0078	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	NA	ND	ND	ND	ND	0 / 3	0.084 - 0.084	ND		0.0078	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND

Preliminary - Under EPA and MDEQ Review

Table 2-32

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Water South Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	11096-82-5	PCB-1260 (Aroclor 1260)	NA	ND	ND	ND	ND	0 / 3	0.084 - 0.084	ND		0.0078	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	NA	ND	ND	ND	ND	0 / 3	0.084 - 0.084	ND		No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	NA	ND	ND	ND	ND	0 / 3	0.084 - 0.084	ND		No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	NA	ND	ND	ND	ND	0 / 3	0.098 - 0.098	ND		No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	NA	ND	ND	ND	ND	0 / 3	0.43 - 0.43	ND		0.03	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	NA	ND	ND	ND	ND	0 / 3	3.1 - 3.1	ND		0.46	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	NA	ND	ND	ND	ND	0 / 3	0.69 - 0.69	ND		24	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-95-4	2,4,5-Trichlorophenol	NA	ND	ND	ND	ND	0 / 3	0.49 - 0.49	ND		120	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	NA	ND	ND	ND	ND	0 / 3	0.53 - 0.53	ND		1.2	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-83-2	2,4-Dichlorophenol	NA	ND	ND	ND	ND	0 / 3	0.63 - 0.63	ND		4.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	105-67-9	2,4-Dimethylphenol	NA	ND	ND	ND	ND	0 / 3	0.91 - 0.91	ND		36	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	51-28-5	2,4-Dinitrophenol	NA	ND	ND	ND	ND	0 / 3	2.4 - 2.4	ND		3.9	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	121-14-2	2,4-Dinitrotoluene	NA	ND	ND	ND	ND	0 / 3	1 - 1	ND		0.24	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	NA	ND	ND	ND	ND	0 / 3	0.88 - 0.88	ND		0.049	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	NA	ND	ND	ND	ND	0 / 3	0.61 - 0.61	ND		75	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	NA	ND	ND	ND	ND	0 / 3	0.74 - 0.74	ND		9.1	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	91-57-6	2-Methylnaphthalene	NA	ND	ND	ND	ND	0 / 3	0.88 - 0.88	ND		3.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	NA	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND		93	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	NA	ND	ND	ND	ND	0 / 3	0.65 - 0.65	ND		19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-75-5	2-Nitrophenol	NA	ND	ND	ND	ND	0 / 3	0.59 - 0.59	ND		No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	NA	ND	ND	ND	ND	0 / 3	1 - 1	ND		0.13	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	NA	ND	ND	ND	ND	0 / 3	0.88 - 0.88	ND		No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	NA	ND	ND	ND	ND	0 / 3	0.82 - 0.82	ND		No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	NA	ND	ND	ND	ND	0 / 3	2 - 2	ND		0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	NA	ND	ND	ND	ND	0 / 3	1 - 1	ND		No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	NA	ND	ND	ND	ND	0 / 3	0.76 - 0.76	ND		140	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	106-47-8	4-Chloroaniline	NA	ND	ND	ND	ND	0 / 3	0.73 - 0.73	ND		0.37	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	NA	ND	ND	ND	ND	0 / 3	0.96 - 0.96	ND		No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	NA	ND	ND	ND	ND	0 / 3	0.48 - 0.48	ND		3.8	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	100-02-7	4-Nitrophenol	NA	ND	ND	ND	ND	0 / 3	4.7 - 4.7	ND		50	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	83-32-9	Acenaphthene	NA	ND	ND	ND	ND	0 / 3	0.88 - 0.88	ND		53	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	NA	ND	ND	ND	ND	0 / 3	0.65 - 0.65	ND		No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	NA	ND	ND	ND	ND	0 / 3	1 - 1	ND		190	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	NA	ND	ND	ND	ND	0 / 3	0.57 - 0.57	ND		180	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	NA	ND	ND	ND	ND	0 / 3	0.77 - 0.77	ND		0.3	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	100-52-7	Benzaldehyde	NA	ND	ND	ND	ND	0 / 3	0.86 - 0.86	ND		19	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	56-55-3	Benzo(A)Anthracene	NA	ND	ND	ND	ND	0 / 3	0.55 - 0.55	ND		0.03	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	50-32-8	Benzo(A)Pyrene	NA	ND	ND	ND	ND	0 / 3	0.16 - 0.16	ND		0.025	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	205-99-2	Benzo(B)Fluoranthene	NA	ND	ND	ND	ND	0 / 3	0.44 - 0.44	ND		0.038	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	191-24-2	Benzo(G,H,I)Perylene	NA	ND	ND	ND	ND	0 / 3	0.75 - 0.75	ND		No Screening Level		N	BSL-ND

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Table 2-32

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Water South Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	207-08-9	Benzo(K)Fluoranthene	NA	ND	ND	ND	ND	0 / 3	0.18 - 0.18	ND		0.038	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	85-68-7	Benzyl Butyl Phthalate	NA	ND	ND	ND	ND	0 / 3	0.6 - 0.6	ND		1	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	92-52-4	Biphenyl (Diphenyl)	NA	ND	ND	ND	ND	0 / 3	0.63 - 0.63	ND		0.083	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	NA	ND	ND	ND	ND	0 / 3	0.69 - 0.69	ND		5.9	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	NA	ND	ND	ND	ND	0 / 3	0.12 - 0.12	ND		0.014	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	NA	ND	ND	ND	ND	0 / 3	0.93 - 0.93	ND		71	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	NA	ND	ND	ND	ND	0 / 3	0.72 - 0.72	ND		3.2	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	105-60-2	Caprolactam	NA	ND	ND	ND	ND	0 / 3	1.1 - 1.1	ND		990	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	NA	ND	ND	ND	ND	0 / 3	0.85 - 0.85	ND		No Screening Level		N	BSL-ND
	218-01-9	Chrysene	NA	ND	ND	ND	ND	0 / 3	0.67 - 0.67	ND		1.2	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	NA	ND	ND	ND	ND	0 / 3	0.82 - 0.82	ND		20	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	117-84-0	Di-N-Octylphthalate	NA	ND	ND	ND	ND	0 / 3	0.69 - 0.69	ND		20	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	NA	ND	ND	ND	ND	0 / 3	0.09 - 0.09	ND		0.0012	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	132-64-9	Dibenzofuran	NA	ND	ND	ND	ND	0 / 3	0.85 - 0.85	ND		0.79	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	84-66-2	Diethyl Phthalate	NA	ND	ND	ND	ND	0 / 3	1 - 1	ND		600	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	131-11-3	Dimethyl Phthalate	NA	ND	ND	ND	ND	0 / 3	0.98 - 0.98	ND		2000	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	206-44-0	Fluoranthene	NA	ND	ND	ND	ND	0 / 3	0.72 - 0.72	ND		20	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL
	86-73-7	Fluorene	NA	ND	ND	ND	ND	0 / 3	0.8 - 0.8	ND		29	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	NA	ND	ND	ND	ND	0 / 3	0.47 - 0.47	ND		0.00079	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	NA	ND	ND	ND	ND	0 / 3	0.76 - 0.76	ND		0.1	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	NA	ND	ND	ND	ND	0 / 3	0.61 - 0.61	ND		0.041	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	NA	ND	ND	ND	ND	0 / 3	0.09 - 0.09	ND		0.33	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	193-39-5	Indeno(1,2,3-C,D)Pyrene	NA	ND	ND	ND	ND	0 / 3	0.21 - 0.21	ND		0.012	MDEQ Circular DEQ-7 Surface Water, c	N	BSL-ND
	78-59-1	Isophorone	NA	ND	ND	ND	ND	0 / 3	0.67 - 0.67	ND		78	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	NA	ND	ND	ND	ND	0 / 3	0.83 - 0.83	ND		0.011	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	NA	ND	ND	ND	ND	0 / 3	0.74 - 0.74	ND		12	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	91-20-3	Naphthalene	NA	ND	ND	ND	ND	0 / 3	0.8 - 0.8	ND		0.17	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	NA	ND	ND	ND	ND	0 / 3	0.49 - 0.49	ND		0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	NA	ND	ND	ND	ND	0 / 3	2.2 - 2.2	ND		0.041	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	NA	ND	ND	ND	ND	0 / 3	0.65 - 0.65	ND		No Screening Level		N	BSL-ND
	108-95-2	Phenol	NA	ND	ND	ND	ND	0 / 3	0.41 - 0.41	ND		580	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	NA	ND	ND	ND	ND	0 / 3	0.83 - 0.83	ND		12	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	71-55-6	1,1,1-Trichloroethane	NA	ND	ND	ND	ND	0 / 3	0.28 - 0.28	ND		200	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	NA	ND	ND	ND	ND	0 / 3	0.19 - 0.19	ND		0.076	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	ND	ND	ND	ND	0 / 3	0.34 - 0.34	ND		1000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	79-00-5	1,1,2-Trichloroethane	NA	ND	ND	ND	ND	0 / 3	0.08 - 0.08	ND		0.041	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	NA	ND	ND	ND	ND	0 / 3	0.24 - 0.24	ND		2.8	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	75-35-4	1,1-Dichloroethene	NA	ND	ND	ND	ND	0 / 3	0.34 - 0.34	ND		7	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	NA	ND	ND	ND	ND	0 / 3	0.35 - 0.35	ND		0.7	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	NA	ND	ND	ND	ND	0 / 3	0.27 - 0.27	ND		0.071	MDEQ Circular DEQ-7 Surface Water, t	N	BSL-ND

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Table 2-32

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Water South Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	96-12-8	1,2-Dibromo-3-Chloropropane	NA	ND	ND	ND	ND	0 / 3	0.23 - 0.23	ND		0.00033	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	NA	ND	ND	ND	ND	0 / 3	0.19 - 0.19	ND		0.0075	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 3	0.22 - 0.22	ND		30	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	107-06-2	1,2-Dichloroethane	NA	ND	ND	ND	ND	0 / 3	0.25 - 0.25	ND		0.17	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	NA	ND	ND	ND	ND	0 / 3	0.18 - 0.18	ND		0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 3	0.33 - 0.33	ND		7	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	106-46-7	1,4-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 3	0.33 - 0.33	ND		0.48	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	591-78-6	2-Hexanone	NA	ND	ND	ND	ND	0 / 3	0.72 - 0.72	ND		3.8	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	67-64-1	Acetone	NA	ND	ND	ND	ND	0 / 3	1.1 - 1.1	ND		1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	71-43-2	Benzene	NA	ND	ND	ND	ND	0 / 3	0.09 - 0.09	ND		0.46	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	74-97-5	Bromochloromethane	NA	ND	ND	ND	ND	0 / 3	0.3 - 0.3	ND		8.3	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-27-4	Bromodichloromethane	NA	ND	ND	ND	ND	0 / 3	0.15 - 0.15	ND		0.13	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	75-25-2	Bromoform	NA	ND	ND	ND	ND	0 / 3	0.18 - 0.18	ND		3.3	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	74-83-9	Bromomethane	NA	ND	ND	ND	ND	0 / 3	0.18 - 0.18	ND		0.75	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-15-0	Carbon Disulfide	NA	ND	ND	ND	ND	0 / 3	0.22 - 0.22	ND		81	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	56-23-5	Carbon Tetrachloride	NA	ND	ND	ND	ND	0 / 3	0.33 - 0.33	ND		0.46	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	108-90-7	Chlorobenzene	NA	ND	ND	ND	ND	0 / 3	0.24 - 0.24	ND		7.8	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-00-3	Chloroethane	NA	ND	ND	ND	ND	0 / 3	0.37 - 0.37	ND		2100	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	67-66-3	Chloroform	NA	ND	ND	ND	ND	0 / 3	0.22 - 0.22	ND		0.22	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	74-87-3	Chloromethane	NA	ND	ND	ND	ND	0 / 3	0.22 - 0.22	ND		19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	NA	ND	ND	ND	ND	0 / 3	0.26 - 0.26	ND		3.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	NA	ND	ND	ND	ND	0 / 3	0.16 - 0.16	ND		3.4	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	110-82-7	Cyclohexane	NA	ND	ND	ND	ND	0 / 3	0.26 - 0.26	ND		1300	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	124-48-1	Dibromochloromethane	NA	ND	ND	ND	ND	0 / 3	0.22 - 0.22	ND		0.87	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	75-71-8	Dichlorodifluoromethane	NA	ND	ND	ND	ND	0 / 3	0.14 - 0.14	ND		20	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	100-41-4	Ethylbenzene	NA	ND	ND	ND	ND	0 / 3	0.3 - 0.3	ND		1.5	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	NA	ND	ND	ND	ND	0 / 3	0.32 - 0.32	ND		45	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	79601-23-1	M,P-Xylene	NA	ND	ND	ND	ND	0 / 3	0.28 - 0.28	ND		No Screening Level		N	BSL-ND
	79-20-9	Methyl Acetate	NA	ND	ND	ND	ND	0 / 3	0.58 - 0.58	ND		2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	NA	ND	ND	ND	ND	0 / 3	2.2 - 2.2	ND		560	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	NA	ND	ND	ND	ND	0 / 3	0.63 - 0.63	ND		630	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-87-2	Methylcyclohexane	NA	ND	ND	ND	ND	0 / 3	0.22 - 0.22	ND		No Screening Level		N	BSL-ND
	75-09-2	Methylene Chloride	NA	1	1	µg/l	CFSWP-020	2 / 3	0.21 - 0.21	1		5	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	NA	ND	ND	ND	ND	0 / 3	0.32 - 0.32	ND		19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	100-42-5	Styrene	NA	ND	ND	ND	ND	0 / 3	0.17 - 0.17	ND		100	MDEQ Circular DEQ-7 Surface Water, c	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	NA	ND	ND	ND	ND	0 / 3	0.13 - 0.13	ND		14	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	NA	ND	ND	ND	ND	0 / 3	0.12 - 0.12	ND		4.1	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-88-3	Toluene	NA	ND	ND	ND	ND	0 / 3	0.25 - 0.25	ND		57	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	NA	ND	ND	ND	ND	0 / 3	0.18 - 0.18	ND		36	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	NA	ND	ND	ND	ND	0 / 3	0.19 - 0.19	ND		2	MDEQ Circular DEQ-7 Surface Water, c	N	BSL

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Table 2-32

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Surface Water)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area
Exposure Medium: Surface Water South Percolation Pond Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Water	79-01-6	Trichloroethylene (TCE)	NA	ND	ND	ND	ND	0 / 3	0.22 - 0.22	ND		0.28	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-69-4	Trichlorofluoromethane	NA	ND	ND	ND	ND	0 / 3	0.15 - 0.15	ND		520	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-01-4	Vinyl Chloride	NA	ND	ND	ND	ND	0 / 3	0.06 - 0.06	ND		0.019	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND

Footnotes:

T = total
D = dissolved
NA = not applicable
ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
MDEQ Circular DEQ-7 Groundawter = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-33
Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	57-12-5	Cyanide	0.27	1.3	mg/kg	CFSDP-018	3 / 3	0.04 - 0.04	1.3		0.0015	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	16984-48-8	Fluoride	5.3	29.4	mg/kg	CFSDP-019	3 / 3	0.28 - 0.28	29.4	NA	12	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	2360	9710	mg/kg	CFSDP-020	3 / 3	11.1 - 11.1	9710	NA	3000	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 3	0.4 - 0.4	ND	NA	0.035	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-38-2	Arsenic	1	1.3	mg/kg	CFSDP-020	2 / 3	0.4 - 0.65	1.3	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), c**R	Y	Carcinogen
	7440-39-3	Barium	476	758	mg/kg	CFSDP-018	3 / 3	1.3 - 1.3	758	NA	16	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	0.18	0.45	mg/kg	CFSDP-020	2 / 3	0.12 - 0.2	0.45	NA	1.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 3	0.42 - 0.42	ND	NA	0.069	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-70-2	Calcium	133000	273000	mg/kg	CFSDP-018	3 / 3	54.4 - 54.4	273000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	3.3	9.7	mg/kg	CFSDP-020	3 / 3	0.75 - 0.75	9.7	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	1.4	4.6	mg/kg	CFSDP-020	3 / 3	0.75 - 0.75	4.6	NA	0.027	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	26	79.1	mg/kg	CFSDP-018	3 / 3	0.76 - 0.76	79.1	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-89-6	Iron	1490	9400	mg/kg	CFSDP-020	3 / 3	23.6 - 23.6	9400	NA	35	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	5.8	17	mg/kg	CFSDP-018	3 / 3	0.22 - 0.22	17	NA	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	3470	9270	mg/kg	CFSDP-020	3 / 3	37.7 - 37.7	9270	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	27.5	97.2	mg/kg	CFSDP-020	3 / 3	1.5 - 1.5	97.2	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	0.016	0.11	mg/kg	CFSDP-018	3 / 3	0.016 - 0.016	0.11	NA	0.0033	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-02-0	Nickel	5.4	15	mg/kg	CFSDP-020	3 / 3	0.76 - 0.76	15	NA	2.6	USEPA RSL Res Soil (THQ=0.1), n	Y	Carcinogen
	7440-09-7	Potassium	272	979	mg/kg	CFSDP-020	3 / 3	37 - 37	979	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.57	0.57	mg/kg	CFSDP-018	1 / 3	0.37 - 0.56	0.57	NA	0.052	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-22-4	Silver	ND	ND	ND	ND	0 / 3	0.77 - 0.77	ND	NA	0.08	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-23-5	Sodium	166	410	mg/kg	CFSDP-018	3 / 3	53.7 - 53.7	410	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 3	0.16 - 0.16	ND	NA	0.0014	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	2.3	15.3	mg/kg	CFSDP-020	3 / 3	1.1 - 1.1	15.3	NA	8.6	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-66-6	Zinc	44.7	89.4	mg/kg	CFSDP-018	3 / 3	4 - 4	89.4	NA	37	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.00096 - 0.00096	ND	NA	4.20E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 3	0.0015 - 0.0015	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.001 - 0.001	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 3	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 3	0.0017 - 0.0017	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 3	0.0014 - 0.0014	ND	NA	7.10E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 3	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	0.0092	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 3	0.0015 - 0.0015	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 3	0.00094 - 0.00094	ND	NA	0.00024	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND

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Table 2-33
Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 3	0.0021 - 0.0021	ND	NA	2.80E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 3	0.0022 - 0.0022	ND	NA	0.2	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 3	0.0014 - 0.0014	ND	NA	0.0075	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 3	0.0015 - 0.0015	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 3	0.0011 - 0.0011	ND	NA	0.077	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 3	0.031 - 0.031	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 3	0.0023 - 0.0023	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.002	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.0055	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 3	0.045 - 0.045	ND	NA	0.00079	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 3	0.16 - 0.16	ND	NA	9.40E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 3	0.057 - 0.057	ND	NA	0.018	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.06 - 0.06	ND	NA	0.4	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.017 - 0.017	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.0023	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 3	0.13 - 0.13	ND	NA	0.042	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 3	0.46 - 0.46	ND	NA	0.0044	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.024 - 0.024	ND	NA	0.00032	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.032 - 0.032	ND	NA	6.70E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.39	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 3	0.015 - 0.015	ND	NA	0.0089	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	0.019	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 3	0.026 - 0.026	ND	NA	0.075	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 3	0.02 - 0.02	ND	NA	0.008	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 3	0.02 - 0.02	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 3	0.068 - 0.068	ND	NA	0.00082	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 3	0.016 - 0.016	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 3	0.018 - 0.018	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 3	0.16 - 0.16	ND	NA	0.00026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.019 - 0.019	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 3	0.026 - 0.026	ND	NA	0.17	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

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Table 2-33
Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 3	0.016 - 0.016	ND	NA	0.00016	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.018 - 0.018	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 3	0.023 - 0.023	ND	NA	0.0016	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 3	0.29 - 0.29	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 3	0.015 - 0.015	ND	NA	0.55	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 3	0.016 - 0.016	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	0.058	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 3	0.058 - 0.058	ND	NA	5.8	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 3	0.046 - 0.046	ND	NA	0.0041	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.15	0.21	mg/kg	CFSDP-018	3 / 3	0.051 - 0.051	0.21	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.19	0.26	mg/kg	CFSDP-018	3 / 3	0.018 - 0.018	0.26	NA	0.018	USEPA RSL Res Soil (THQ=0.1), c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.27	0.37	mg/kg	CFSDP-018	3 / 3	0.024 - 0.024	0.37	NA	0.18	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.27	0.51	mg/kg	CFSDP-018	3 / 3	0.035 - 0.035	0.51	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.086	0.17	mg/kg	CFSDP-018	3 / 3	0.026 - 0.026	0.17	NA	1.8	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.019 - 0.019	ND	NA	0.24	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 3	0.052 - 0.052	ND	NA	0.00087	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 3	0.019 - 0.019	ND	NA	0.0013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	3.60E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 3	0.025 - 0.025	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	ND	ND	ND	ND	0 / 3	0.024 - 0.024	ND	NA	1.3	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 3	0.044 - 0.044	ND	NA	0.25	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	0.029	0.052	mg/kg	CFSDP-018	2 / 3	0.015 - 0.039	0.052	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.23	0.33	mg/kg	CFSDP-018	3 / 3	0.017 - 0.017	0.33	NA	9	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.018 - 0.018	ND	NA	0.23	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 3	0.031 - 0.031	ND	NA	5.7	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.056	0.084	mg/kg	CFSDP-018	2 / 3	0.032 - 0.082	0.084	NA	0.096	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 3	0.018 - 0.018	ND	NA	0.015	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 3	0.017 - 0.017	ND	NA	0.61	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 3	0.018 - 0.018	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.21	0.3	mg/kg	CFSDP-018	3 / 3	0.018 - 0.018	0.3	NA	8.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	0.54	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 3	0.025 - 0.025	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 3	0.017 - 0.017	ND	NA	0.00027	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 3	0.038 - 0.038	ND	NA	0.00013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 3	0.022 - 0.022	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.25	0.36	mg/kg	CFSDP-018	3 / 3	0.04 - 0.04	0.36	NA	0.98	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 3	0.013 - 0.013	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 3	0.02 - 0.02	ND	NA	8.10E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND

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Table 2-33

Occurrence, Distribution, and Selection of Chemical of Potential Concern (South Percolation Pond Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: South Percolation Pond Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 3	0.055 - 0.055	ND	NA	0.067	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 3	0.015 - 0.015	ND	NA	0.00054	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 3	0.019 - 0.019	ND	NA	9.20E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 3	0.074 - 0.074	ND	NA	5.70E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	0.11	0.13	mg/kg	CFSDP-018	3 / 3	0.016 - 0.016	0.13	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 3	0.02 - 0.02	ND	NA	0.33	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	0.25	0.35	mg/kg	CFSDP-018	3 / 3	0.028 - 0.028	0.35	NA	1.3	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
c = carcinogenic basis
n = non-carcinogenic basis
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-34
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Flathead River Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Flathead River Area
Exposure Medium: Surface Water Flathead River Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface	57-12-5	Cyanide	D	ND	ND	ND	ND	0 / 5	2 - 2	ND	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
Water	FREE CN	Cyanide (Free)	D	1.6	1.6	µg/l	CFSWP-006	1 / 1	1.5 - 1.5	1.6	NA	No Screening Level		N	NSL
	16984-48-8	Fluoride	D	109	119	µg/l	CFSWP-002	5 / 5	60 - 60	119	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	57-12-5	Cyanide	T	3.2	3.2	µg/l	CFSWP-006	1 / 20	2 - 2	3.2	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	FREE CN	Cyanide (Free)	T	ND	ND	ND	ND	0 / 2	1.5 - 1.5	ND	NA	No Screening Level		N	BSL-ND
	16984-48-8	Fluoride	T	33.5	547	µg/l	CFSWP-002	20 / 20	15 - 15	547	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	D	ND	ND	ND	ND	0 / 5	18.2 - 18.2	ND	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	D	ND	ND	ND	ND	0 / 5	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	D	ND	ND	ND	ND	0 / 5	0.64 - 0.64	ND	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	7440-39-3	Barium	D	63.7	70.7	µg/l	CFSWP-001	5 / 5	1.2 - 1.2	70.7	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	D	ND	ND	ND	ND	0 / 5	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	ND	ND	ND	ND	0 / 5	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	D	18200	19700	µg/l	CFSWP-008	5 / 5	60.5 - 60.5	19700	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	D	ND	ND	ND	ND	0 / 5	1.3 - 1.3	ND	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	D	ND	ND	ND	ND	0 / 5	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	D	3	3	µg/l	CFSWP-007	1 / 5	1.4 - 1.4	3	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	ND	ND	ND	ND	0 / 5	42.4 - 42.4	ND	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	D	ND	ND	ND	ND	0 / 5	0.38 - 0.38	ND	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	D	4460	4890	µg/l	CFSWP-008	5 / 5	63.6 - 63.6	4890	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	D	ND	ND	ND	ND	0 / 5	2.5 - 2.5	ND	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 5	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	D	ND	ND	ND	ND	0 / 5	1.4 - 1.4	ND	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	D	237	257	µg/l	CFSWP-006	5 / 5	91.4 - 91.4	257	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	D	ND	ND	ND	ND	0 / 5	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 5	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	D	562	706	µg/l	CFSWP-001	5 / 5	69 - 69	706	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 5	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	ND	ND	ND	ND	0 / 5	1.9 - 1.9	ND	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	D	ND	ND	ND	ND	0 / 5	7 - 7	ND	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	T	19.9	1540	µg/l	CFSWP-006	18 / 20	18.2 - 18.2	1540	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	T	0.64	0.66	µg/l	CFSWP-006	3 / 20	0.62 - 0.62	0.66	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	T	0.84	0.88	µg/l	CFSWP-006	2 / 20	0.64 - 0.64	0.88	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	T	62.8	107	µg/l	CFSWP-001	20 / 20	1.2 - 1.2	107	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	T	ND	ND	ND	ND	0 / 20	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	ND	ND	ND	ND	0 / 20	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	T	17600	25400	µg/l	CFSWP-008	20 / 20	60.5 - 60.5	25400	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	T	2	2	µg/l	CFSWP-006	2 / 20	1.3 - 1.3	2	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	T	ND	ND	ND	ND	0 / 20	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	T	1.4	3.4	µg/l	CFSWP-007	4 / 20	1.4 - 1.4	3.4	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	127	1640	µg/l	CFSWP-007	8 / 20	42.4 - 42.4	1640	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	T	0.57	1.2	µg/l	CFSWP-006	5 / 20	0.38 - 0.38	1.2	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL

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Table 2-34
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Flathead River Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Flathead River Area
Exposure Medium: Surface Water Flathead River Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	7439-95-4	Magnesium	T	4670	7110	µg/l	CFSWP-008	20 / 20	63.6 - 63.6	7110	NA	No Screening Level		N	NSL
Surface	7439-96-5	Manganese	T	3.9	52	µg/l	CFSWP-007	9 / 20	2.5 - 2.5	52	NA	43	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
Water	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 20	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	T	1.4	1.4	µg/l	CFSWP-007	1 / 20	1.4 - 1.4	1.4	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	T	242	775	µg/l	CFSWP-006	20 / 20	91.4 - 91.4	775	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	T	ND	ND	ND	ND	0 / 20	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 20	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	666	1200	µg/l	CFSWP-001	20 / 20	69 - 69	1200	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	T	ND	ND	ND	ND	0 / 20	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	T	1.9	1.9	µg/l	CFSWP-006	1 / 20	1.9 - 1.9	1.9		8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	T	8.8	8.8	µg/l	CFSWP-001	1 / 20	7 - 7	8.8		600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

Footnotes:

T = total
D = dissolved
NA = not applicable
ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
MDEQ Circular DEQ-7 Groundawter = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-35

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Flathead River Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Flathead River AreaSediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	57-12-5	Cyanide	0.067	0.067	mg/kg	CFSDP-007	1 / 5	0.032 - 0.036	0.067	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	16984-48-8	Fluoride	0.36	1.69	mg/kg	CFSDP-007	5 / 5	0.22 - 0.22	1.69	NA	12	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	6570	8460	mg/kg	CFSDP-007	5 / 5	8.5 - 8.5	8460	NA	3000	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 5	0.3 - 0.3	ND	NA	0.035	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-38-2	Arsenic	3.5	4.4	mg/kg	CFSDP-002	5 / 5	0.3 - 0.3	4.4	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), c**R	Y	Carcinogen
	7440-39-3	Barium	38	146	mg/kg	CFSDP-007	5 / 5	0.6 - 0.6	146	NA	16	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	0.28	0.49	mg/kg	CFSDP-007	5 / 5	0.092 - 0.092	0.49	NA	1.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 5	0.32 - 0.32	ND	NA	0.069	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-70-2	Calcium	11700	28000	mg/kg	CFSDP-002	5 / 5	41.3 - 41.3	28000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	7.7	10.5	mg/kg	CFSDP-007	5 / 5	0.57 - 0.57	10.5	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	4.8	6	mg/kg	CFSDP-007	5 / 5	0.57 - 0.57	6	NA	0.027	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	9.4	12.8	mg/kg	CFSDP-007	5 / 5	0.58 - 0.58	12.8	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-89-6	Iron	10800	15200	mg/kg	CFSDP-006	5 / 5	18 - 18	15200	NA	35	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	5.6	7	mg/kg	CFSDP-007	5 / 5	0.17 - 0.17	7	NA	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	9590	11200	mg/kg	CFSDP-001	5 / 5	28.6 - 28.6	11200	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	219	297	mg/kg	CFSDP-002	5 / 5	1.2 - 1.2	297	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	ND	ND	ND	ND	0 / 5	0.013 - 0.013	ND	NA	0.0033	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-02-0	Nickel	9.8	13	mg/kg	CFSDP-007	5 / 5	0.58 - 0.58	13	NA	2.6	USEPA RSL Res Soil (THQ=0.1), n	Y	Carcinogen
	7440-09-7	Potassium	390	813	mg/kg	CFSDP-007	5 / 5	28.1 - 28.1	813	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	ND	ND	ND	ND	0 / 5	0.28 - 0.28	ND	NA	0.052	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-22-4	Silver	ND	ND	ND	ND	0 / 5	0.59 - 0.59	ND	NA	0.08	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-23-5	Sodium	45.1	45.1	mg/kg	CFSDP-001	1 / 5	40.8 - 44.7	45.1	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 5	0.12 - 0.12	ND	NA	0.0014	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	7.5	25.5	mg/kg	CFSDP-006	5 / 5	0.83 - 0.83	25.5	NA	8.6	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-66-6	Zinc	35	38.4	mg/kg	CFSDP-006	5 / 5	3 - 3	38.4	NA	37	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 5	0.00098 - 0.00098	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 5	0.00074 - 0.00074	ND	NA	4.20E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 5	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 5	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 5	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 5	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 5	0.00088 - 0.00088	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 5	0.0011 - 0.0011	ND	NA	7.10E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 5	0.00094 - 0.00094	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 5	0.001 - 0.001	ND	NA	0.0092	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 5	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 5	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 5	0.00072 - 0.00072	ND	NA	0.00024	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 5	0.001 - 0.001	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND

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Table 2-35
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Flathead River Area, Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Flathead River AreaSediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 5	0.0016 - 0.0016	ND	NA	2.80E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 5	0.0017 - 0.0017	ND	NA	0.2	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 5	0.0011 - 0.0011	ND	NA	0.0075	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 5	0.0012 - 0.0012	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 5	0.00083 - 0.00083	ND	NA	0.077	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 5	0.024 - 0.024	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 5	0.0018 - 0.0018	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	0.013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	0.002	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	0.0055	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 5	0.03 - 0.03	ND	NA	0.00079	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 5	0.11 - 0.11	ND	NA	9.40E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 5	0.037 - 0.037	ND	NA	0.018	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 5	0.04 - 0.04	ND	NA	0.4	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 5	0.0094 - 0.0094	ND	NA	0.0023	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 5	0.088 - 0.088	ND	NA	0.042	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 5	0.3 - 0.3	ND	NA	0.0044	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 5	0.016 - 0.016	ND	NA	0.00032	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 5	0.021 - 0.021	ND	NA	6.70E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 5	0.009 - 0.009	ND	NA	0.39	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 5	0.01 - 0.01	ND	NA	0.0089	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 5	0.0088 - 0.0088	ND	NA	0.019	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 5	0.017 - 0.017	ND	NA	0.075	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 5	0.013 - 0.013	ND	NA	0.008	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 5	0.013 - 0.013	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 5	0.044 - 0.044	ND	NA	0.00082	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.035	0.035	mg/kg	CFSDP-008	1 / 5	0.011 - 0.013	0.035	NA	No Screening Level		N	NSL
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 5	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 5	0.11 - 0.11	ND	NA	0.00026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 5	0.013 - 0.013	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 5	0.017 - 0.017	ND	NA	0.17	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

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Table 2-35
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Flathead River Area, Sediment)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Flathead River AreaSediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 5	0.01 - 0.01	ND	NA	0.00016	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 5	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 5	0.015 - 0.015	ND	NA	0.0016	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 5	0.19 - 0.19	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 5	0.0096 - 0.0096	ND	NA	0.55	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 5	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 5	0.0087 - 0.0087	ND	NA	0.058	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 5	0.038 - 0.038	ND	NA	5.8	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 5	0.018 - 0.018	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 5	0.03 - 0.03	ND	NA	0.0041	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	ND	ND	ND	ND	0 / 5	0.033 - 0.033	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	50-32-8	Benzo(A)Pyrene	ND	ND	ND	ND	0 / 5	0.012 - 0.012	ND	NA	0.018	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL
	205-99-2	Benzo(B)Fluoranthene	ND	ND	ND	ND	0 / 5	0.016 - 0.016	ND	NA	0.18	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	191-24-2	Benzo(G,H,I)Perylene	ND	ND	ND	ND	0 / 5	0.023 - 0.023	ND	NA	No Screening Level		N	BSL-ND
	207-08-9	Benzo(K)Fluoranthene	ND	ND	ND	ND	0 / 5	0.017 - 0.017	ND	NA	1.8	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 5	0.012 - 0.012	ND	NA	0.24	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 5	0.034 - 0.034	ND	NA	0.00087	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 5	0.012 - 0.012	ND	NA	0.0013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 5	0.0094 - 0.0094	ND	NA	3.60E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 5	0.016 - 0.016	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.018	0.032	mg/kg	CFSDP-001	2 / 5	0.016 - 0.018	0.032	NA	1.3	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 5	0.029 - 0.029	ND	NA	0.25	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 5	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	9	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 5	0.012 - 0.012	ND	NA	0.23	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 5	0.02 - 0.02	ND	NA	5.7	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 5	0.021 - 0.021	ND	NA	0.096	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 5	0.012 - 0.012	ND	NA	0.015	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	0.61	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 5	0.012 - 0.012	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	ND	ND	ND	ND	0 / 5	0.012 - 0.012	ND	NA	8.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 5	0.0087 - 0.0087	ND	NA	0.54	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 5	0.016 - 0.016	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	0.00027	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 5	0.025 - 0.025	ND	NA	0.00013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 5	0.015 - 0.015	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	ND	ND	ND	ND	0 / 5	0.027 - 0.027	ND	NA	0.98	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 5	0.0086 - 0.0086	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 5	0.013 - 0.013	ND	NA	8.10E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND

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Table 2-35

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Flathead River Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Flathead River AreaSediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 5	0.036 - 0.036	ND	NA	0.067	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 5	0.01 - 0.01	ND	NA	0.00054	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 5	0.013 - 0.013	ND	NA	9.20E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 5	0.048 - 0.048	ND	NA	5.70E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	ND	ND	ND	ND	0 / 5	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	108-95-2	Phenol	ND	ND	ND	ND	0 / 5	0.013 - 0.013	ND	NA	0.33	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	ND	ND	ND	ND	0 / 5	0.018 - 0.018	ND	NA	1.3	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
c = carcinogenic basis
n = non-carcinogenic basis
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-36
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Backwater Seep Sampling Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Backwater Seep Sampling Area
Exposure Medium: Surface Water Backwater Seep Sampling Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface	57-12-5	Cyanide	D	11.7	162	µg/l	CFSWP-005	3 / 3	2 - 2	162	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
Water	FREE CN	Cyanide (Free)	D	5.4	42.2	µg/l	CFSWP-005	3 / 3	1.5 - 1.5	42.2	NA	No Screening Level		N	NSL
	16984-48-8	Fluoride	D	167	558	µg/l	CFSWP-005	3 / 3	60 - 60	558	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	57-12-5	Cyanide	T	7.7	213	µg/l	CFSWP-005	12 / 12	2 - 2	213	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	FREE CN	Cyanide (Free)	T	3.5	45.6	µg/l	CFSWP-005	5 / 6	1.5 - 1.5	45.6	NA	No Screening Level		N	NSL
	16984-48-8	Fluoride	T	175	2570	µg/l	CFSWP-005	12 / 12	15 - 15	2570	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	D	ND	ND	ND	ND	0 / 3	18.2 - 18.2	ND	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	D	ND	ND	ND	ND	0 / 3	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	D	ND	ND	ND	ND	0 / 3	0.64 - 0.64	ND	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	7440-39-3	Barium	D	67.7	98.3	µg/l	CFSWP-004	3 / 3	1.2 - 1.2	98.3	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	D	ND	ND	ND	ND	0 / 3	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	ND	ND	ND	ND	0 / 3	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	D	19900	32700	µg/l	CFSWP-005	3 / 3	60.5 - 60.5	32700	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	D	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	D	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-50-8	Copper	D	26.4	26.4	µg/l	CFSWP-003	1 / 3	1.4 - 1.4	26.4	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	56	164	µg/l	CFSWP-003	2 / 3	42.4 - 42.4	164	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	D	ND	ND	ND	ND	0 / 3	0.38 - 0.38	ND	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7439-95-4	Magnesium	D	4990	8770	µg/l	CFSWP-004	3 / 3	63.6 - 63.6	8770	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	D	8.2	27.1	µg/l	CFSWP-005	3 / 3	2.5 - 2.5	27.1	NA	43	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 3	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	D	32.2	32.2	µg/l	CFSWP-003	1 / 3	1.4 - 1.4	32.2	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	D	268	521	µg/l	CFSWP-004	3 / 3	91.4 - 91.4	521	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	D	ND	ND	ND	ND	0 / 3	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 3	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	D	1850	14300	µg/l	CFSWP-005	3 / 3	69 - 69	14300	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 3	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	ND	ND	ND	ND	0 / 3	1.9 - 1.9	ND	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	D	ND	ND	ND	ND	0 / 3	7 - 7	ND	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	T	53.3	794	µg/l	CFSWP-003	12 / 12	18.2 - 18.2	794	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	T	ND	ND	ND	ND	0 / 12	0.62 - 0.62	ND	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-38-2	Arsenic	T	0.78	0.78	µg/l	CFSWP-004	1 / 12	0.64 - 0.64	0.78	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	T	81.3	197	µg/l	CFSWP-004	12 / 12	1.2 - 1.2	197	NA	380	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-41-7	Beryllium	T	ND	ND	ND	ND	0 / 12	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	ND	ND	ND	ND	0 / 12	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	T	21000	62600	µg/l	CFSWP-005	12 / 12	60.5 - 60.5	62600	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	T	1.3	1.3	µg/l	CFSWP-004	2 / 12	1.3 - 1.3	1.3	NA	100	MDEQ Circular DEQ-7 Surface Water, t	N	BSL
	7440-48-4	Cobalt	T	1.3	1.3	µg/l	CFSWP-004	2 / 12	1.3 - 1.3	1.3	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	T	1.5	1.8	µg/l	CFSWP-003	3 / 12	1.4 - 1.4	1.8	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	135	868	µg/l	CFSWP-003	12 / 12	42.4 - 42.4	868	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-92-1	Lead	T	0.38	2.9	µg/l	CFSWP-004	8 / 12	0.38 - 0.38	2.9	NA	15	MDEQ Circular DEQ-7 Surface Water, t	N	BSL

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Table 2-36
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Backwater Seep Sampling Area, Surface Water)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Backwater Seep Sampling Area
Exposure Medium: Surface Water Backwater Seep Sampling Area

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	7439-95-4	Magnesium	T	5880	18200	µg/l	CFSWP-004	12 / 12	63.6 - 63.6	18200	NA	No Screening Level		N	NSL
Surface Water	7439-96-5	Manganese	T	10.9	212	µg/l	CFSWP-005	12 / 12	2.5 - 2.5	212	NA	43	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 12	0.17 - 0.17	ND	NA	0.05	MDEQ Circular DEQ-7 Surface Water, t w/BCF>300,	N	BSL-ND
	7440-02-0	Nickel	T	ND	ND	ND	ND	0 / 12	1.4 - 1.4	ND	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-09-7	Potassium	T	398	1120	µg/l	CFSWP-004	12 / 12	91.4 - 91.4	1120	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	T	ND	ND	ND	ND	0 / 12	0.73 - 0.73	ND	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 12	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	2050	36900	µg/l	CFSWP-005	12 / 12	69 - 69	36900	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	T	ND	ND	ND	ND	0 / 12	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	T	ND	ND	ND	ND	0 / 12	1.9 - 1.9	ND	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	T	19.9	19.9	µg/l	CFSWP-005	1 / 12	7 - 7	19.9	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

Footnotes:

T = total
D = dissolved
NA = not applicable
ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1×10^{-6})
MDEQ Circular DEQ-7 Groundawter = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact

(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-37

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Backwater Seep Sampling Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Backwater Seep Sampling Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	57-12-5	Cyanide	1	3.2	mg/kg	CFSDP-003	3 / 3	0.041 - 0.041	3.2	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	16984-48-8	Fluoride	8.57	13.7	mg/kg	CFSDP-005	3 / 3	0.28 - 0.28	13.7	NA	12	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	7820	8180	mg/kg	CFSDP-003	3 / 3	10.7 - 10.7	8180	NA	3000	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	ND	ND	ND	ND	0 / 3	0.38 - 0.38	ND	NA	0.035	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-38-2	Arsenic	4.2	6.2	mg/kg	CFSDP-004	3 / 3	0.39 - 0.39	6.2	NA	0.0015	USEPA RSL Res Soil (THQ=0.1), c**R	Y	Carcinogen
	7440-39-3	Barium	128	151	mg/kg	CFSDP-004	3 / 3	0.76 - 0.76	151	NA	16	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	0.39	0.54	mg/kg	CFSDP-003	3 / 3	0.12 - 0.12	0.54	NA	1.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	ND	ND	ND	ND	0 / 3	0.4 - 0.4	ND	NA	0.069	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-70-2	Calcium	16900	24100	mg/kg	CFSDP-003	3 / 3	52.3 - 52.3	24100	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	9.3	9.6	mg/kg	CFSDP-003	3 / 3	0.72 - 0.72	9.6	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	5.2	5.5	mg/kg	CFSDP-003	3 / 3	0.73 - 0.73	5.5	NA	0.027	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	13.1	13.8	mg/kg	CFSDP-004	3 / 3	0.73 - 0.73	13.8	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-89-6	Iron	13100	14200	mg/kg	CFSDP-003	3 / 3	22.7 - 22.7	14200	NA	35	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	8	9	mg/kg	CFSDP-003	3 / 3	0.21 - 0.21	9	NA	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	9700	9890	mg/kg	CFSDP-005	3 / 3	36.2 - 36.2	9890	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	139	286	mg/kg	CFSDP-003	3 / 3	1.5 - 1.5	286	NA	2.8	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	0.019	0.042	mg/kg	CFSDP-004	3 / 3	0.015 - 0.015	0.042	NA	0.0033	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-02-0	Nickel	10.5	11.6	mg/kg	CFSDP-003	3 / 3	0.73 - 0.73	11.6	NA	2.6	USEPA RSL Res Soil (THQ=0.1), n	Y	Carcinogen
	7440-09-7	Potassium	853	1080	mg/kg	CFSDP-003	3 / 3	35.5 - 35.5	1080	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	ND	ND	ND	ND	0 / 3	0.36 - 0.36	ND	NA	0.052	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-22-4	Silver	ND	ND	ND	ND	0 / 3	0.75 - 0.75	ND	NA	0.08	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-23-5	Sodium	80.7	148	mg/kg	CFSDP-003	3 / 3	51.7 - 51.7	148	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	ND	ND	ND	ND	0 / 3	0.15 - 0.15	ND	NA	0.0014	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	10.9	12	mg/kg	CFSDP-005	3 / 3	1.1 - 1.1	12	NA	8.6	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	7440-66-6	Zinc	38.6	48.8	mg/kg	CFSDP-003	3 / 3	3.8 - 3.8	48.8	NA	37	USEPA RSL Res Soil (THQ=0.1), n	Y	ASL
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.00095 - 0.00095	ND	NA	4.20E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 3	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.001 - 0.001	ND	NA	0.00015	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 3	0.0016 - 0.0016	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 3	0.0017 - 0.0017	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 3	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 3	0.0014 - 0.0014	ND	NA	7.10E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 3	0.0012 - 0.0012	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	0.0092	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 3	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 3	0.00093 - 0.00093	ND	NA	0.00024	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 3	0.0013 - 0.0013	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND

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Table 2-37

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Backwater Seep Sampling Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Backwater Seep Sampling Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 3	0.002 - 0.002	ND	NA	2.80E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 3	0.0022 - 0.0022	ND	NA	0.2	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 3	0.0014 - 0.0014	ND	NA	0.0075	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 3	0.0015 - 0.0015	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 3	0.0011 - 0.0011	ND	NA	0.077	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 3	0.03 - 0.03	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 3	0.0023 - 0.0023	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	8.00E-05	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.002	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	0.0055	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 3	0.014 - 0.014	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 3	0.076 - 0.076	ND	NA	0.00079	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 3	0.27 - 0.27	ND	NA	9.40E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 3	0.097 - 0.097	ND	NA	0.018	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.1 - 0.1	ND	NA	0.4	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 3	0.029 - 0.029	ND	NA	0.0012	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 3	0.024 - 0.024	ND	NA	0.0023	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 3	0.23 - 0.23	ND	NA	0.042	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 3	0.78 - 0.78	ND	NA	0.0044	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.041 - 0.041	ND	NA	0.00032	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 3	0.055 - 0.055	ND	NA	6.70E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 3	0.023 - 0.023	ND	NA	0.39	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 3	0.026 - 0.026	ND	NA	0.0089	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	ND	ND	ND	ND	0 / 3	0.023 - 0.023	ND	NA	0.019	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 3	0.045 - 0.045	ND	NA	0.075	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 3	0.034 - 0.034	ND	NA	0.008	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 3	0.034 - 0.034	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 3	0.11 - 0.11	ND	NA	0.00082	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.22	0.49	mg/kg	CFSDP-003	2 / 3	0.027 - 0.03	0.49	NA	No Screening Level		N	NSL
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 3	0.03 - 0.03	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 3	0.27 - 0.27	ND	NA	0.00026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.032 - 0.032	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 3	0.044 - 0.044	ND	NA	0.17	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

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Table 2-37

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Backwater Seep Sampling Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Backwater Seep Sampling Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 3	0.026 - 0.026	ND	NA	0.00016	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 3	0.031 - 0.031	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 3	0.039 - 0.039	ND	NA	0.0016	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 3	0.49 - 0.49	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	ND	ND	ND	ND	0 / 3	0.025 - 0.025	ND	NA	0.55	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 3	0.026 - 0.026	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 3	0.022 - 0.022	ND	NA	0.058	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	ND	ND	ND	ND	0 / 3	0.097 - 0.097	ND	NA	5.8	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 3	0.046 - 0.046	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 3	0.078 - 0.078	ND	NA	0.0041	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	ND	ND	ND	ND	0 / 3	0.086 - 0.086	ND	NA	0.011	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	50-32-8	Benzo(A)Pyrene	0.1	0.1	mg/kg	CFSDP-003	1 / 3	0.031 - 0.043	0.1	NA	0.018	USEPA RSL Res Soil (THQ=0.1), c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.3	0.3	mg/kg	CFSDP-003	1 / 3	0.04 - 0.055	0.3	NA	0.18	USEPA RSL Res Soil (THQ=0.1), c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.14	0.14	mg/kg	CFSDP-003	1 / 3	0.059 - 0.081	0.14	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.11	0.11	mg/kg	CFSDP-003	1 / 3	0.045 - 0.061	0.11	NA	1.8	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.032 - 0.032	ND	NA	0.24	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 3	0.088 - 0.088	ND	NA	0.00087	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 3	0.032 - 0.032	ND	NA	0.0013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ethe	ND	ND	ND	ND	0 / 3	0.024 - 0.024	ND	NA	3.60E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 3	0.042 - 0.042	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	ND	ND	ND	ND	0 / 3	0.04 - 0.04	ND	NA	1.3	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 3	0.074 - 0.074	ND	NA	0.25	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	ND	ND	ND	ND	0 / 3	0.025 - 0.025	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	0.48	0.48	mg/kg	CFSDP-003	1 / 3	0.028 - 0.038	0.48	NA	9	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 3	0.031 - 0.031	ND	NA	0.23	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 3	0.052 - 0.052	ND	NA	5.7	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	ND	ND	ND	ND	0 / 3	0.053 - 0.053	ND	NA	0.096	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	132-64-9	Dibenzofuran	ND	ND	ND	ND	0 / 3	0.031 - 0.031	ND	NA	0.015	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 3	0.029 - 0.029	ND	NA	0.61	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 3	0.03 - 0.03	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.48	0.48	mg/kg	CFSDP-003	1 / 3	0.03 - 0.042	0.48	NA	8.9	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	86-73-7	Fluorene	ND	ND	ND	ND	0 / 3	0.022 - 0.022	ND	NA	0.54	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 3	0.042 - 0.042	ND	NA	0.00012	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 3	0.029 - 0.029	ND	NA	0.00027	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 3	0.064 - 0.064	ND	NA	0.00013	USEPA RSL Res Soil (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 3	0.038 - 0.038	ND	NA	0.0002	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.2	0.2	mg/kg	CFSDP-003	1 / 3	0.068 - 0.094	0.2	NA	0.98	USEPA RSL Res Soil (THQ=0.1), c	N	BSL
	78-59-1	Isophorone	ND	ND	ND	ND	0 / 3	0.022 - 0.022	ND	NA	0.026	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 3	0.034 - 0.034	ND	NA	8.10E-06	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND

Preliminary Under EPA and MDEQ Review

Table 2-37

Occurrence, Distribution, and Selection of Chemical of Potential Concern (Backwater Seep Sampling Area, Sediment)

Columbia Falls Aluminum Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Backwater Seep Sampling Area Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Sediment	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 3	0.093 - 0.093	ND	NA	0.067	USEPA RSL Res Soil (THQ=0.1), c	N	BSL-ND
	91-20-3	Naphthalene	ND	ND	ND	ND	0 / 3	0.026 - 0.026	ND	NA	0.00054	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 3	0.032 - 0.032	ND	NA	9.20E-05	USEPA RSL Res Soil (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 3	0.12 - 0.12	ND	NA	5.70E-05	USEPA RSL Res Soil (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	ND	ND	ND	ND	0 / 3	0.027 - 0.027	ND	NA	No Screening Level		N	BSL-ND
	108-95-2	Phenol	ND	ND	ND	ND	0 / 3	0.034 - 0.034	ND	NA	0.33	USEPA RSL Res Soil (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	0.31	0.31	mg/kg	CFSDP-003	1 / 3	0.047 - 0.064	0.31	NA	1.3	USEPA RSL Res Soil (THQ=0.1), n	N	BSL

Footnotes:

(1) Concentration qualifiers: (D) - Sample diluted; (*) - LCS, LCSD, or RPD exceeds control limits

(2) Maximum detection value

(3) Site-specific risk-based screening levels. Refer to text for further discussion.

(ND) - Non-detect

(NA) - Not applicable

Preliminary - Under EPA and MDEQ Review

Table 2-38
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Upper Hydrogeologic Unit Groundwater)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Tapwater	57-12-5	Cyanide	D	5.7	7780	µg/l	CFMW-015	41 / 54	2 - 2	7780	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	FREE CN	Cyanide (Free)	D	1.6	135	µg/l	CFMW-002	34 / 51	1.5 - 1.5	135	NA	No Screening Level		N	NSL
	16984-48-8	Fluoride	D	96	55300	µg/l	CFMW-015	53 / 54	60 - 60	55300	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	ALK	Alkalinity, Total (As CaCO3)	T	26700	1570000	µg/l	CFMW-015	199 / 199	5000 - 5000	1570000	NA	No Screening Level		N	NSL
	16887-00-6	Chloride (As Cl)	T	455	91000	µg/l	CFMW-059	197 / 199	30 - 30	91000	NA	No Screening Level		N	NSL
	57-12-5	Cyanide	T	2	8120	µg/l	CFMW-015	167 / 199	2 - 2	8120	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	FREE CN	Cyanide (Free)	T	1.6	306	µg/l	CFMW-002	58 / 92	1.5 - 1.5	306	NA	No Screening Level		N	NSL
	16984-48-8	Fluoride	T	59.5	52900	µg/l	CFMW-015	195 / 199	15 - 15	52900	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	HARD	Hardness (As CaCO3)	T	198000	264000	µg/l	CFMW-061	10 / 10	5000 - 5000	264000	NA	No Screening Level		N	NSL
	7664-41-7	Nitrogen, Ammonia (As N)	T	72.1	34100	µg/l	CFMW-015	57 / 198	72 - 72	34100	NA	No Screening Level		N	NSL
	ARC-NO3NO2N	Nitrogen, Nitrite + Nitrate	T	104	62800	µg/l	CFMW-012	173 / 198	100 - 100	62800	NA	No Screening Level		N	NSL
	PORTHO	Phosphorus, Total Orthophosphate (As P)	T	267	325	µg/l	CFMW-015	2 / 171	42 - 42	325	NA	No Screening Level		N	LDF
	14808-79-8	Sulfate (As SO4)	T	2420	961000	µg/l	CFMW-003	199 / 199	105 - 105	961000	NA	No Screening Level		N	NSL
	TDS	Total Dissolved Solids (Residue, Filterable)	T	63000	2440000	µg/l	CFMW-012	199 / 199	10000 - 10000	2440000	NA	No Screening Level		N	NSL
	TOTHARD	Total Hardness	T	28000	1240000	µg/l	CFMW-008A	189 / 189	5000 - 5000	1240000	NA	No Screening Level		N	NSL
	TSS	Total Suspended Solids	T	1000	782000	µg/l	CFMW-025B	185 / 199	820 - 1000	782000	NA	No Screening Level		N	NSL
	7429-90-5	Aluminum	D	18.5	1850	µg/l	CFMW-035	24 / 199	9.1 - 18.2	1850	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	D	0.68	2.6	µg/l	CFMW-016A	5 / 199	0.31 - 0.62	2.6	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-38-2	Arsenic	D	0.64	92.6	µg/l	CFMW-012	43 / 199	0.32 - 0.64	92.6	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	D	18.7	1010	µg/l	CFMW-049A	199 / 199	0.61 - 0.61	1010	NA	380	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	D	ND	ND	ND	ND	0 / 199	0.12 - 0.12	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	ND	ND	ND	ND	0 / 199	0.36 - 0.36	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	D	1410	431000	µg/l	CFMW-008A	199 / 199	30.3 - 30.3	431000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	D	1.3	7.3	µg/l	CFMW-035	19 / 199	0.66 - 1.3	7.3	NA	100	USEPA MCLs, t	N	BSL
	7440-48-4	Cobalt	D	0.85	37.5	µg/l	CFMW-015	46 / 199	0.65 - 0.65	37.5	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	D	1.4	50.9	µg/l	CFMW-015	75 / 199	0.68 - 1.4	50.9	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	38.1	99600	µg/l	CFMW-008	115 / 199	21.2 - 42.4	99600	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	D	0.38	2.8	µg/l	CFMW-008	10 / 199	0.19 - 0.38	2.8	NA	15	USEPA RSL Tapwater (THQ=0.1), L	N	BSL
	7439-95-4	Magnesium	D	121	49800	µg/l	CFMW-003	195 / 199	31.8 - 63.6	49800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	D	1.2	1450	µg/l	CFMW-035	83 / 199	1.2 - 1.2	1450	NA	43	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 199	0.17 - 0.17	ND	NA	0.063	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-02-0	Nickel	D	1.4	9	µg/l	CFMW-015	19 / 199	0.68 - 1.4	9	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	2023695	Potassium	D	318	23200	µg/l	CFMW-008A	199 / 199	45.7 - 45.7	23200	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	D	0.73	17.1	µg/l	CFMW-015	28 / 199	0.37 - 0.73	17.1	NA	10	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 199	0.64 - 0.64	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	D	2870	707000	µg/l	CFMW-012	198 / 199	34.5 - 69	707000	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 199	0.13 - 0.13	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	1.9	397	µg/l	CFMW-012	23 / 199	0.95 - 1.9	397	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-66-6	Zinc	D	7	1220	µg/l	CFMW-008	13 / 199	3.5 - 7	1220	NA	600	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7429-90-5	Aluminum	T	18.5	6950	µg/l	CFMW-035	36 / 54	18.2 - 18.2	6950	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL

Preliminary - Under EPA and DEQ Review

Table 2-38
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Upper Hydrogeologic Unit Groundwater)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Tapwater	7440-36-0	Antimony	T	0.82	4.4	µg/l	CFMW-016A	5 / 54	0.62 - 0.62	4.4	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-38-2	Arsenic	T	0.66	80.2	µg/l	CFMW-012	14 / 54	0.64 - 0.64	80.2	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	T	26	953	µg/l	CFMW-049A	54 / 54	1.2 - 1.2	953	NA	380	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	T	0.4	0.4	µg/l	CFMW-035	1 / 54	0.24 - 0.24	0.4	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	ND	ND	ND	ND	0 / 54	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	T	3730	407000	µg/l	CFMW-008A	54 / 54	60.5 - 60.5	407000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	T	1.4	8.2	µg/l	CFMW-035	9 / 54	1.3 - 1.3	8.2	NA	100	USEPA MCLs, t	N	BSL
	7440-48-4	Cobalt	T	1.3	39.5	µg/l	CFMW-015	17 / 54	1.3 - 1.3	39.5	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	T	1.5	59.5	µg/l	CFMW-015	22 / 54	1.4 - 1.4	59.5	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	42.4	72900	µg/l	CFMW-008	48 / 54	42.4 - 42.4	72900	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	T	0.73	14	µg/l	CFMW-008	6 / 54	0.38 - 0.38	14	NA	15	USEPA RSL Tapwater (THQ=0.1), L	N	BSL
	7439-95-4	Magnesium	T	65.6	56500	µg/l	CFMW-003	54 / 54	63.6 - 63.6	56500	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	T	2.5	1270	µg/l	CFMW-035	28 / 54	2.5 - 2.5	1270	NA	43	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 54	0.17 - 0.17	ND	NA	0.063	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-02-0	Nickel	T	1.6	10.2	µg/l	CFMW-015	8 / 54	1.4 - 1.4	10.2	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	2023695	Potassium	T	476	19100	µg/l	CFMW-008A	54 / 54	91.4 - 91.4	19100	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	T	0.74	13	µg/l	CFMW-015	5 / 54	0.73 - 0.73	13	NA	10	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 54	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	3510	834000	µg/l	CFMW-012	54 / 54	69 - 69	834000	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	T	ND	ND	ND	ND	0 / 54	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	T	1.9	457	µg/l	CFMW-012	8 / 54	1.9 - 1.9	457	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-66-6	Zinc	T	7.7	3990	µg/l	CFMW-008	10 / 54	7 - 7	3990	NA	600	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	95-94-3	1,2,4,5-Tetrachlorobenzene	NA	ND	ND	ND	ND	0 / 162	0.43 - 0.43	ND	NA	0.03	USEPA MCLs, t w/BCF>300,	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	NA	ND	ND	ND	ND	0 / 162	3.1 - 3.1	ND	NA	0.46	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	NA	ND	ND	ND	ND	0 / 162	0.69 - 0.69	ND	NA	24	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-95-4	2,4,5-Trichlorophenol	NA	ND	ND	ND	ND	0 / 162	0.49 - 0.49	ND	NA	120	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	NA	ND	ND	ND	ND	0 / 162	0.53 - 0.53	ND	NA	1.2	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-83-2	2,4-Dichlorophenol	NA	ND	ND	ND	ND	0 / 162	0.63 - 0.63	ND	NA	4.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	105-67-9	2,4-Dimethylphenol	NA	ND	ND	ND	ND	0 / 162	0.91 - 0.91	ND	NA	36	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	51-28-5	2,4-Dinitrophenol	NA	ND	ND	ND	ND	0 / 162	2.4 - 2.4	ND	NA	3.9	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	121-14-2	2,4-Dinitrotoluene	NA	ND	ND	ND	ND	0 / 162	1 - 1	ND	NA	0.24	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	NA	ND	ND	ND	ND	0 / 162	0.88 - 0.88	ND	NA	0.049	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	NA	ND	ND	ND	ND	0 / 162	0.61 - 0.61	ND	NA	75	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	NA	ND	ND	ND	ND	0 / 162	0.74 - 0.74	ND	NA	9.1	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	91-57-6	2-Methylnaphthalene	NA	ND	ND	ND	ND	0 / 162	0.88 - 0.88	ND	NA	3.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	NA	ND	ND	ND	ND	0 / 162	1.3 - 1.3	ND	NA	93	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	NA	ND	ND	ND	ND	0 / 162	0.65 - 0.65	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-75-5	2-Nitrophenol	NA	ND	ND	ND	ND	0 / 162	0.59 - 0.59	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	NA	ND	ND	ND	ND	0 / 161	1 - 1	ND	NA	0.13	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	NA	34	42	µg/l	CFMW-044	2 / 162	0.88 - 0.88	42	NA	No Screening Level		N	LDF
	99-09-2	3-Nitroaniline	NA	ND	ND	ND	ND	0 / 161	0.82 - 0.82	ND	NA	No Screening Level		N	BSL-ND

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Table 2-38
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Upper Hydrogeologic Unit Groundwater)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	534-52-1	4,6-Dinitro-2-Methylphenol	NA	2.2	2.2	µg/l	CFMW-023	1 / 162	2 - 2	2.2	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
Tapwater	101-55-3	4-Bromophenyl Phenyl Ether	NA	ND	ND	ND	ND	0 / 162	1 - 1	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	NA	ND	ND	ND	ND	0 / 162	0.76 - 0.76	ND	NA	140	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	106-47-8	4-Chloroaniline	NA	ND	ND	ND	ND	0 / 162	0.73 - 0.73	ND	NA	0.37	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	NA	ND	ND	ND	ND	0 / 162	0.96 - 0.96	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	NA	ND	ND	ND	ND	0 / 161	0.48 - 0.48	ND	NA	3.8	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	100-02-7	4-Nitrophenol	NA	ND	ND	ND	ND	0 / 162	4.7 - 4.7	ND	NA	50	USEPA MCLs, t	N	BSL
	83-32-9	Acenaphthene	NA	ND	ND	ND	ND	0 / 162	0.88 - 0.88	ND	NA	53	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	NA	ND	ND	ND	ND	0 / 162	0.65 - 0.65	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	NA	ND	ND	ND	ND	0 / 162	1 - 1	ND	NA	190	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	NA	ND	ND	ND	ND	0 / 162	0.57 - 0.57	ND	NA	180	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	NA	ND	ND	ND	ND	0 / 162	0.77 - 0.77	ND	NA	0.3	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	100-52-7	Benzaldehyde	NA	ND	ND	ND	ND	0 / 162	0.86 - 0.86	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	56-55-3	Benzo(A)Anthracene	NA	ND	ND	ND	ND	0 / 162	0.55 - 0.55	ND	NA	0.03	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	50-32-8	Benzo(A)Pyrene	NA	ND	ND	ND	ND	0 / 162	0.16 - 0.16	ND	NA	0.025	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	205-99-2	Benzo(B)Fluoranthene	NA	ND	ND	ND	ND	0 / 162	0.44 - 0.44	ND	NA	0.25	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	191-24-2	Benzo(G,H,I)Perylene	NA	ND	ND	ND	ND	0 / 162	0.75 - 0.75	ND	NA	No Screening Level		N	BSL-ND
	207-08-9	Benzo(K)Fluoranthene	NA	ND	ND	ND	ND	0 / 162	0.18 - 0.18	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	NA	ND	ND	ND	ND	0 / 162	0.6 - 0.6	ND	NA	1	USEPA MCLs, c	N	BSL
	92-52-4	Biphenyl (Diphenyl)	NA	ND	ND	ND	ND	0 / 162	0.63 - 0.63	ND	NA	0.083	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	NA	ND	ND	ND	ND	0 / 162	0.69 - 0.69	ND	NA	5.9	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	NA	ND	ND	ND	ND	0 / 162	0.12 - 0.12	ND	NA	0.014	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	NA	ND	ND	ND	ND	0 / 162	0.93 - 0.93	ND	NA	71	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	NA	1.1	2.4	µg/l	CFMW-008A	6 / 162	0.72 - 0.72	2.4	NA	5.6	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	NA	ND	ND	ND	ND	0 / 162	1.1 - 1.1	ND	NA	990	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	NA	ND	ND	ND	ND	0 / 162	0.85 - 0.85	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	NA	ND	ND	ND	ND	0 / 162	0.67 - 0.67	ND	NA	25	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	NA	1.1	1.3	µg/l	CFMW-031	3 / 162	0.82 - 0.82	1.3	NA	20	USEPA MCLs, t	N	BSL
	117-84-0	Di-N-Octylphthalate	NA	ND	ND	ND	ND	0 / 162	0.69 - 0.69	ND	NA	20	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	NA	ND	ND	ND	ND	0 / 162	0.09 - 0.09	ND	NA	0.025	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	132-64-9	Dibenzofuran	NA	ND	ND	ND	ND	0 / 162	0.85 - 0.85	ND	NA	0.79	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	84-66-2	Diethyl Phthalate	NA	ND	ND	ND	ND	0 / 162	1 - 1	ND	NA	600	USEPA MCLs, t	N	BSL
	131-11-3	Dimethyl Phthalate	NA	ND	ND	ND	ND	0 / 162	0.98 - 0.98	ND	NA	2000	USEPA MCLs, t	N	BSL
	206-44-0	Fluoranthene	NA	ND	ND	ND	ND	0 / 162	0.72 - 0.72	ND	NA	20	USEPA MCLs, t w/BCF>300,	N	BSL
	86-73-7	Fluorene	NA	ND	ND	ND	ND	0 / 162	0.8 - 0.8	ND	NA	29	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	NA	ND	ND	ND	ND	0 / 162	0.47 - 0.47	ND	NA	0.0098	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	NA	ND	ND	ND	ND	0 / 162	0.76 - 0.76	ND	NA	0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	NA	ND	ND	ND	ND	0 / 162	0.61 - 0.61	ND	NA	0.041	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	NA	ND	ND	ND	ND	0 / 162	0.09 - 0.09	ND	NA	0.33	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	193-39-5	Indeno(1,2,3-C,D)Pyrene	NA	ND	ND	ND	ND	0 / 162	0.21 - 0.21	ND	NA	0.25	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	78-59-1	Isophorone	NA	ND	ND	ND	ND	0 / 162	0.67 - 0.67	ND	NA	78	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL

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Table 2-38
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Upper Hydrogeologic Unit Groundwater)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	621-64-7	N-Nitrosodi-N-Propylamine	NA	ND	ND	ND	ND	0 / 162	0.83 - 0.83	ND	NA	0.011	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	NA	ND	ND	ND	ND	0 / 162	0.74 - 0.74	ND	NA	12	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
Tapwater	91-20-3	Naphthalene	NA	ND	ND	ND	ND	0 / 162	0.8 - 0.8	ND	NA	0.17	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	NA	ND	ND	ND	ND	0 / 162	0.49 - 0.49	ND	NA	0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	NA	ND	ND	ND	ND	0 / 144	2.2 - 2.2	ND	NA	0.041	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	85-01-8	Phenanthrene	NA	ND	ND	ND	ND	0 / 162	0.65 - 0.65	ND	NA	No Screening Level		N	BSL-ND
	108-95-2	Phenol	NA	1.6	3.9	µg/l	CFMW-044	2 / 162	0.41 - 0.41	3.9	NA	580	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	NA	ND	ND	ND	ND	0 / 162	0.83 - 0.83	ND	NA	12	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	71-55-6	1,1,1-Trichloroethane	NA	3.2	3.8	µg/l	CFMW-003	4 / 162	0.28 - 0.28	3.8	NA	200	USEPA MCLs, t	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	NA	ND	ND	ND	ND	0 / 162	0.19 - 0.19	ND	NA	0.076	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	ND	ND	ND	ND	0 / 162	0.34 - 0.34	ND	NA	1000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	79-00-5	1,1,2-Trichloroethane	NA	ND	ND	ND	ND	0 / 162	0.08 - 0.08	ND	NA	0.041	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	NA	0.71	0.95	µg/l	CFMW-003	4 / 162	0.24 - 0.24	0.95	NA	2.8	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	75-35-4	1,1-Dichloroethene	NA	ND	ND	ND	ND	0 / 162	0.34 - 0.34	ND	NA	7	USEPA MCLs, c	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	NA	ND	ND	ND	ND	0 / 162	0.35 - 0.35	ND	NA	0.7	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	NA	ND	ND	ND	ND	0 / 162	0.27 - 0.27	ND	NA	0.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	NA	ND	ND	ND	ND	0 / 162	0.23 - 0.23	ND	NA	0.00033	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	NA	ND	ND	ND	ND	0 / 162	0.19 - 0.19	ND	NA	0.0075	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 162	0.22 - 0.22	ND	NA	30	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	107-06-2	1,2-Dichloroethane	NA	ND	ND	ND	ND	0 / 162	0.25 - 0.25	ND	NA	0.17	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	78-87-5	1,2-Dichloropropane	NA	ND	ND	ND	ND	0 / 162	0.18 - 0.18	ND	NA	0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 162	0.33 - 0.33	ND	NA	600	USEPA MCLs, t	N	BSL
	106-46-7	1,4-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 162	0.33 - 0.33	ND	NA	0.48	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	591-78-6	2-Hexanone	NA	ND	ND	ND	ND	0 / 162	0.72 - 0.72	ND	NA	3.8	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	67-64-1	Acetone	NA	6.1	13	µg/l	CFMW-008A	12 / 162	1.1 - 1.1	13	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	71-43-2	Benzene	NA	0.13	0.17	µg/l	CFMW-008A	4 / 162	0.09 - 0.09	0.17	NA	0.46	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	74-97-5	Bromochloromethane	NA	ND	ND	ND	ND	0 / 162	0.3 - 0.3	ND	NA	8.3	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-27-4	Bromodichloromethane	NA	ND	ND	ND	ND	0 / 162	0.15 - 0.15	ND	NA	0.13	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	75-25-2	Bromoform	NA	ND	ND	ND	ND	0 / 162	0.18 - 0.18	ND	NA	3.3	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	74-83-9	Bromomethane	NA	ND	ND	ND	ND	0 / 162	0.18 - 0.18	ND	NA	0.75	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-15-0	Carbon Disulfide	NA	0.37	3	µg/l	CFMW-047	2 / 162	0.22 - 0.22	3	NA	81	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	56-23-5	Carbon Tetrachloride	NA	ND	ND	ND	ND	0 / 162	0.33 - 0.33	ND	NA	0.46	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	108-90-7	Chlorobenzene	NA	ND	ND	ND	ND	0 / 162	0.24 - 0.24	ND	NA	7.8	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-00-3	Chloroethane	NA	ND	ND	ND	ND	0 / 162	0.37 - 0.37	ND	NA	2100	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	67-66-3	Chloroform	NA	ND	ND	ND	ND	0 / 162	0.22 - 0.22	ND	NA	0.22	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	74-87-3	Chloromethane	NA	ND	ND	ND	ND	0 / 162	0.22 - 0.22	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	NA	ND	ND	ND	ND	0 / 162	0.26 - 0.26	ND	NA	3.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	NA	ND	ND	ND	ND	0 / 162	0.16 - 0.16	ND	NA	4	USEPA MCLs, c	N	BSL
	110-82-7	Cyclohexane	NA	ND	ND	ND	ND	0 / 162	0.26 - 0.26	ND	NA	1300	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	124-48-1	Dibromochloromethane	NA	ND	ND	ND	ND	0 / 162	0.22 - 0.22	ND	NA	0.87	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	75-71-8	Dichlorodifluoromethane	NA	ND	ND	ND	ND	0 / 162	0.14 - 0.14	ND	NA	20	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

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Table 2-38
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Upper Hydrogeologic Unit Groundwater)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	100-41-4	Ethylbenzene	NA	ND	ND	ND	ND	0 / 162	0.3 - 0.3	ND	NA	1.5	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	NA	ND	ND	ND	ND	0 / 162	0.32 - 0.32	ND	NA	45	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	79601-23-1	M,P-Xylene	NA	ND	ND	ND	ND	0 / 162	0.28 - 0.28	ND	NA	No Screening Level		N	BSL-ND
Tapwater	79-20-9	Methyl Acetate	NA	ND	ND	ND	ND	0 / 162	0.58 - 0.58	ND	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	NA	2.3	2.3	µg/l	CFMW-008A	1 / 162	2.2 - 2.2	2.3	NA	560	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	NA	ND	ND	ND	ND	0 / 162	0.63 - 0.63	ND	NA	630	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-87-2	Methylcyclohexane	NA	ND	ND	ND	ND	0 / 162	0.22 - 0.22	ND	NA	No Screening Level		N	BSL-ND
	75-09-2	Methylene Chloride	NA	0.51	1.8	µg/l	CFMW-015	5 / 162	0.21 - 0.21	1.8	NA	5	USEPA MCLs, c	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	NA	ND	ND	ND	ND	0 / 162	0.32 - 0.32	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	100-42-5	Styrene	NA	ND	ND	ND	ND	0 / 162	0.17 - 0.17	ND	NA	100	USEPA MCLs, c	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	NA	ND	ND	ND	ND	0 / 162	0.13 - 0.13	ND	NA	14	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	NA	0.14	0.69	µg/l	CFMW-021	15 / 162	0.12 - 0.12	0.69	NA	4.1	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-88-3	Toluene	NA	0.27	2.2	µg/l	CFMW-047	5 / 162	0.25 - 0.25	2.2	NA	110	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	NA	ND	ND	ND	ND	0 / 162	0.18 - 0.18	ND	NA	36	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	NA	ND	ND	ND	ND	0 / 162	0.19 - 0.19	ND	NA	2	USEPA MCLs, c	N	BSL
	79-01-6	Trichloroethylene (TCE)	NA	0.58	0.76	µg/l	CFMW-003	4 / 162	0.22 - 0.22	0.76	NA	0.28	USEPA RSL Tapwater (THQ=0.1), n	Y	Carcinogen
	75-69-4	Trichlorofluoromethane	NA	ND	ND	ND	ND	0 / 162	0.15 - 0.15	ND	NA	520	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-01-4	Vinyl Chloride	NA	ND	ND	ND	ND	0 / 162	0.06 - 0.06	ND	NA	0.019	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND

Footnotes:

T = total
D = dissolved
NA = not applicable
ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1×10^{-6})
MDEQ Circular DEQ-7 Groundwater = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

Preliminary - Under EPA and MDEQ Review

Table 2-39
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Below Upper Hydrogeologic Unit Groundwater)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Below Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Tapwater	57-12-5	Cyanide	D	2.8	10.1	µg/l	CFMW-044B	2 / 13	2 - 2	10.1	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	FREE CN	Cyanide (Free)	D	ND	ND	ND	ND	0 / 4	1.5 - 1.5	ND	NA	No Screening Level		N	BSL-ND
	16984-48-8	Fluoride	D	90.2	649	µg/l	CFMW-056A	13 / 13	60 - 60	649	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	ALK	Alkalinity, Total (As CaCO3)	T	51500	2320000	µg/l	CFMW-053A	57 / 57	5000 - 5000	2320000	NA	No Screening Level		N	NSL
	16887-00-6	Chloride (As Cl)	T	205	17900	µg/l	CFMW-056A	57 / 57	30 - 30	17900	NA	No Screening Level		N	NSL
	57-12-5	Cyanide	T	2.1	10.5	µg/l	CFMW-044B	7 / 57	2 - 2	10.5	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	FREE CN	Cyanide (Free)	T	ND	ND	ND	ND	0 / 7	1.5 - 1.5	ND	NA	No Screening Level		N	BSL-ND
	16984-48-8	Fluoride	T	49	569	µg/l	CFMW-056A	55 / 57	15 - 15	569	NA	80	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7664-41-7	Nitrogen, Ammonia (As N)	T	72.1	6400	µg/l	CFMW-044B	33 / 57	72 - 72	6400	NA	No Screening Level		N	NSL
	ARC-NO3NO2N	Nitrogen, Nitrite + Nitrate	T	104	4750	µg/l	CFMW-056A	13 / 57	100 - 100	4750	NA	No Screening Level		N	NSL
	PORTHO	Phosphorus, Total Orthophosphate (As P)	T	ND	ND	ND	ND	0 / 48	42 - 42	ND	NA	No Screening Level		N	BSL-ND
	14808-79-8	Sulfate (As SO4)	T	797	96400	µg/l	CFMW-056A	55 / 57	105 - 127	96400	NA	No Screening Level		N	NSL
	TDS	Total Dissolved Solids (Residue, Filterable)	T	53000	2750000	µg/l	CFMW-053A	57 / 57	10000 - 10000	2750000	NA	No Screening Level		N	NSL
	TOTHARD	Total Hardness	T	48000	2800000	µg/l	CFMW-053A	57 / 57	5000 - 5000	2800000	NA	No Screening Level		N	NSL
	TSS	Total Suspended Solids	T	5000	1180000	µg/l	CFMW-025A	47 / 57	1000 - 1000	1180000	NA	No Screening Level		N	NSL
	7429-90-5	Aluminum	D	20.2	902	µg/l	CFMW-025A	28 / 57	18.2 - 18.2	902	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-36-0	Antimony	D	0.62	8.2	µg/l	CFMW-053A	5 / 57	0.62 - 0.62	8.2	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-38-2	Arsenic	D	0.79	8.3	µg/l	CFMW-019A	25 / 57	0.64 - 0.64	8.3	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen
	7440-39-3	Barium	D	5.8	4430	µg/l	CFMW-053A	57 / 57	1.2 - 1.2	4430	NA	380	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-41-7	Beryllium	D	ND	ND	ND	ND	0 / 57	0.24 - 0.24	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	D	ND	ND	ND	ND	0 / 57	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	D	4800	922000	µg/l	CFMW-053A	57 / 57	60.5 - 60.5	922000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	D	1.3	24.1	µg/l	CFMW-057A	11 / 57	1.3 - 1.3	24.1	NA	100	USEPA MCLs, t	N	BSL
	7440-48-4	Cobalt	D	2.7	2.7	µg/l	CFMW-025A	1 / 57	1.3 - 1.3	2.7	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	D	1.7	8.4	µg/l	CFMW-025A	17 / 57	1.4 - 1.4	8.4	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	D	51.6	4350	µg/l	CFMW-057	23 / 57	42.4 - 42.4	4350	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	D	0.42	1.5	µg/l	CFMW-025A	8 / 57	0.38 - 0.38	1.5	NA	15	USEPA RSL Tapwater (THQ=0.1), L	N	BSL
	7439-95-4	Magnesium	D	69	33000	µg/l	CFMW-025A	45 / 57	63.6 - 63.6	33000	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	D	5.9	1540	µg/l	CFMW-025A	44 / 57	2.5 - 2.5	1540	NA	43	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	D	ND	ND	ND	ND	0 / 57	0.17 - 0.17	ND	NA	0.063	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-02-0	Nickel	D	1.7	3.4	µg/l	CFMW-025A	3 / 57	1.4 - 1.4	3.4	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	2023695	Potassium	D	721	65200	µg/l	CFMW-053A	57 / 57	91.4 - 91.4	65200	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	D	1.1	2	µg/l	CFMW-056A	4 / 57	0.73 - 0.73	2	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	D	ND	ND	ND	ND	0 / 57	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	D	3400	102000	µg/l	CFMW-053A	57 / 57	69 - 69	102000	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	D	ND	ND	ND	ND	0 / 57	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	D	1.9	5.4	µg/l	CFMW-056A	7 / 57	1.9 - 1.9	5.4	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	D	7.1	176	µg/l	CFMW-056	9 / 57	7 - 7	176	NA	600	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7429-90-5	Aluminum	T	40.9	6370	µg/l	CFMW-025A	12 / 13	18.2 - 18.2	6370	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-36-0	Antimony	T	0.64	10	µg/l	CFMW-053A	4 / 13	0.62 - 0.62	10	NA	0.78	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-38-2	Arsenic	T	0.64	5.3	µg/l	CFMW-019A	9 / 13	0.64 - 0.64	5.3	NA	0.052	USEPA RSL Tapwater (THQ=0.1), c*	Y	Carcinogen

Preliminary Under Internal EPA and DEQ Review

Table 2-39
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Below Upper Hydrogeologic Unit Groundwater)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Below Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	7440-39-3	Barium	T	54.5	2310	µg/l	CFMW-053A	13 / 13	1.2 - 1.2	2310	NA	380	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
Tapwater	7440-41-7	Beryllium	T	0.38	0.38	µg/l	CFMW-025A	1 / 13	0.24 - 0.24	0.38	NA	2.5	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-43-9	Cadmium	T	ND	ND	ND	ND	0 / 13	0.71 - 0.71	ND	NA	0.92	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-70-2	Calcium	T	29100	602000	µg/l	CFMW-053A	13 / 13	60.5 - 60.5	602000	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	T	1.5	20.4	µg/l	CFMW-057A	7 / 13	1.3 - 1.3	20.4	NA	100	USEPA MCLs, t	N	BSL
	7440-48-4	Cobalt	T	4.4	4.4	µg/l	CFMW-025A	1 / 13	1.3 - 1.3	4.4	NA	0.6	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7440-50-8	Copper	T	1.4	13.2	µg/l	CFMW-025A	11 / 13	1.4 - 1.4	13.2	NA	80	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7439-89-6	Iron	T	181	17400	µg/l	CFMW-057	13 / 13	42.4 - 42.4	17400	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-92-1	Lead	T	0.65	7.7	µg/l	CFMW-025A	12 / 13	0.38 - 0.38	7.7	NA	15	USEPA RSL Tapwater (THQ=0.1), L	N	BSL
	7439-95-4	Magnesium	T	226	26200	µg/l	CFMW-025A	12 / 13	63.6 - 63.6	26200	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	T	3.8	391	µg/l	CFMW-025A	12 / 13	2.5 - 2.5	391	NA	43	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	7439-97-6	Mercury	T	ND	ND	ND	ND	0 / 13	0.17 - 0.17	ND	NA	0.063	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-02-0	Nickel	T	1.5	7.6	µg/l	CFMW-025A	6 / 13	1.4 - 1.4	7.6	NA	39	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	2023695	Potassium	T	802	16200	µg/l	CFMW-053A	13 / 13	91.4 - 91.4	16200	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	T	0.98	0.98	µg/l	CFMW-056A	1 / 13	0.73 - 0.73	0.98	NA	10	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-22-4	Silver	T	ND	ND	ND	ND	0 / 13	1.3 - 1.3	ND	NA	9.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-23-5	Sodium	T	4050	31200	µg/l	CFMW-053A	13 / 13	69 - 69	31200	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	T	ND	ND	ND	ND	0 / 13	0.26 - 0.26	ND	NA	0.02	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	7440-62-2	Vanadium	T	1.9	5.2	µg/l	CFMW-056A	5 / 13	1.9 - 1.9	5.2	NA	8.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	7440-66-6	Zinc	T	7.9	907	µg/l	CFMW-056	10 / 13	7 - 7	907	NA	600	USEPA RSL Tapwater (THQ=0.1), n	Y	ASL
	95-94-3	1,2,4,5-Tetrachlorobenzene	NA	ND	ND	ND	ND	0 / 4	0.43 - 0.43	ND	NA	0.03	USEPA MCLs, t w/BCF>300,	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	NA	ND	ND	ND	ND	0 / 4	3.1 - 3.1	ND	NA	0.46	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	NA	ND	ND	ND	ND	0 / 4	0.69 - 0.69	ND	NA	24	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-95-4	2,4,5-Trichlorophenol	NA	ND	ND	ND	ND	0 / 4	0.49 - 0.49	ND	NA	120	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	NA	ND	ND	ND	ND	0 / 4	0.53 - 0.53	ND	NA	1.2	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-83-2	2,4-Dichlorophenol	NA	ND	ND	ND	ND	0 / 4	0.63 - 0.63	ND	NA	4.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	105-67-9	2,4-Dimethylphenol	NA	ND	ND	ND	ND	0 / 4	0.91 - 0.91	ND	NA	36	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	51-28-5	2,4-Dinitrophenol	NA	ND	ND	ND	ND	0 / 4	2.4 - 2.4	ND	NA	3.9	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	121-14-2	2,4-Dinitrotoluene	NA	ND	ND	ND	ND	0 / 4	1 - 1	ND	NA	0.24	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	NA	ND	ND	ND	ND	0 / 4	0.88 - 0.88	ND	NA	0.049	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	NA	ND	ND	ND	ND	0 / 4	0.61 - 0.61	ND	NA	75	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-57-8	2-Chlorophenol	NA	ND	ND	ND	ND	0 / 4	0.74 - 0.74	ND	NA	9.1	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	91-57-6	2-Methylnaphthalene	NA	ND	ND	ND	ND	0 / 4	0.88 - 0.88	ND	NA	3.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	95-48-7	2-Methylphenol (O-Cresol)	NA	ND	ND	ND	ND	0 / 4	1.3 - 1.3	ND	NA	93	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-74-4	2-Nitroaniline	NA	ND	ND	ND	ND	0 / 4	0.65 - 0.65	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	88-75-5	2-Nitrophenol	NA	ND	ND	ND	ND	0 / 4	0.59 - 0.59	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	NA	ND	ND	ND	ND	0 / 4	1 - 1	ND	NA	0.13	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	NA	1.4	1.4	µg/l	CFMW-044B	1 / 4	0.88 - 0.93	1.4	NA	No Screening Level		N	NSL
	99-09-2	3-Nitroaniline	NA	ND	ND	ND	ND	0 / 4	0.82 - 0.82	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	NA	ND	ND	ND	ND	0 / 4	2 - 2	ND	NA	0.15	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	NA	ND	ND	ND	ND	0 / 4	1 - 1	ND	NA	No Screening Level		N	BSL-ND

Preliminary - Under EPA and MDEQ Review

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Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Below Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	59-50-7	4-Chloro-3-Methylphenol	NA	ND	ND	ND	ND	0 / 4	0.76 - 0.76	ND	NA	140	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	106-47-8	4-Chloroaniline	NA	ND	ND	ND	ND	0 / 4	0.73 - 0.73	ND	NA	0.37	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
Tapwater	7005-72-3	4-Chlorophenyl Phenyl Ether	NA	ND	ND	ND	ND	0 / 4	0.96 - 0.96	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	NA	ND	ND	ND	ND	0 / 4	0.48 - 0.48	ND	NA	3.8	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	100-02-7	4-Nitrophenol	NA	ND	ND	ND	ND	0 / 4	4.7 - 4.7	ND	NA	50	USEPA MCLs, t	N	BSL
	83-32-9	Acenaphthene	NA	ND	ND	ND	ND	0 / 4	0.88 - 0.88	ND	NA	53	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	208-96-8	Acenaphthylene	NA	ND	ND	ND	ND	0 / 4	0.65 - 0.65	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	NA	ND	ND	ND	ND	0 / 4	1 - 1	ND	NA	190	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-12-7	Anthracene	NA	ND	ND	ND	ND	0 / 4	0.57 - 0.57	ND	NA	180	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	1912-24-9	Atrazine	NA	ND	ND	ND	ND	0 / 4	0.77 - 0.77	ND	NA	0.3	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	100-52-7	Benzaldehyde	NA	ND	ND	ND	ND	0 / 4	0.86 - 0.86	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	56-55-3	Benzo(A)Anthracene	NA	ND	ND	ND	ND	0 / 4	0.55 - 0.55	ND	NA	0.03	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	50-32-8	Benzo(A)Pyrene	NA	ND	ND	ND	ND	0 / 4	0.16 - 0.16	ND	NA	0.025	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
	205-99-2	Benzo(B)Fluoranthene	NA	ND	ND	ND	ND	0 / 4	0.44 - 0.44	ND	NA	0.25	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	191-24-2	Benzo(G,H,I)Perylene	NA	ND	ND	ND	ND	0 / 4	0.75 - 0.75	ND	NA	No Screening Level		N	BSL-ND
	207-08-9	Benzo(K)Fluoranthene	NA	ND	ND	ND	ND	0 / 4	0.18 - 0.18	ND	NA	2.5	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	NA	ND	ND	ND	ND	0 / 4	0.6 - 0.6	ND	NA	1	USEPA MCLs, c	N	BSL
	92-52-4	Biphenyl (Diphenyl)	NA	ND	ND	ND	ND	0 / 4	0.63 - 0.63	ND	NA	0.083	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	NA	ND	ND	ND	ND	0 / 4	0.69 - 0.69	ND	NA	5.9	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	NA	ND	ND	ND	ND	0 / 4	0.12 - 0.12	ND	NA	0.014	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	NA	ND	ND	ND	ND	0 / 4	0.93 - 0.93	ND	NA	71	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	117-81-7	Bis(2-Ethylhexyl) Phthalate	NA	ND	ND	ND	ND	0 / 4	0.72 - 0.72	ND	NA	5.6	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	105-60-2	Caprolactam	NA	ND	ND	ND	ND	0 / 4	1.1 - 1.1	ND	NA	990	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	86-74-8	Carbazole	NA	ND	ND	ND	ND	0 / 4	0.85 - 0.85	ND	NA	No Screening Level		N	BSL-ND
	218-01-9	Chrysene	NA	ND	ND	ND	ND	0 / 4	0.67 - 0.67	ND	NA	25	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	NA	ND	ND	ND	ND	0 / 4	0.82 - 0.82	ND	NA	20	USEPA MCLs, t	N	BSL
	117-84-0	Di-N-Octylphthalate	NA	ND	ND	ND	ND	0 / 4	0.69 - 0.69	ND	NA	20	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	NA	ND	ND	ND	ND	0 / 4	0.09 - 0.09	ND	NA	0.025	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	132-64-9	Dibenzofuran	NA	ND	ND	ND	ND	0 / 4	0.85 - 0.85	ND	NA	0.79	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	84-66-2	Diethyl Phthalate	NA	ND	ND	ND	ND	0 / 4	1 - 1	ND	NA	600	USEPA MCLs, t	N	BSL
	131-11-3	Dimethyl Phthalate	NA	ND	ND	ND	ND	0 / 4	0.98 - 0.98	ND	NA	2000	USEPA MCLs, t	N	BSL
	206-44-0	Fluoranthene	NA	ND	ND	ND	ND	0 / 4	0.72 - 0.72	ND	NA	20	USEPA MCLs, t w/BCF>300,	N	BSL
	86-73-7	Fluorene	NA	ND	ND	ND	ND	0 / 4	0.8 - 0.8	ND	NA	29	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	118-74-1	Hexachlorobenzene	NA	ND	ND	ND	ND	0 / 4	0.47 - 0.47	ND	NA	0.0098	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	NA	ND	ND	ND	ND	0 / 4	0.76 - 0.76	ND	NA	0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	NA	ND	ND	ND	ND	0 / 4	0.61 - 0.61	ND	NA	0.041	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	67-72-1	Hexachloroethane	NA	ND	ND	ND	ND	0 / 4	0.09 - 0.09	ND	NA	0.33	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	193-39-5	Indeno(1,2,3-C,D)Pyrene	NA	ND	ND	ND	ND	0 / 4	0.21 - 0.21	ND	NA	0.25	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	78-59-1	Isophorone	NA	ND	ND	ND	ND	0 / 4	0.67 - 0.67	ND	NA	78	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	621-64-7	N-Nitrosodi-N-Propylamine	NA	ND	ND	ND	ND	0 / 4	0.83 - 0.83	ND	NA	0.011	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	NA	ND	ND	ND	ND	0 / 4	0.74 - 0.74	ND	NA	12	USEPA RSL Tapwater (THQ=0.1), c	N	BSL

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Table 2-39
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Below Upper Hydrogeologic Unit Groundwater)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Below Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	91-20-3	Naphthalene	NA	ND	ND	ND	ND	0 / 4	0.8 - 0.8	ND	NA	0.17	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	98-95-3	Nitrobenzene	NA	ND	ND	ND	ND	0 / 4	0.49 - 0.49	ND	NA	0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	87-86-5	Pentachlorophenol	NA	ND	ND	ND	ND	0 / 4	2.2 - 2.2	ND	NA	0.041	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL-ND
Tapwater	85-01-8	Phenanthrene	NA	ND	ND	ND	ND	0 / 4	0.65 - 0.65	ND	NA	No Screening Level		N	BSL-ND
	108-95-2	Phenol	NA	ND	ND	ND	ND	0 / 4	0.41 - 0.41	ND	NA	580	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	129-00-0	Pyrene	NA	ND	ND	ND	ND	0 / 4	0.83 - 0.83	ND	NA	12	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	71-55-6	1,1,1-Trichloroethane	NA	ND	ND	ND	ND	0 / 4	0.28 - 0.28	ND	NA	200	USEPA MCLs, t	N	BSL
	79-34-5	1,1,2,2-Tetrachloroethane	NA	ND	ND	ND	ND	0 / 4	0.19 - 0.19	ND	NA	0.076	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	ND	ND	ND	ND	0 / 4	0.34 - 0.34	ND	NA	1000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	79-00-5	1,1,2-Trichloroethane	NA	ND	ND	ND	ND	0 / 4	0.08 - 0.08	ND	NA	0.041	USEPA RSL Tapwater (THQ=0.1), n	N	BSL-ND
	75-34-3	1,1-Dichloroethane	NA	ND	ND	ND	ND	0 / 4	0.24 - 0.24	ND	NA	2.8	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	75-35-4	1,1-Dichloroethene	NA	ND	ND	ND	ND	0 / 4	0.34 - 0.34	ND	NA	7	USEPA MCLs, c	N	BSL
	87-61-6	1,2,3-Trichlorobenzene	NA	ND	ND	ND	ND	0 / 4	0.35 - 0.35	ND	NA	0.7	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	120-82-1	1,2,4-Trichlorobenzene	NA	ND	ND	ND	ND	0 / 4	0.27 - 0.27	ND	NA	0.4	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	96-12-8	1,2-Dibromo-3-Chloropropane	NA	ND	ND	ND	ND	0 / 4	0.23 - 0.23	ND	NA	0.00033	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	106-93-4	1,2-Dibromoethane (Ethylene Dibromide)	NA	ND	ND	ND	ND	0 / 4	0.19 - 0.19	ND	NA	0.0075	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	95-50-1	1,2-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 4	0.22 - 0.22	ND	NA	30	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	107-06-2	1,2-Dichloroethane	NA	0.28	0.28	µg/l	CFMW-044B	1 / 4	0.25 - 0.25	0.28	NA	0.17	USEPA RSL Tapwater (THQ=0.1), c**	Y	ASL
	78-87-5	1,2-Dichloropropane	NA	ND	ND	ND	ND	0 / 4	0.18 - 0.18	ND	NA	0.14	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL-ND
	541-73-1	1,3-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 4	0.33 - 0.33	ND	NA	600	USEPA MCLs, t	N	BSL
	106-46-7	1,4-Dichlorobenzene	NA	ND	ND	ND	ND	0 / 4	0.33 - 0.33	ND	NA	0.48	USEPA RSL Tapwater (THQ=0.1), c	N	BSL
	591-78-6	2-Hexanone	NA	ND	ND	ND	ND	0 / 4	0.72 - 0.72	ND	NA	3.8	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	67-64-1	Acetone	NA	4.9	4.9	µg/l	CFMW-044B	1 / 4	1.1 - 1.1	4.9	NA	1400	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	71-43-2	Benzene	NA	ND	ND	ND	ND	0 / 4	0.09 - 0.09	ND	NA	0.46	USEPA RSL Tapwater (THQ=0.1), c**	N	BSL
	74-97-5	Bromochloromethane	NA	ND	ND	ND	ND	0 / 4	0.3 - 0.3	ND	NA	8.3	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-27-4	Bromodichloromethane	NA	ND	ND	ND	ND	0 / 4	0.15 - 0.15	ND	NA	0.13	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND
	75-25-2	Bromoform	NA	ND	ND	ND	ND	0 / 4	0.18 - 0.18	ND	NA	3.3	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	74-83-9	Bromomethane	NA	ND	ND	ND	ND	0 / 4	0.18 - 0.18	ND	NA	0.75	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-15-0	Carbon Disulfide	NA	ND	ND	ND	ND	0 / 4	0.22 - 0.22	ND	NA	81	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	56-23-5	Carbon Tetrachloride	NA	ND	ND	ND	ND	0 / 4	0.33 - 0.33	ND	NA	0.46	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	108-90-7	Chlorobenzene	NA	ND	ND	ND	ND	0 / 4	0.24 - 0.24	ND	NA	7.8	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-00-3	Chloroethane	NA	ND	ND	ND	ND	0 / 4	0.37 - 0.37	ND	NA	2100	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	67-66-3	Chloroform	NA	ND	ND	ND	ND	0 / 4	0.22 - 0.22	ND	NA	0.22	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	74-87-3	Chloromethane	NA	ND	ND	ND	ND	0 / 4	0.22 - 0.22	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	156-59-2	Cis-1,2-Dichloroethylene	NA	ND	ND	ND	ND	0 / 4	0.26 - 0.26	ND	NA	3.6	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	10061-01-5	Cis-1,3-Dichloropropene	NA	ND	ND	ND	ND	0 / 4	0.16 - 0.16	ND	NA	4	USEPA MCLs, c	N	BSL
	110-82-7	Cyclohexane	NA	ND	ND	ND	ND	0 / 4	0.26 - 0.26	ND	NA	1300	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	124-48-1	Dibromochloromethane	NA	ND	ND	ND	ND	0 / 4	0.22 - 0.22	ND	NA	0.87	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	75-71-8	Dichlorodifluoromethane	NA	0.81	3.5	µg/l	CFMW-044B	3 / 4	0.14 - 0.14	3.5	NA	20	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	100-41-4	Ethylbenzene	NA	ND	ND	ND	ND	0 / 4	0.3 - 0.3	ND	NA	1.5	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	98-82-8	Isopropylbenzene (Cumene)	NA	ND	ND	ND	ND	0 / 4	0.32 - 0.32	ND	NA	45	USEPA RSL Tapwater (THQ=0.1), n	N	BSL

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Table 2-39
Occurrence, Distribution, and Selection of Chemical of Potential Concern (Below Upper Hydrogeologic Unit Groundwater)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Below Upper Hydrogeologic Unit Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Fraction	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	79601-23-1	M,P-Xylene	NA	ND	ND	ND	ND	0 / 4	0.28 - 0.28	ND	NA	No Screening Level		N	BSL-ND
	79-20-9	Methyl Acetate	NA	ND	ND	ND	ND	0 / 4	0.58 - 0.58	ND	NA	2000	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	78-93-3	Methyl Ethyl Ketone (2-Butanone)	NA	ND	ND	ND	ND	0 / 4	2.2 - 2.2	ND	NA	560	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-10-1	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	NA	ND	ND	ND	ND	0 / 4	0.63 - 0.63	ND	NA	630	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
Tapwater	108-87-2	Methylcyclohexane	NA	ND	ND	ND	ND	0 / 4	0.22 - 0.22	ND	NA	No Screening Level		N	BSL-ND
	75-09-2	Methylene Chloride	NA	ND	ND	ND	ND	0 / 4	0.21 - 0.21	ND	NA	5	USEPA MCLs, c	N	BSL
	95-47-6	O-Xylene (1,2-Dimethylbenzene)	NA	ND	ND	ND	ND	0 / 4	0.32 - 0.32	ND	NA	19	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	100-42-5	Styrene	NA	ND	ND	ND	ND	0 / 4	0.17 - 0.17	ND	NA	100	USEPA MCLs, c	N	BSL
	1634-04-4	Tert-Butyl Methyl Ether	NA	ND	ND	ND	ND	0 / 4	0.13 - 0.13	ND	NA	14	USEPA RSL Tapwater (THQ=0.1), c*	N	BSL
	127-18-4	Tetrachloroethylene (PCE)	NA	ND	ND	ND	ND	0 / 4	0.12 - 0.12	ND	NA	4.1	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	108-88-3	Toluene	NA	ND	ND	ND	ND	0 / 4	0.25 - 0.25	ND	NA	110	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	156-60-5	Trans-1,2-Dichloroethene	NA	ND	ND	ND	ND	0 / 4	0.18 - 0.18	ND	NA	36	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	10061-02-6	Trans-1,3-Dichloropropene	NA	ND	ND	ND	ND	0 / 4	0.19 - 0.19	ND	NA	2	USEPA MCLs, c	N	BSL
	79-01-6	Trichloroethylene (TCE)	NA	ND	ND	ND	ND	0 / 4	0.22 - 0.22	ND	NA	0.28	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-69-4	Trichlorofluoromethane	NA	ND	ND	ND	ND	0 / 4	0.15 - 0.15	ND	NA	520	USEPA RSL Tapwater (THQ=0.1), n	N	BSL
	75-01-4	Vinyl Chloride	NA	ND	ND	ND	ND	0 / 4	0.06 - 0.06	ND	NA	0.019	USEPA RSL Tapwater (THQ=0.1), c	N	BSL-ND

Footnotes:

T = total
D = dissolved
NA = not applicable
ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Tapwater = USEPA RSL, Tapwater (June 2017, THQ = 0.1, TR = 1×10^{-6})
MDEQ Circular DEQ-7 Groundwater = MDEQ Circular 7 Groundwater Standard
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table 2-40
Summary of COPCs for Soils
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Constituent	Main Plant Area 0-0.5	Main Plant Area 0-2	Main Plant Area 0-12	North Percolation Pond Area 0-0.5	North Percolation Pond Area 0-2	North Percolation Pond Area 0-12	Central Landfills Area 0-0.5	Central Landfills Area 0-2	Central Landfills Area 0-12	Industrial Landfill Area 0-0.5	Industrial Landfill Area 0-2	Industrial Landfill Area 0-12	Eastern Undeveloped Area 0-0.5	Eastern Undeveloped Area 0-2	Eastern Undeveloped Area 0-12	North-Central Undeveloped Area 0-0.5	North-Central Undeveloped Area 0-2	North-Central Undeveloped Area 0-12	Western Undeveloped Area 0-0.5	Western Undeveloped Area 0-2	Western Undeveloped Area 0-12	South Percolation Pond Area 0-0.5	South Percolation Pond Area 0-2	South Percolation Pond Area 0-12	Flathead River Area 0-0.5	Flathead River Area 0-2	Flathead River Area 0-12	Backwater Seep Sampling Area 0-0.5	Backwater Seep Sampling Area 0-2	Backwater Seep Sampling Area 0-12
METALS																														
Aluminum					●	●							NA	NA	NA										NA	NA	NA	NA	NA	NA
Antimony	●	●	●	●	●	●	●	●	●				NA	NA	NA										NA	NA	NA	NA	NA	NA
Arsenic	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Barium	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Cobalt	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Copper							●	●	●				NA	NA	NA										NA	NA	NA	NA	NA	NA
Iron	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Manganese	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Nickel	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Selenium	●	●	●	●	●	●	●	●	●				NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Thallium				●	●	●							NA	NA	NA										NA	NA	NA	NA	NA	NA
Vanadium	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Zinc	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
GENERAL CHEMISTRY																														
Cyanide	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Fluoride	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●			●	●	●	●	NA	NA	NA	NA	NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS																														
Benzo(A)Anthracene	●	●	●	●	●	●	●	●	●				NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Benzo(A)Pyrene	●	●	●	●	●	●	●	●	●	●	●	●	NA	NA	NA	●	●	●	●	●	●	●	●	●	NA	NA	NA	NA	NA	NA
Benzo(B)Fluoranthene	●	●	●	●	●	●	●	●	●				NA	NA	NA							●	●	●	NA	NA	NA	NA	NA	NA
Benzo(K)Fluoranthene	●	●	●	●	●	●	●	●	●				NA	NA	NA										NA	NA	NA	NA	NA	NA
Chrysene	●	●	●	●	●	●	●	●	●				NA	NA	NA										NA	NA	NA	NA	NA	NA
Dibenz(A,H)Anthracene	●	●	●	●	●	●	●	●	●				NA	NA	NA							●	●	●	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-C,D)Pyrene	●	●	●	●	●	●	●	●	●				NA	NA	NA										NA	NA	NA	NA	NA	NA

Notes:

NA - Soil samples not collected within this exposure area

● COPC for human health exposure

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EHS Support consider it done

Table 2-41
Summary of COPCs for Surface Water
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Constituent	Fraction	Main Plant Area	North Percolation Pond Area	Central Landfills Area	Industrial Landfill Area	Eastern Undeveloped Area	North-Central Undeveloped Area	Western Undeveloped Area	South Percolation Pond Area	Flathead River Area	Backwater Seep Sampling Area
GENERAL CHEMISTRY											
Cyanide	D	NA			NA				●		●
Fluoride	D	NA	●	●	NA	●	●	●	●	●	●
Cyanide	T	NA	●		NA			●	●	●	●
Fluoride	T	NA	●	●	NA	●	●	●	●	●	●
METALS											
Aluminum	D	NA	●		NA						
Antimony	D	NA	●		NA						
Arsenic	D	NA	●		NA	●	●				
Cadmium	D	NA	●		NA						
Aluminum	T	NA	●		NA		●				
Antimony	T	NA	●								
Arsenic	T	NA	●	●	NA	●	●		●	●	●
Barium	T	NA			NA				●		
Cadmium	T	NA	●		NA						
Cobalt	T	NA	●		NA		●				●
Iron	T	NA	●		NA		●			●	
Manganese	T	NA			NA		●			●	●
Nickel	T	NA	●		NA						
Thallium	T	NA	●		NA						
Vanadium	T	NA	●		NA						
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)											
Benzo(A)Anthracene	NA	NA	●		NA						
Benzo(A)Pyrene	NA	NA	●		NA						
Benzo(B)Fluoranthene	NA	NA	●		NA						
Chrysene	NA	NA	●		NA						
Indeno(1,2,3-C,D)Pyrene	NA	NA	●		NA						

Notes:

NA - Surface water samples not collected within this exposure area

T = total sample

D = dissolved sample

● COPC for human health exposure

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EHS Support consider it done

Table 2-42
Summary of COPCs for Sediment
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Constituent	Main Plant Area	North Percolation Pond Area	Central Landfills Area	Industrial Landfill Area	Eastern Undeveloped Area	North-Central Undeveloped Area	Western Undeveloped Area	South Percolation Pond Area	Flathead River Area	Backwater Seep Sampling Area
METALS										
Aluminum	NA	●	●	NA	●	●	●	●	●	●
Antimony	NA	●		NA						
Arsenic	NA	●	●	NA	●	●	●	●	●	●
Barium	NA	●		NA	●	●	●	●	●	●
Beryllium	NA	●		NA						
Cadmium	NA	●		NA						
Cobalt	NA	●	●	NA	●	●	●	●	●	●
Copper	NA	●		NA	●	●	●	●	●	●
Iron	NA	●	●	NA	●	●	●	●	●	●
Manganese	NA	●	●	NA	●	●	●	●	●	●
Mercury	NA	●		NA	●	●	●	●		●
Nickel	NA	●		NA	●	●	●	●	●	●
Selenium	NA	●		NA	●	●		●		
Silver	NA	●		NA						
Thallium	NA	●		NA						
Vanadium	NA	●		NA	●	●		●	●	●
Zinc	NA	●		NA	●	●	●	●	●	●
GENERAL CHEMISTRY										
Cyanide	NA	●		NA	●	●	●	●	●	●
Fluoride	NA	●		NA				●		●
SEMIVOLATILE ORGANIC COMPOUNDS										
2-Methylnaphthalene	NA	●		NA						
4-Chloroaniline	NA	●		NA						
Acenaphthene	NA	●		NA						
Anthracene	NA	●		NA						
Benzaldehyde	NA			NA			●			
Benzo(A)Anthracene	NA	●		NA	●	●	●	●		
Benzo(A)Pyrene	NA	●	●	NA	●	●	●	●		●
Benzo(B)Fluoranthene	NA	●	●	NA	●	●		●		●
Benzo(K)Fluoranthene	NA	●		NA						
Chrysene	NA	●		NA						
Dibenz(A,H)Anthracene	NA	●	●	NA						
Dibenzofuran	NA	●		NA						
Fluoranthene	NA	●		NA						
Fluorene	NA	●		NA						
Indeno(1,2,3-C,D)Pyrene	NA	●	●	NA						
Isophorone	NA			NA			●			
Naphthalene	NA	●		NA						
Pyrene	NA	●		NA						

Notes:

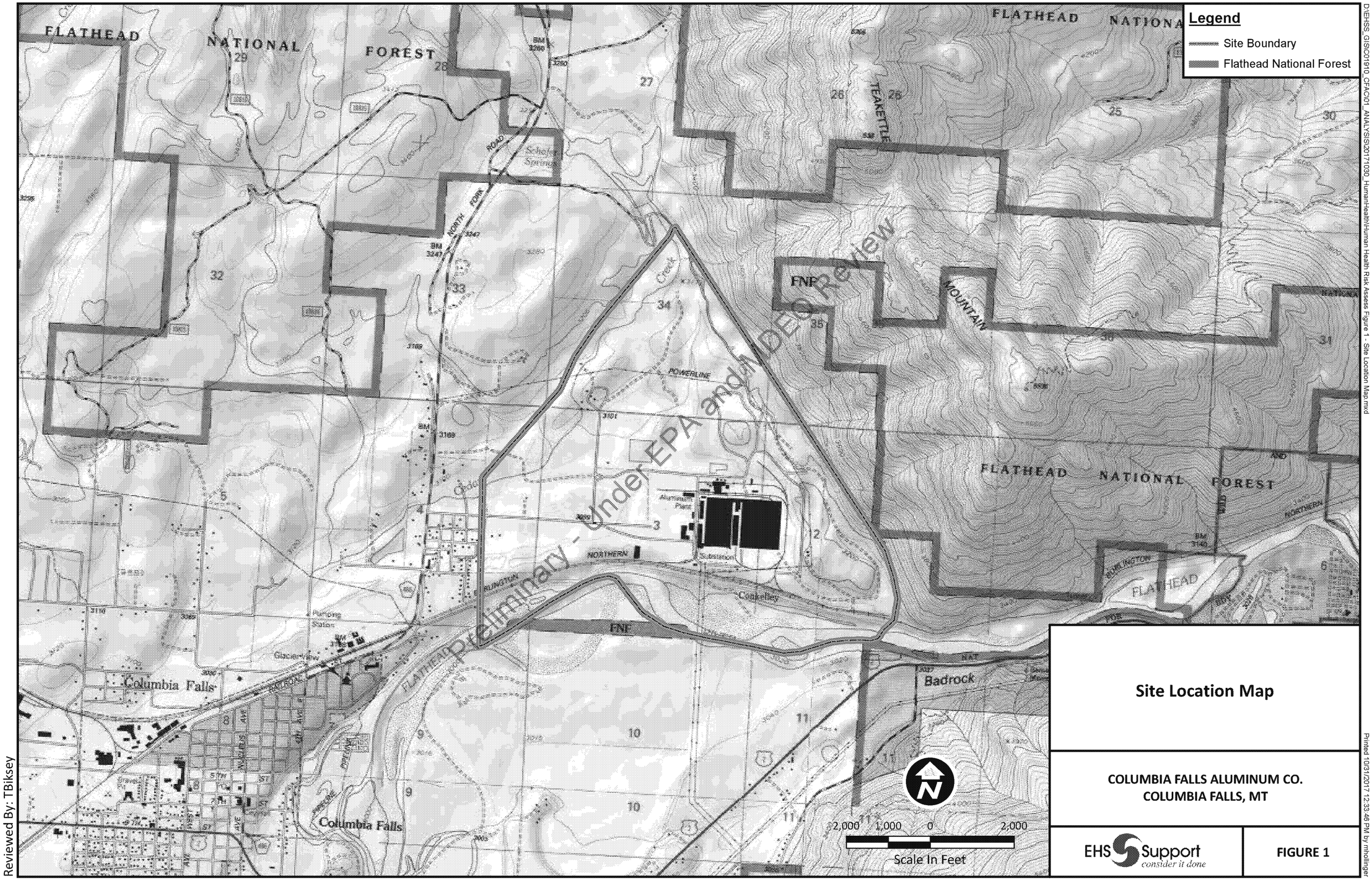
NA - Sediment samples not collected within this exposure area

● COPC for human health exposure

Preliminary - Under EPA and MDEQ Review

FIGURES

Preliminary - Under EPA and MDEQ Review



Site Location Map

COLUMBIA FALLS ALUMINUM CO.
COLUMBIA FALLS, MT

EHS Support consider it done

FIGURE 1

Reviewed By: TBiksey

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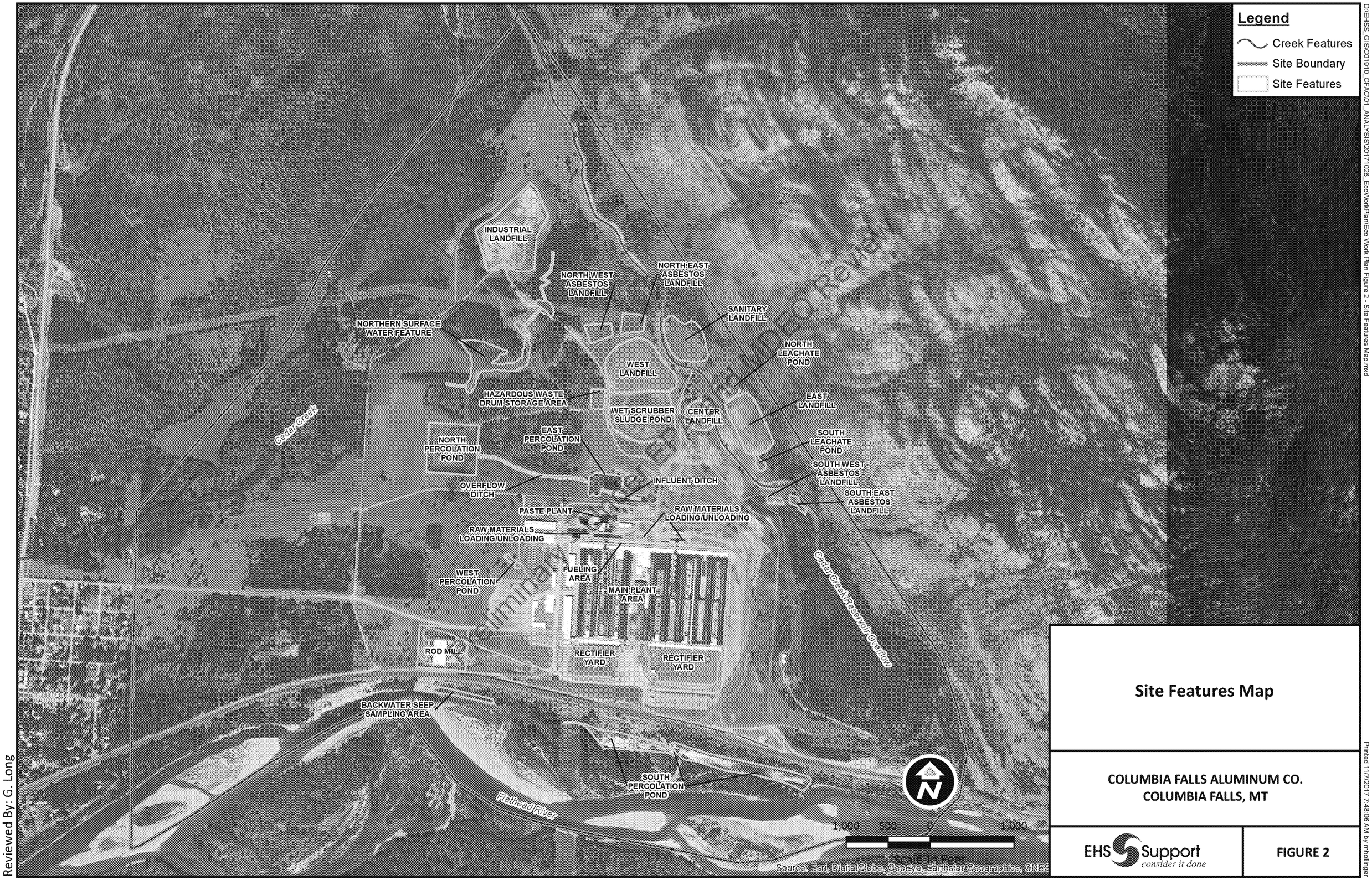

Reviewed By: G. Long

Site Features Map

COLUMBIA FALLS ALUMINUM CO.
COLUMBIA FALLS, MT

EHS Support *consider it done*

FIGURE 2

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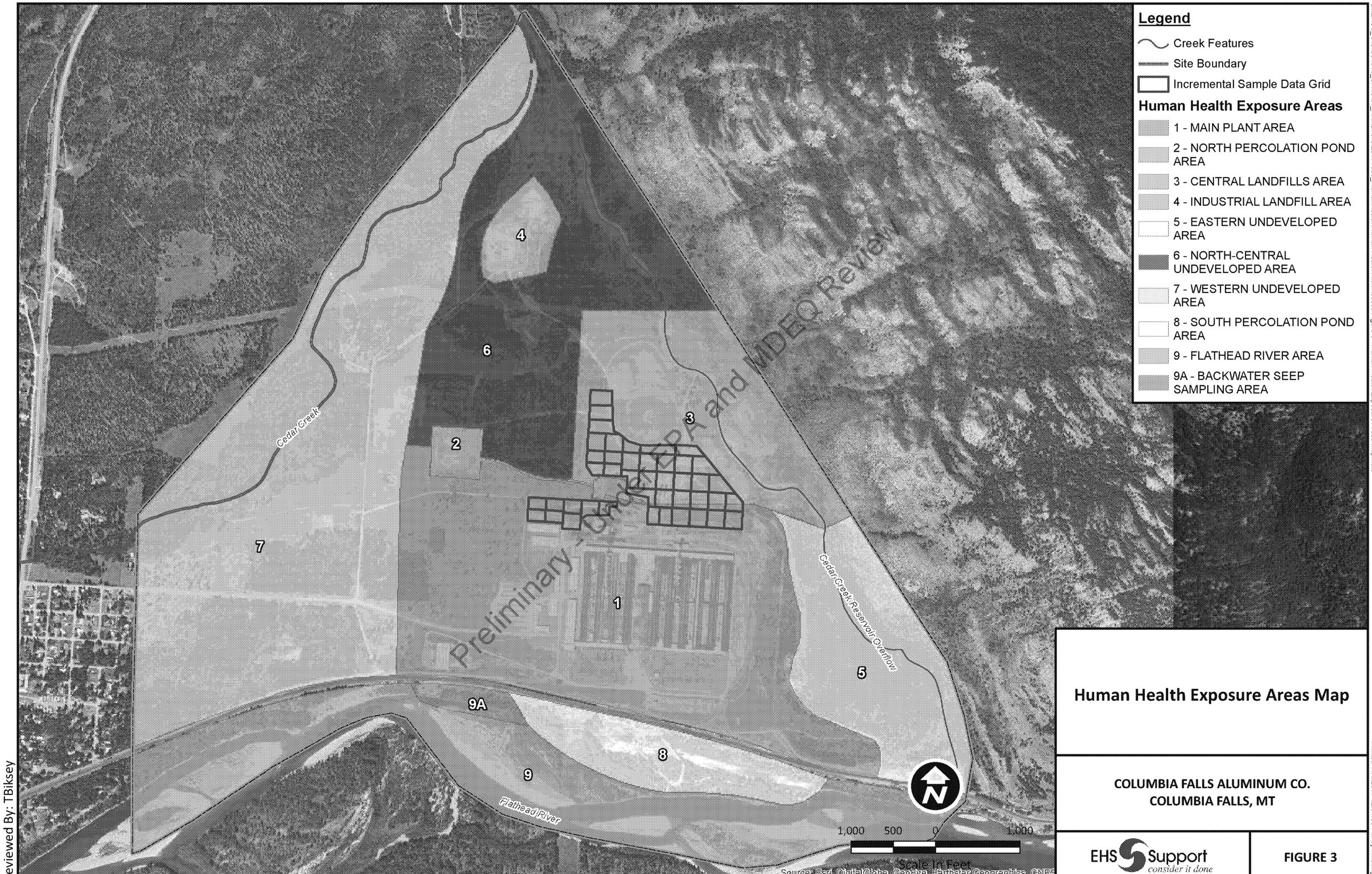

Human Health Exposure Areas Map

COLUMBIA FALLS ALUMINUM CO.
COLUMBIA FALLS, MT

EHS Support consider it done

FIGURE 3

Reviewed By: TBiksey

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APPENDIX A VISL OUTPUT FOR TRICHLOROETHENE

Preliminary - Under EPA and MDEQ Review

EPA-OLEM VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	0.1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	15	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
75-07-0	Acetaldehyde		--	--	--	2.20E-06	I	9.00E-03	I	
67-64-1	Acetone		--	--	--			3.10E+01	A	
75-05-8	Acetonitrile		--	--	--			6.00E-02	I	
107-02-8	Acrolein		--	--	--			2.00E-05	I	
79-10-7	Acrylic Acid		--	--	--			1.00E-03	I	
107-13-1	Acrylonitrile		--	--	--	6.80E-05	I	2.00E-03	I	
309-00-2	Aldrin		--	--	--	4.90E-03	I			
107-18-6	Allyl Alcohol		--	--	--			1.00E-04	X	
107-05-1	Allyl Chloride		--	--	--	6.00E-06	CA	1.00E-03	I	
7664-41-7	Ammonia		--	--	--			1.00E-01	I	
75-85-4	Amyl Alcohol, tert-		--	--	--			3.00E-03	X	
12674-11-2	Aroclor 1016		--	--	--	2.00E-05	S			
11104-28-2	Aroclor 1221		--	--	--	5.70E-04	S			
11141-16-5	Aroclor 1232		--	--	--	5.70E-04	S			
53469-21-9	Aroclor 1242		--	--	--	5.70E-04	S			
12672-29-6	Aroclor 1248		--	--	--	5.70E-04	S			
11097-69-1	Aroclor 1254		--	--	--	5.70E-04	S			
11096-82-5	Aroclor 1260		--	--	--	5.70E-04	S			
103-33-3	Azobenzene		--	--	--	3.10E-05	I			
56-55-3	Benz[a]anthracene		--	--	--	1.10E-04	CA			Mut
71-43-2	Benzene		--	--	--	7.80E-06	I	3.00E-02	I	
100-44-7	Benzyl Chloride		--	--	--	4.90E-05	CA	1.00E-03	P	
92-52-4	Biphenyl, 1,1'-		--	--	--			4.00E-04	X	
111-44-4	Bis(2-chloroethyl)ether		--	--	--	3.30E-04	I			
542-88-1	Bis(chloromethyl)ether		--	--	--	6.20E-02	I			
10294-34-5	Boron Trichloride		--	--	--			2.00E-02	P	
7637-07-2	Boron Trifluoride		--	--	--			1.30E-02	CA	
107-04-0	Bromo-2-chloroethane, 1-		--	--	--	6.00E-04	X			
108-86-1	Bromobenzene		--	--	--			6.00E-02	I	
74-97-5	Bromochloromethane		--	--	--			4.00E-02	X	
75-27-4	Bromodichloromethane		--	--	--	3.70E-05	CA			
75-25-2	Bromoform		--	--	--	1.10E-06	I			
74-83-9	Bromomethane		--	--	--			5.00E-03	I	
106-99-0	Butadiene, 1,3-		--	--	--	3.00E-05	I	2.00E-03	I	
78-92-2	Butyl alcohol, sec-		--	--	--			3.00E+01	P	
75-15-0	Carbon Disulfide		--	--	--			7.00E-01	I	
56-23-5	Carbon Tetrachloride		--	--	--	6.00E-06	I	1.00E-01	I	
463-58-1	Carbonyl Sulfide		--	--	--			1.00E-01	P	
12789-03-6	Chlordane		--	--	--	1.00E-04	I	7.00E-04	I	
7782-50-5	Chlorine		--	--	--			1.50E-04	A	
10049-04-4	Chlorine Dioxide		--	--	--			2.00E-04	I	
75-68-3	Chloro-1,1-difluoroethane, 1-		--	--	--			5.00E+01	I	
126-99-8	Chloro-1,3-butadiene, 2-		--	--	--	3.00E-04	I	2.00E-02	I	
108-90-7	Chlorobenzene		--	--	--			5.00E-02	P	
98-56-6	Chlorobenzotrifluoride, 4-		--	--	--			3.00E-01	P	
75-45-6	Chlorodifluoromethane		--	--	--			5.00E+01	I	
67-66-3	Chloroform		--	--	--	2.30E-05	I	9.80E-02	A	
74-87-3	Chloromethane		--	--	--			9.00E-02	I	
107-30-2	Chloromethyl Methyl Ether		--	--	--	6.90E-04	CA			
76-06-2	Chloropicrin		--	--	--			4.00E-04	CA	
8007-45-2	Coke Oven Emissions		--	--	--	6.20E-04	I			Mut
98-82-8	Cumene		--	--	--			4.00E-01	I	
57-12-5	Cyanide (CN-)		--	--	--			8.00E-04	S	
110-82-7	Cyclohexane		--	--	--			6.00E+00	I	
108-94-1	Cyclohexanone		--	--	--			7.00E-01	P	
110-83-8	Cyclohexene		--	--	--			1.00E+00	X	
72-55-9	DDE, p,p'-		--	--	--	9.70E-05	CA			

Preliminary - Under EPA and MDEQ Review

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Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	0.1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	15	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
96-12-8	Dibromo-3-chloropropane, 1,2-		--	--	--	6.00E-03	P	2.00E-04	I	Mut
106-93-4	Dibromoethane, 1,2-		--	--	--	6.00E-04		9.00E-03	I	
74-95-3	Dibromomethane (Methylene Bromide)		--	--	--			4.00E-03	X	
764-41-0	Dichloro-2-butene, 1,4-		--	--	--	4.20E-03	P			
1476-11-5	Dichloro-2-butene, cis-1,4-		--	--	--	4.20E-03	P			
110-57-6	Dichloro-2-butene, trans-1,4-		--	--	--	4.20E-03	P			
95-50-1	Dichlorobenzene, 1,2-		--	--	--			2.00E-01	H	
106-46-7	Dichlorobenzene, 1,4-		--	--	--	1.10E-05	CA	8.00E-01	I	
75-71-8	Dichlorodifluoromethane		--	--	--			1.00E-01	X	
75-34-3	Dichloroethane, 1,1-		--	--	--	1.60E-06	CA			
107-06-2	Dichloroethane, 1,2-		--	--	--	2.60E-05	I	7.00E-03	P	
75-35-4	Dichloroethylene, 1,1-		--	--	--			2.00E-01	I	
78-87-5	Dichloropropane, 1,2-		--	--	--	1.00E-05	CA	4.00E-03	I	
542-75-6	Dichloropropene, 1,3-		--	--	--	4.00E-06	I	2.00E-02	I	
77-73-6	Dicyclopentadiene		--	--	--			3.00E-04	X	
75-37-6	Difluoroethane, 1,1-		--	--	--			4.00E+01	I	
94-58-6	Dihydrosafrole		--	--	--	1.30E-05	CA			
108-20-3	Diisopropyl Ether		--	--	--			7.00E-01	P	
68-12-2	Dimethylformamide		--	--	--			3.00E-02	I	
57-14-7	Dimethylhydrazine, 1,1-		--	--				2.00E-06	X	
540-73-8	Dimethylhydrazine, 1,2-		--	--	--	1.60E-01	CA			
513-37-1	Dimethylvinylchloride		--	--	--	1.30E-05	CA			
123-91-1	Dioxane, 1,4-		--	--	--	5.00E-06	I	3.00E-02	I	
106-89-8	Epichlorohydrin		--	--	--	1.20E-06	I	1.00E-03	I	
106-88-7	Epoxybutane, 1,2-		--		--			2.00E-02	I	
111-15-9	Ethoxyethanol Acetate, 2-		--		--			6.00E-02	P	
110-80-5	Ethoxyethanol, 2-		--	--	--			2.00E-01	I	
141-78-6	Ethyl Acetate		--	--	--			7.00E-02	P	
140-88-5	Ethyl Acrylate		--	--	--			8.00E-03	P	
75-00-3	Ethyl Chloride (Chloroethane)		--	--	--			1.00E+01	I	
97-63-2	Ethyl Methacrylate		--	--	--			3.00E-01	P	
100-41-4	Ethylbenzene		--	--	--	2.50E-06	CA	1.00E+00	I	
75-21-8	Ethylene Oxide		--	--	--	8.80E-05	CA	3.00E-02	CA	
151-56-4	Ethyleneimine		--	--	--	1.90E-02	CA			
50-00-0	Formaldehyde		--	--	--	1.30E-05	I	9.80E-03	A	
64-18-6	Formic Acid		--	--	--			3.00E-04	X	
98-01-1	Furfural		--	--	--			5.00E-02	H	
765-34-4	Glycidyl		--	--	--			1.00E-03	H	
76-44-8	Heptachlor		--	--	--	1.30E-03	I			
1024-57-3	Heptachlor Epoxide		--	--	--	2.60E-03	I			
39635-31-9	Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)		--	--	--	1.10E-03	E	1.30E-03	E	
118-74-1	Hexachlorobenzene		--	--	--	4.60E-04	I			
38380-08-4	Hexachlorobiphenyl, 2,3,3',4,4',5- (PCB 156)		--	--	--	1.10E-03	E	1.30E-03	E	
69782-90-7	Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)		--	--	--	1.10E-03	E	1.30E-03	E	
52663-72-6	Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)		--	--	--	1.10E-03	E	1.30E-03	E	
32774-16-6	Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)		--	--	--	1.10E+00	E	1.30E-06	E	
87-68-3	Hexachlorobutadiene		--	--	--	2.20E-05	I			
77-47-4	Hexachlorocyclopentadiene		--	--	--			2.00E-04	I	
67-72-1	Hexachloroethane		--	--	--	1.10E-05	CA	3.00E-02	I	
822-06-0	Hexamethylene Diisocyanate, 1,6-		--	--	--			1.00E-05	I	
110-54-3	Hexane, N-		--	--	--			7.00E-01	I	
591-78-6	Hexanone, 2-		--	--	--			3.00E-02	I	
302-01-2	Hydrazine		--	--	--	4.90E-03	I	3.00E-05	P	
7647-01-0	Hydrogen Chloride		--	--	--			2.00E-02	I	
74-90-8	Hydrogen Cyanide		--	--	--			8.00E-04	I	
7664-39-3	Hydrogen Fluoride		--	--	--			1.40E-02	CA	
7783-06-4	Hydrogen Sulfide		--	--	--			2.00E-03	I	

Preliminary - Under EPA and MDEQ Review

ED_002345C_00006864-00243

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67-63-0	Isopropanol		--	--	--			2.00E-01	P	
7439-97-6	Mercury (elemental)		--	--	--			3.00E-04	I	
126-98-7	Methacrylonitrile		--	--	--			3.00E-02	P	
67-56-1	Methanol		--	--	--			2.00E+01	I	
110-49-6	Methoxyethanol Acetate, 2-		--	--	--			1.00E-03	P	
109-86-4	Methoxyethanol, 2-		--	--	--			2.00E-02	I	
96-33-3	Methyl Acrylate		--	--	--			2.00E-02	P	
78-93-3	Methyl Ethyl Ketone (2-Butanone)		--	--	--			5.00E+00	I	
60-34-4	Methyl Hydrazine		--	--	--	3.00E-03	X	2.00E-05	X	
108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)		--	--	--			3.00E+00	I	
624-83-9	Methyl Isocyanate		--	--	--			1.00E-03	CA	
80-62-6	Methyl Methacrylate		--	--	--			7.00E-01	I	
25013-15-4	Methyl Styrene (Mixed Isomers)		--	--	--			4.00E-02	H	
1634-04-4	Methyl tert-Butyl Ether (MTBE)		--	--	--	2.60E-07	CA	3.00E+00	I	
75-09-2	Methylene Chloride		--	--	--	1.00E-08	I	6.00E-01	I	Mut
2385-85-5	Mirex		--	--	--	5.10E-03	CA			
64742-95-6	Naphtha, High Flash Aromatic (HFAN)		--	--	--			1.00E-01	P	
91-20-3	Naphthalene		--	--	--	3.40E-05	CA	3.00E-03	I	
13463-39-3	Nickel Carbonyl		--	--	--	2.60E-04	CA	1.40E-05	CA	
98-95-3	Nitrobenzene		--	--	--	4.00E-05	I	9.00E-03	I	
75-52-5	Nitromethane		--	--	--	8.80E-06	P	5.00E-03	P	
79-46-9	Nitropropane, 2-		--	--	--	2.70E-03	H	2.00E-02	I	
62-75-9	Nitrosodimethylamine, N-		--	--	--	1.40E-02	I	4.00E-05	X	Mut
924-16-3	Nitroso-di-N-butylamine, N-		--	--	--	1.60E-03	I			
10595-95-6	Nitrosomethylethylamine, N-		--	--	--	6.30E-03	CA			
111-84-2	Nonane, n-		--	--	--			2.00E-02	P	
32598-14-4	Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)		--	--	--	1.10E-03	E	1.30E-03	E	
74472-37-0	Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)		--	--	--	1.10E-03	E	1.30E-03	E	
31508-00-6	Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)		--	--	--	1.10E-03	E	1.30E-03	E	
65510-44-3	Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)		--	--	--	1.10E-03	E	1.30E-03	E	
57465-28-8	Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)		--	--	--	3.80E+00	E	4.00E-07	E	
109-66-0	Pentane, n-		--	--	--			1.00E+00	P	
75-44-5	Phosgene		--	--	--			3.00E-04	I	
7803-51-2	Phosphine		--	--	--			3.00E-04	I	
123-38-6	Propionaldehyde		--	--	--			8.00E-03	I	
103-65-1	Propyl benzene		--	--	--			1.00E+00	X	
115-07-1	Propylene		--	--	--			3.00E+00	CA	
107-98-2	Propylene Glycol Monomethyl Ether		--	--	--			2.00E+00	I	
75-56-9	Propylene Oxide		--	--	--	3.70E-06	I	3.00E-02	I	
100-42-5	Styrene		--	--	--			1.00E+00	I	
7446-11-9	Sulfur Trioxide		--	--	--			1.00E-03	CA	
1746-01-6	TCDD, 2,3,7,8-		--	--	--	3.80E+01	CA	4.00E-08	CA	
70362-50-4	Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)		--	--	--	1.10E-02	E	1.30E-04	E	
630-20-6	Tetrachloroethane, 1,1,1,2-		--	--	--	7.40E-06	I			
79-34-5	Tetrachloroethane, 1,1,2,2-		--	--	--	5.80E-05	CA			
127-18-4	Tetrachloroethylene		--	--	--	2.60E-07	I	4.00E-02	I	
811-97-2	Tetrafluoroethane, 1,1,1,2-		--	--	--			8.00E+01	I	
109-99-9	Tetrahydrofuran		--	--	--			2.00E+00	I	
7550-45-0	Titanium Tetrachloride		--	--	--			1.00E-04	A	
108-88-3	Toluene		--	--	--			5.00E+00	I	
584-84-9	Toluene-2,4-diisocyanate		--	--	--	1.10E-05	CA	8.00E-06	CA	
91-08-7	Toluene-2,6-diisocyanate		--	--	--	1.10E-05	CA	8.00E-06	CA	
76-13-1	Trichloro-1,2,2-trifluoroethane, 1,1,2-		--	--	--			3.00E+01	H	
120-82-1	Trichlorobenzene, 1,2,4-		--	--	--			2.00E-03	P	
71-55-6	Trichloroethane, 1,1,1-		--	--	--			5.00E+00	I	
79-00-5	Trichloroethane, 1,1,2-		--	--	--	1.60E-05	I	2.00E-04	X	
79-01-6	Trichloroethylene	7.6E-01	1.86E-01	3.9E-07	8.9E-02	see note	I	2.00E-03	I	TCE

Preliminary - Under EPA and MDEQ Review

EPA-OLEM VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	0.1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	15	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
96-18-4	Trichloropropane, 1,2,3-		--	--	--			3.00E-04	I	Mut
96-19-5	Trichloropropene, 1,2,3-		--	--	--			3.00E-04	P	
121-44-8	Triethylamine		--	--	--			7.00E-03	I	
420-46-2	Trifluoroethane, 1,1,1-		--	--	--			2.00E+01	P	
526-73-8	Trimethylbenzene, 1,2,3-		--	--	--			5.00E-03	P	
95-63-6	Trimethylbenzene, 1,2,4-		--	--	--			7.00E-03	P	
126-72-7	Tris(2,3-dibromopropyl)phosphate		--	--	--	6.60E-04	CA			
108-05-4	Vinyl Acetate		--	--	--			2.00E-01	I	
593-60-2	Vinyl Bromide		--	--	--	3.20E-05	H	3.00E-03	I	
75-01-4	Vinyl Chloride		--	--	--	7.40E-06	I	1.00E-01	I	VC
108-38-3	Xylene, m-		--	--	--			1.00E-01	S	
95-47-6	Xylene, o-		--	--	--			1.00E-01	S	
106-42-3	Xylene, P-		--	--	--			1.00E-01	S	
1330-20-7	Xylenes		--	--	--			1.00E-01	I	

Notes:

(1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Averaging time for carcinogens	(yrs)	ATc_R_GW	70	ATc_C_GW	70	ATc_GW	70
Averaging time for non-carcinogens	(yrs)	ATnc_R_GW	26	ATnc_C_GW	25	Atnc_GW	26
Exposure duration	(yrs)	ED_R_GW	26	ED_C_GW	25	ED_GW	26
Exposure frequency	(days/yr)	EF_R_GW	350	EF_C_GW	250	EF_GW	350
Exposure time	(hr/day)	ET_R_GW	24	ET_C_GW	8	ET_GW	24

(2) **Generic Attenuation Factors:**

Source Medium of Vapors		Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Groundwater	(-)	AFgw_R_GW	0.001	AFgw_C_GW	0.001	AFgw_GW	0.001
Sub-Slab and Exterior Soil Gas	(-)	AFss_R_GW	0.03	AFss_C_GW	0.03	AFss_GW	0.03

(3) **Formulas**

Cia, target = MIN(Cia,c; Cia,nc)
Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)
Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**

	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Trichloroethylene	mIURTCE_R_GW	1.00E-06	IURTCE_C_GW	0.00E+00	mIURTCE_GW	1.00E-06
	IURTCE_R_GW	3.10E-06	IURTCE_C_GW	4.10E-06	IURTCE_GW	3.10E-06

Mutagenic Chemicals — The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

Age Cohort	Exposure Duration	Age-dependent adjustment factor
0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 72 — This factor is used in the equations for mutagenic chemicals.

Vinyl Chloride — See the Navigation Guide equation for Cia,c for vinyl chloride.

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EPA-OLEM VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Residential	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	0.1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	15	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i

Notation:
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at: http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at: http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5
X = PPRTV Appendix
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).
TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).
Yellow highlighting indicates site-specific parameters that may be edited by the user.
Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.
Pink highlighting indicates VI carcinogenic risk greater than the target risk for carcinogens (TCR) or VI Hazard greater than or equal to the target hazard quotient for non-carcinogens (THQ).

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APPENDIX B SURFICIAL SOIL SAMPLING RESULTS FROM ASBESTOS LANDFILLS REPORT

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ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC
209 SHAFTER STREET
ISLANDIA, NEW YORK 11749 TEL 631-232-2600 FAX 631-232-9898

October 19, 2017

Mike Cirian, P.E.
United States Environmental Protection Agency
108 East 9th Street
Libby, Montana 59923

Re: Surficial Soil Sampling Results from Asbestos Landfills
Columbia Falls Aluminum Company, Columbia Falls, Montana

Dear Mr. Cirian:

Roux Associates, Inc. (Roux Associates), on behalf of Columbia Falls Aluminum Company (CFAC) has prepared this letter to the United States Environmental Protection Agency (USEPA) to describe the surficial soil sampling activities performed in the Asbestos Landfills as part of the Phase I Site Characterization and to summarize the analytical results of those activities.

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Background

As described in the Remedial Investigation/Feasibility Study Work Plan (RI/FS Work Plan), two areas were identified as being former asbestos landfills based on historic information. The areas are referred to as the North Asbestos Landfills and the South Asbestos Landfills. The North Asbestos Landfills are located north of the West Landfill and consist of two separate areas (i.e., North-West and North-East Asbestos Landfills); the South Asbestos Landfills are located south of the East Landfill, near the eastern boundary of the Site, and also consist of two separate areas (i.e., South-West and South-East Asbestos Landfills). Together, the four landfills are referred to as the Asbestos Landfills.

The asbestos landfills were constructed as early as the late 1970s or early 1980 based upon historical records reviewed during preparation of the RI/FS Work Plan. Disposal records available in CFAC's files for the North Asbestos Landfills indicate that these landfills were in use from 1993 to 2009. Details regarding landfill construction are unknown; however, based on the Phase I observations during field reconnaissance and test pitting activities described below, the landfills have a natural soil cover that overlies the asbestos materials within the landfills. There is no evidence of an engineered cap or liner. The approximate boundaries of the landfills are presented on Plate 1. These boundaries were initially determined based upon historical aerial photograph review; and then

updated based upon observations and GPS mapping during field reconnaissance and test pitting activities.

During the Phase I Site Characterization, a test pitting investigation was performed to define the extent and contents of the Asbestos Landfills. Cascade Drilling (Cascade), under Roux Associates oversight, conducted test pitting activities from August 15 to 18, 2016 within the Asbestos Landfills. A certified asbestos inspector provided by Hydrometrics (Subcontractor to Roux Associates) was present throughout the duration of the test pit activities. The test pitting consisted of seven test pits excavated to approximately 10 feet below land surface (ft-bls) within the South Asbestos Landfill and eight test pits excavated to approximately 10 ft-bls within the North Asbestos Landfill. Asbestos containing material, including asbestos pipe and asbestos bags, were observed at depth during test pitting. No samples were collected during this investigation. The test pitting activities and the contents observed in each test pit are described in detail in the Phase I Site Characterization Data Summary Report. Based on the results of this investigation and additional Site reconnaissance, the approximate horizontal extent of the Asbestos Landfills was mapped using hand-held GPS with sub-meter accuracy, with the results used to more accurately depict the landfill locations and extents on site maps and figures.

The historical knowledge of asbestos landfill operations at the Site and previous Site reconnaissance and test pitting activities indicated that asbestos containing materials were buried in the landfills underneath a soil cover. However, it could not be determined from visual field inspection if asbestos is present in the surface soil. During a Project Update Meeting on November 3, 2016, USEPA requested that CFAC perform sampling of surface soil within the four asbestos landfills to determine the presence, or lack thereof, of asbestos in the surface soil, and the extent of the asbestos, if present. CFAC agreed to perform the sampling as requested by USEPA.

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Sampling Scope of Work

Surface soil sampling at the Asbestos Landfills began on July 31, 2017 and was completed by Roux Associates, with support of Hydrometrics, on August 10, 2017, in accordance with the scope of work described in the Phase I SAP Modification #10, which was submitted to USEPA on May 24, 2017 and approved via email concurrence by USEPA on June 23, 2017. The sampling procedure is described in Roux Associates' Standard Operating Procedure (SOP) titled, "Standard Operating Procedure 5.13 for Collection of Composite Soil Samples for Laboratory Analysis of Asbestos via CARB 435."

A total of 56 grid cells were sampled across the four landfills as presented in the attached Plate 1. As requested by USEPA, the sampling was conducted at the frequency of 30 surface soil sub-samples per grid cell (approximately 3,000 square feet per cell). The 30 locations were randomly distributed using the random distribution function in ArcGIS and field personnel utilized a hand-held GPS (with submeter accuracy) to navigate to each location for sample collection. At each of the 30 locations

within a grid, a sub-sample of soil of approximately 100 grams was collected from the surface (0-0.5 ft-bls) using a stainless-steel trowel and placed in a Ziploc bag.

During the sampling activities, the landfill surface around each sampling location was inspected for any evidence of potential ACM (including, but not limited to building materials, piping/conduits, etc.), so that, if encountered, such materials could also be sampled. A wire with insulation was identified by Hydrometrics (State of Montana certified asbestos inspector) as potential ACM and was collected for asbestos analysis from the surface of grid CFAS-55 in the southeast corner of the North-East asbestos landfill. This sample was collected separately from the underlying soil sample collected in grid cell CFAS-55.

A total of 56 soil samples were sent to TestAmerica, Inc's EMLab P&K laboratory in Arvada, Colorado for laboratory analysis. Surficial soil samples were analyzed via the California Air Resources Board (CARB) 435 method using polarized light microscopy (PLM). As part of the preparation for the CARB 435 analysis, the laboratory homogenized the 30 soil sub-samples for each grid to be analyzed as one composite sample. The preparation and laboratory procedures for the CARB 435 analysis is described in the laboratory SOP titled "Asbestos Analysis in Soils and Rock: CARB 435 using PLM," submitted with Phase I SAP Modification #10. The wire sample collected from grid CFAS-55 was also sent to the TestAmerica EMLab P&K laboratory and analyzed for EPA Method 600 using PLM.

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Laboratory Analytical Results

The laboratory analytical data for the 56 surficial soil samples collected from the 56 grids across the Asbestos Landfills are summarized in Table 1. The analytical data for the potential ACM wire sample collected during the investigation is summarized in Table 2. Analytical data for surficial soils were compared to the laboratory method detection limit.

The surficial soil sampling results from the Asbestos Landfills indicate the following:

- Surficial soil was non-detect for asbestos in 55 of the 56 surficial soil samples collected from the Asbestos Landfills based upon the asbestos concentration. Point counting was not performed on these samples because no asbestos fibers were detected.

- One surficial soil sample, CFAS-03-SO-0-0.5, had a chrysotile asbestos concentration less than 0.25% but there were no asbestos fibers identified for counting during the point count. This sample was collected from grid CFAS-03 located in the northeast corner of the south-west asbestos landfill.

- One potential ACM sample, CFAS-55-Wire, had an asbestos concentration of 90% chrysotile asbestos. The surficial soil sample collected from the same grid cell, CFAS-55-SO-0-0.5, was determined to be non-detect for asbestos.

The results from the surficial soil sampling conducted at each landfill will be considered and further evaluated during development of the Human Health Baseline Risk Assessment Work Plan.

Sincerely,

ROUX ASSOCIATES, INC.

Michael Ritorto
Principal Hydrogeologist

Andrew Baris
Principal Hydrogeologist/
Vice President

Enclosures:

Table 1 – Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Table 2 – Asbestos in Asbestos Containing Material Sample from Asbestos Landfill Sampling Locations
Plate 1 – Asbestos Landfill Surface Soil Sampling Locations

cc: John Stroiazzo, Glencore
Steve Wright, Columbia Falls Aluminum Company
Lisa DeWitt, Montana Department of Environmental Quality
Richard Sloan, Montana Department of Environmental Quality

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TABLES

1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
2. Asbestos in Asbestos Containing Material Sample from Asbestos Landfill Sampling Locations

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Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-01-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281005-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Gray Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-02-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281006-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Gray Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-03-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281007-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Gray Soil	Chrysotile	0	< 0.25
Layer Totals:		0	NA

Comments: Asbestos was detected, but no points counted.

Location:	CFAS-04-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281008-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-05-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281009-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Gray Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

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Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-06-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281010-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-07-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281011-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-08-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281012-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-09-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281013-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-10-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281014-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

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Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-11-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281015-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-12-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281016-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-13-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281017-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-14-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296116-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-15-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296110-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

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Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-16-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296105-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-DUP3-SO (CFAS-16- SO-0-0.5)		
Total Points Counted:	400		
Lab ID-Version :	8296109-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-17-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281034-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-18-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296121-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-19-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296111-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

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Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-20-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296104-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-21-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296106-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-22-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281035-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-23-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296120-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-24-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296112-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

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ED_002345C_00006864-00257

Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-25-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296103-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-26-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296101-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-27-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296095-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-28-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296119-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-30-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296102-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Preliminary - Under EPA and MDEQ Review

ED_002345C_00006864-00258

Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-31-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296100-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-32-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296096-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-36-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296099-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-37-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296097-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-38-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296117-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Preliminary - Under EPA and MDEQ Review

ED_002345C_00006864-00259

Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-40-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296098-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-41-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8296107-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-42-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281033-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-43-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281028-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-44-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281025-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Preliminary - Under EPA and MDEQ Review

Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-45-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281023-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-46-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281032-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-47-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281027-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-48-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281024-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-49-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281030-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Preliminary - Under EPA and MDEQ Review

ED_002345C_00006864-00261

Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-50-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8286004-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-51-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281022-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-52-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281021-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-53-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281029-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-DUP2-SO (CFAS-53- SO-0-0.5)		
Total Points Counted:	400		
Lab ID-Version :	8281031-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Preliminary - Under EPA and MDEQ Review

ED_002345C_00006864-00262

Table 1. Asbestos in Surficial Soil Samples from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Location:	CFAS-54-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281026-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-55-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281020-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-56-SO-0-0.5		
Total Points Counted:	400		
Lab ID-Version :	8281018-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	CFAS-DUP1-SO (CFAS-56- SO-0-0.5)		
Total Points Counted:	400		
Lab ID-Version :	8281019-1		
Sample Layers	Asbestos Type	Asbestos Points Counted	Asbestos Concentration (%)
Tan Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

EMLab P&K, LLC
EMLab Id: 1771895

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ED_002345C_00006864-00263

Table 2. Asbestos in Asbestos Containing Material Sample from Asbestos Landfill Sampling Locations
Columbia Falls Aluminum Company, LLC, Phase I Site Characterization, 2000 Aluminum Drive, Columbia Falls, MT

Sample ID	Sample Layers	Asbestos Concentration	Asbestos Content	Composite Non-Asbestos Content
CFAS-55-Wire	Off-White Wiring Insulation	90%	Chrysotile	
CFAS-55-Wire	Composite Non-Asbestos Content			7% Synthetic Fibers

EMLab P&K, LLC
EMLab Id: 1775235

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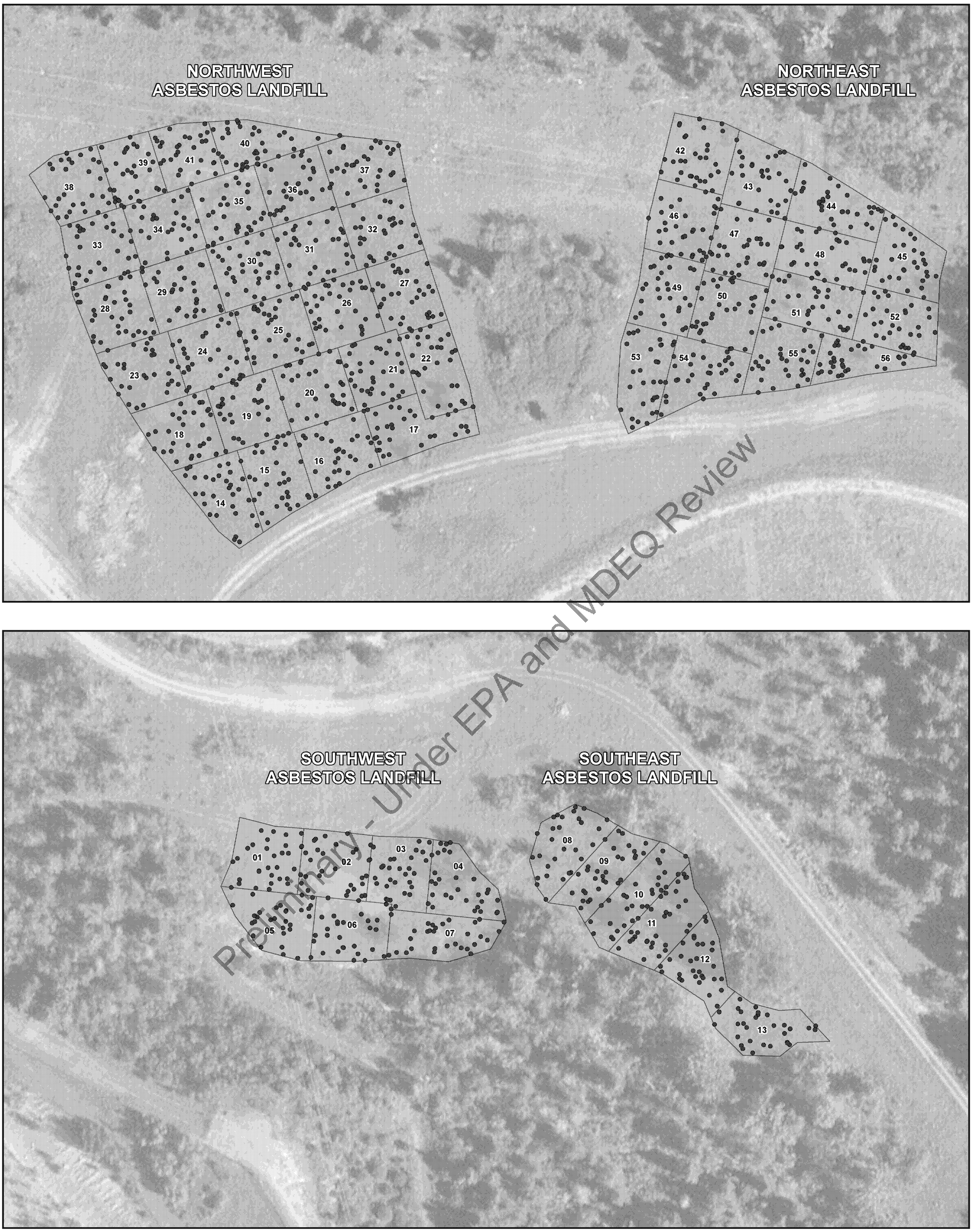
PLATE

1. Asbestos Landfill Surface Soil Sampling Locations

Preliminary - Under EPA and MDEQ Review



LEGEND

- RANDOMLY GENERATED SOIL SAMPLE LOCATIONS
- 1 SAMPLING GRID LESS THAN 3,000 SQ FT AND GRID DESIGNATION

NOTES

1. EACH GRID CONTAINS 30 SUB SAMPLES TO COMPRISE ONE COMPOSITE SAMPLE
2. COMPOSITE SAMPLE WAS NAMED WITH THE FOLLOWING EXAMPLE NOMENCLATURE: CFAS–01–SO–0–0.5

N

50 0 50 Feet

Title:

ASBESTOS LANDFILL SURFACE SOIL SAMPLING LOCATIONS

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: M.R.	Date: 17OCT17	PLATE
Prepared by: M.R.	Scale: AS SHOWN	1
Project Mgr: M.R.	Project: 2476.0001Y002	
File: 2476.0001Y185.1.mxd		

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APPENDIX C ANALYTICAL DATA TABLES

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-025A	CFMW-025A	CFMW-025A	CFMW-026	CFMW-026	CFMW-026	CFMW-026-DUP	CFMW-028A	CFMW-028A	CFMW-028A	CFMW-032A	CFMW-032A	CFMW-032A	CFMW-033	CFMW-033
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/13/2016	7/13/2016	7/13/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/30/2016	6/30/2016	6/30/2016	8/8/2016	8/8/2016	8/8/2016	7/1/2016	7/1/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	7.99 J	16.7 J	--	4.09 J	4.25 J	--	84.1 J	20.1 J+	6.47 J+	--	61.6 J	78.1 J	--	36.8 J+	8.12 J+
Cyanide	0.0015	0.069 J	0.2	--	0.057 J	0.33	--	0.06 J	0.054 J	0.043 J	--	0.1 J	0.31	--	0.035 J	0.097 J
METALS																
Aluminum	3000	20800	23400	--	19000	11500	--	18100	14900	14200	--	10600	19600	--	9780	8530
Antimony	0.035	0.44 UJ	0.46 UJ	--	0.37 UJ	0.48 UJ	--	0.36 UJ	0.39 UJ	0.38 UJ	--	0.4 UJ	0.46 UJ	--	0.36 UJ	0.4 UJ
Arsenic	0.0015	3.9	7.1	--	4	3.1	--	4.3	5.1	5.4	--	5.3	6.1	--	2.9	5.3
Barium	16	206	333	--	187	305	--	173	107 J	96.8 J	--	95.6	258	--	100 J	56.6 J
Beryllium	1.9	0.62	0.64	--	0.46	0.41 J	--	0.48	0.41	0.48	--	0.38 J	0.72	--	0.29 J	0.23 J
Cadmium	0.069	0.33 U	0.35 U	--	0.28 U	0.66 J	--	0.28 U	0.29 U	0.29 U	--	0.3 U	0.35 U	--	0.27 U	0.3 U
Calcium	--	2110	5920	--	1790	8020	--	1590	8080	8390	--	27100	20500	--	9670	44600
Chromium, Total	--	12.1 J	10.4 J	--	9.6	6	--	8.8	11.6	11.3	--	8.6	10.9	--	7.3	7.6
Cobalt	0.027	6.6	6.6	--	5.7	3.4	--	5	5.2	5.2	--	5.1	6	--	4.1	5
Copper	2.8	16	20	--	10.1 J+	14.5 J+	--	8.8 J+	13.7 J	15.5 J	--	15.9	17.7	--	17 J	10.3 J
Iron	35	18400 J	18200 J	--	15800	7940	--	15200	17700	17000	--	12300	15400	--	10600	12200
Lead	400	10.4	18.5	20.3	11.4 J+	44.8 J+	37.8	10.2 J+	9.6	9.7	10.9	8.7	13.7	13.3	6	9.2
Magnesium	--	8050	7000	--	7290	3030	--	6970	11900	10800	--	11000	8850	--	6400	12100
Manganese	2.8	526 J	778 J	--	523 J	631 J	--	473 J	416	319	--	350	524	--	328	354
Mercury	0.0033	0.013 U	0.027	--	0.013 U	0.025	--	0.013 U	0.022 J+	0.017 J+	--	0.014 J	0.03	--	0.015 J+	0.025 J+
Nickel	2.6	11.8 J	13.9 J	--	11.6	17.4	--	9.9	12.1	11.8	--	11	12.6	--	8	9.3
Potassium	--	779	1140	--	1070	1530	--	1000	853 J+	948 J+	--	739	918	--	634 J+	698 J+
Selenium	0.052	0.41 U	0.43 U	--	0.34 U	0.45 U	--	0.34 U	0.36 U	0.36 U	--	0.37 U	0.43 U	--	0.34 U	0.37 U
Silver	0.08	0.8 U	0.85 U	--	0.67 U	0.88 U	--	0.66 U	0.71 U	0.7 U	--	0.73 U	0.84 U	--	0.66 U	0.72 U
Sodium	--	63 J	157	--	34.3 U	45.1 U	--	33.9 U	36.3 U	35.8 U	--	94 J	117	--	33.6 U	37 U
Thallium	0.0014	0.16 U	0.17 U	--	0.14 U	0.18 U	--	0.14 U	0.15 U	0.14 U	--	0.15 U	0.17 U	--	0.14 U	0.15 U
Vanadium	8.6	18.3 J	16.3 J	--	14.4	11.6	--	13.5	11	10.8	--	7.4	12.3	--	7.6	6.3
Zinc	37	48.4	84.9	--	140	238	--	112	49.6	48	--	39.7	65.3	--	31.4	34.6

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-025A	CFMW-025A	CFMW-025A	CFMW-026	CFMW-026	CFMW-026	CFMW-026-DUP	CFMW-028A	CFMW-028A	CFMW-028A	CFMW-032A	CFMW-032A	CFMW-032A	CFMW-033	CFMW-033
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/13/2016	7/13/2016	7/13/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/30/2016	6/30/2016	6/30/2016	8/8/2016	8/8/2016	8/8/2016	7/1/2016	7/1/2016
PESTICIDES																
Aldrin	0.00015	...	0.001 U	...	...	0.0012 U	...	...	...	0.00096 U	...	...	0.00092 U	...	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	0.00079 U	...	...	0.00089 U	...	...	...	0.00072 U	...	...	0.0007 U	...	...	...
Alpha Endosulfan	--	...	0.0012 U	...	...	0.0014 U	...	...	...	0.0011 U	...	...	0.0011 U	...	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	0.00084 U	...	...	0.00095 U	...	...	...	0.00077 U	...	...	0.00074 U	...	...	...
Beta Endosulfan	--	...	0.0014 U	...	...	0.0015 U	...	...	...	0.0012 U	...	...	0.0012 U	...	...	...
cis-Chlordane	--	...	0.0014 U	...	...	0.0016 U	...	...	...	0.0013 U	...	...	0.0012 U	...	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	0.00094 U	...	...	0.0011 U	...	...	...	0.00086 U	...	...	0.00083 U	...	...	...
Dieldrin	0.000071	...	0.0011 U	...	...	0.0013 U	...	...	...	0.001 U	...	...	0.00099 U	...	...	...
Endosulfan Sulfate	--	...	0.001 U	...	...	0.0011 U	...	...	...	0.00092 U	...	...	0.00089 U	...	...	...
Endrin	0.0092	...	0.0011 U	...	...	0.0012 U	...	...	...	0.001 U	...	...	0.00097 U	...	...	...
Endrin Aldehyde	--	...	0.0011 U	...	...	0.0012 U	...	...	...	0.00098 U	...	...	0.00095 U	...	...	...
Endrin Ketone	--	...	0.0012 U	...	...	0.0014 U	...	...	...	0.0011 U	...	...	0.0011 U	...	...	...
Gamma Bhc (Lindane)	0.00024	...	0.00078 U	...	...	0.00087 U	...	...	...	0.00071 U	...	...	0.00068 U	...	...	...
Heptachlor	0.00012	...	0.0011 U	...	...	0.0013 U	...	...	...	0.001 U	...	...	0.00098 U	...	...	...
Heptachlor Epoxide	0.000028	...	0.0017 U	...	...	0.0019 U	...	...	...	0.0015 U	...	...	0.0015 U	...	...	...
Methoxychlor	0.2	...	0.0018 U	...	...	0.0021 U	...	...	...	0.0017 U	...	...	0.0016 U	...	...	...
P,P'-DDD	0.0075	...	0.0011 U	...	...	0.0013 U	...	...	...	0.001 U	...	...	0.001 U	...	...	...
P,P'-DDE	0.011	...	0.0013 U	...	...	0.0014 U	...	...	...	0.0011 U	...	...	0.0011 U	...	...	...
P,P'-DDT	0.077	...	0.00089 U	...	...	0.001 U	...	...	...	0.00082 U	...	...	0.00079 U	...	...	...
Toxaphene	0.011	...	0.025 U	...	...	0.028 U	...	...	...	0.023 U	...	...	0.022 U	...	...	...
trans-Chlordane	--	...	0.0019 U	...	...	0.0021 U	...	...	...	0.0017 U	...	...	0.0017 U	...	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0098 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.0099 U	0.011 U	...	0.0093 U	0.01 U	...	0.0099 U	0.011 U
PCB-1221 (Aroclor 1221)	0.00008	0.0098 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.0099 U	0.011 U	...	0.0093 U	0.01 U	...	0.0099 U	0.011 U
PCB-1232 (Aroclor 1232)	0.00008	0.0098 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.0099 U	0.011 U	...	0.0093 U	0.01 U	...	0.0099 U	0.011 U
PCB-1242 (Aroclor 1242)	0.0012	0.0098 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.0099 U	0.011 U	...	0.0093 U	0.01 U	...	0.0099 U	0.011 U
PCB-1248 (Aroclor 1248)	0.0012	0.0098 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.0099 U	0.011 U	...	0.0093 U	0.01 U	...	0.0099 U	0.011 U
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.01 U	0.011 U	...	0.0097 U	0.01 U	...	0.01 U	0.011 U
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.01 U	0.011 U	...	0.0097 U	0.01 U	...	0.01 U	0.011 U
PCB-1262 (Aroclor 1262)	--	0.01 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.01 U	0.011 U	...	0.0097 U	0.01 U	...	0.01 U	0.011 U
PCB-1268 (Aroclor 1268)	--	0.01 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.01 U	0.011 U	...	0.0097 U	0.01 U	...	0.01 U	0.011 U
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.012 U	...	0.01 U	0.013 U	...	0.01 U	0.01 U	0.011 U	...	0.0097 U	0.01 U	...	0.01 U	0.011 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.032 U	...	0.028 U	0.036 U	...	0.028 U	0.027 U	0.029 U	...	0.026 UJ	0.028 U	...	0.027 U	0.03 U
1,4-Dioxane (P-Dioxane)	0.000094	0.098 U	0.11 U	...	0.1 U	0.13 U	...	0.1 U	0.098 UR	0.1 U	...	0.093 U	0.1 U	...	0.099 U	0.11 U
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.04 U	...	0.035 U	0.045 U	...	0.035 U	0.035 UJ	0.037 U	...	0.033 UJ	0.035 U	...	0.035 U	0.038 U
2,4,5-Trichlorophenol	0.4	0.036 U	0.043 U	...	0.037 U	0.048 U	...	0.037 U	0.037 U	0.039 U	...	0.035 U	0.037 U	...	0.037 U	0.04 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.012 U	...	0.011 U	0.014 U	...	0.011 U	0.01 U	0.011 U	...	0.0099 U	0.011 U	...	0.01 U	0.011 U
2,4-Dichlorophenol	0.0023	0.0086 U	0.01 U	...	0.0088 U	0.011 U	...	0.0088 U	0.0087 U	0.0092 U	...	0.0082 U	0.0089 U	...	0.0087 U	0.0094 U
2,4-Dimethylphenol	0.042	0.08 U	0.094 U	...	0.082 U	0.11 U	...	0.082 U	0.081 UJ	0.086 U	...	0.076 UJ	0.083 U	...	0.081 U	0.088 U
2,4-Dinitrophenol	0.0044	0.28 U	0.32 U	...	0.28 U	0.36 U	...	0.28 U	0.28 UR	0.3 U	...	0.26 UJ	0.28 U	...	0.28 U	0.3 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.017 U	...	0.015 U	0.019 U	...	0.015 U	0.015 U	0.015 U	...	0.014 U	0.015 U	...	0.015 U	0.016 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.023 U	...	0.02 U	0.026 U	...	0.02 U	0.02 U	0.021 U	...	0.018 U	0.02 U	...	0.02 U	0.021 U
2-Chloronaphthalene	0.39	0.0083 U	0.0097 U	...	0.0085 U	0.011 U	...	0.0084 U	0.0083 U	0.0089 U	...	0.0079 U	0.0085 U	...	0.0084 U	0.0091 U
2-Chlorophenol	0.0089	0.0093 U	0.011 U	...	0.0095 U	0.012 U	...	0.0095 U	0.0093 U	0.0099 U	...	0.0088 U	0.0096 U	...	0.0094 U	0.01 U
2-Methylnaphthalene	0.019	0.0081 U	0.0094 U	...	0.0083 U	0.011 U	...	0.0082 U	0.0081 U	0.0086 U	...	0.0077 U	0.0083 U	...	0.0082 U	0.0088 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.019 U	...	0.016 U	0.021 U	...	0.016 U	0.016 U	0.017 U	...	0.015 U	0.016 U	...	0.016 U	0.017 U
2-Nitroaniline	0.008	0.012 U	0.014 U	...	0.012 U	0.016 U	...	0.012 U	0.012 U	0.013 U	...	0.011 U	0.012 U	...	0.012 U	0.013 U
2-Nitrophenol	--	0.012 U	0.014 U	...	0.013 U	0.016 U	...	0.013 U	0.012 UJ	0.013 U	...	0.012 U	0.013 U	...	0.012 U	0.013 U
3- And 4- Methylphenol (Total)	--	0.0097 U	0.011 U	...	0.01 U	0.013 U	...	0.0099 U	0.0098 U	0.01 U	...	0.0092 U	0.01 U	...	0.0098 U	0.011 U
3,3'-Dichlorobenzidine	0.00082	0.041 U	0.048 U	...	0.042 U	0.054 U	...	0.042 U	0.041 U	0.044 U	...	0.039 U	0.042 U	...	0.041 U	0.045 U
3-Nitroaniline	--	0.011 U	0.013 U	...	0.011 U	0.014 U	...	0.011 U	0.011 U	0.012 U	...	0.01 U	0.011 U	...	0.011 U	0.012 U
4,6-Dinitro-2-Methylphenol	0.00026	0.097 U	0.11 U	...	0.1 U	0.13 U	...	0.098 U	0.098 UJ	0.1 U	...	0.093 UJ	0.1 U	...	0.098 U	0.11 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.013 U	...	0.012 U	0.015 U	...	0.012 U	0.012 U	0.012 U	...	0.011 U	0.012 U	...	0.012 U	0.013 U
4-Chloro-3-Methylphenol	0.17	0.016 U	0.018 U	...	0.016 U	0.021 U	...	0.016 U	0.016 U	0.017 U	...	0.015 U	0.016 U	...	0.016 U	0.017 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-025A	CFMW-025A	CFMW-025A	CFMW-026	CFMW-026	CFMW-026	CFMW-026-DUP	CFMW-028A	CFMW-028A	CFMW-028A	CFMW-032A	CFMW-032A	CFMW-032A	CFMW-033	CFMW-033
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/13/2016	7/13/2016	7/13/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/30/2016	6/30/2016	6/30/2016	8/8/2016	8/8/2016	8/8/2016	7/1/2016	7/1/2016
4-Chloroaniline	0.00016	0.0094 U	0.011 U	---	0.0096 U	0.012 U	---	0.0096 U	0.0095 U	0.01 U	---	0.0089 U	0.0097 U	---	0.0095 U	0.01 U
4-Chlorophenyl Phenyl Ether	--	0.011 UJ	0.013 UJ	---	0.011 U	0.014 U	---	0.011 U	0.011 U	0.012 U	---	0.01 U	0.011 U	---	0.011 U	0.012 U
4-Nitroaniline	0.0016	0.014 U	0.016 U	---	0.014 U	0.018 U	---	0.014 U	0.014 U	0.015 U	---	0.013 U	0.014 U	---	0.014 U	0.015 U
4-Nitrophenol	--	0.18 U	0.21 U	---	0.18 U	0.23 U	---	0.18 U	0.18 U	0.19 U	---	0.17 U	0.18 U	---	0.18 U	0.19 U
Acenaphthene	0.55	0.0098 U	0.01 U	---	0.0091 U	0.012 J	---	0.009 U	0.0089 U	0.036 J	---	0.0084 U	0.0091 U	---	0.0097 J	0.0097 U
Acenaphthylene	--	0.0094 U	0.011 U	---	0.0096 U	0.012 U	---	0.0096 U	0.0095 U	0.01 U	---	0.0089 U	0.0097 U	---	0.0095 U	0.01 U
Acetophenone	0.058	0.0079 U	0.0093 U	---	0.0083 J	0.01 U	---	0.0081 U	0.008 U	0.0085 U	---	0.0076 U	0.0082 U	---	0.008 U	0.0087 U
Anthracene	5.8	0.035 U	0.041 U	---	0.036 U	0.046 U	---	0.035 U	0.035 U	0.08 J	---	0.033 U	0.036 U	---	0.035 U	0.038 U
Atrazine	0.0002	0.016 U	0.019 U	---	0.017 U	0.021 U	---	0.017 U	0.017 U	0.017 U	---	0.015 U	0.017 U	---	0.016 U	0.018 U
Benzaldehyde	0.0041	0.028 U	0.033 U	---	0.029 U	0.037 U	---	0.028 U	0.028 U	0.03 U	---	0.026 U	0.029 U	---	0.028 U	0.031 U
Benzo(A)Anthracene	0.011	0.03 U	0.078	---	0.031 U	0.2	---	0.031 U	0.031 U	0.57	---	0.031 J	0.052	---	0.034 J	0.033 U
Benzo(A)Pyrene	0.018	0.011 U	0.088	---	0.011 U	0.24	---	0.012 J	0.012 J	0.74	---	0.029 J	0.062	---	0.044	0.012 U
Benzo(B)Fluoranthene	0.18	0.014 U	0.18	---	0.021 J	0.52	---	0.031 J	0.02 J	1.1	---	0.044	0.13	---	0.052	0.016 U
Benzo(G,H,I)Perylene	--	0.021 U	0.11 J	---	0.022 U	0.28 J	---	0.021 U	0.021 U	0.71	---	0.026 J	0.075 J	---	0.034 J	0.023 U
Benzo(K)Fluoranthene	1.8	0.016 U	0.056	---	0.016 U	0.19	---	0.016 U	0.016 U	0.41	---	0.021 J	0.035 J	---	0.025 J	0.017 U
Benzyl Butyl Phthalate	0.24	0.011 U	0.013 U	---	0.012 U	0.015 U	---	0.011 U	0.011 U	0.012 U	---	0.011 U	0.012 U	---	0.011 U	0.012 U
Biphenyl (Diphenyl)	0.00087	0.031 U	0.036 U	---	0.032 U	0.041 U	---	0.032 U	0.031 U	0.033 U	---	0.03 U	0.032 U	---	0.031 U	0.034 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.013 U	---	0.012 U	0.015 U	---	0.012 U	0.011 U	0.012 U	---	0.011 U	0.012 U	---	0.012 U	0.012 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0086 U	0.01 U	---	0.0088 U	0.011 U	---	0.0098 U	0.0087 U	0.0092 U	---	0.0082 U	0.0089 U	---	0.0087 U	0.0094 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.018 U	---	0.015 U	0.02 U	---	0.015 U	0.015 U	0.016 U	---	0.014 U	0.015 U	---	0.015 U	0.016 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.017 U	---	0.015 U	0.13 J	---	0.015 U	0.014 U	0.015 U	---	0.014 U	0.16 J	---	0.014 U	0.016 U
Caprolactam	0.25	0.026 U	0.031 U	---	0.027 UJ	0.035 U	---	0.027 UJ	0.026 UJ	0.028 U	---	0.025 U	0.027 U	---	0.027 U	0.029 U
Carbazole	--	0.009 U	0.014 J	---	0.0093 U	0.031 J	---	0.0092 U	0.0091 U	0.069 J	---	0.0086 U	0.0093 U	---	0.0092 U	0.0099 U
Chrysene	9	0.0098 U	0.14 J	---	0.018 J	0.37 J	---	0.023 J	0.012 J	0.77	---	0.035 J	0.09 J	---	0.038 J	0.011 U
Dibenz(A,H)Anthracene	0.096	0.019 U	0.023 J	---	0.019 U	0.059	---	0.019 U	0.019 U	0.19	---	0.018 U	0.02 U	---	0.019 U	0.021 U
Dibenzofuran	0.015	0.011 U	0.013 U	---	0.011 U	0.015 U	---	0.011 U	0.011 U	0.014 J	---	0.01 U	0.011 U	---	0.011 U	0.012 U
Diethyl Phthalate	0.61	0.01 U	0.012 U	---	0.011 U	0.014 U	---	0.011 U	0.01 U	0.011 U	---	0.0099 U	0.011 U	---	0.01 U	0.011 U
Dimethyl Phthalate	--	0.011 U	0.012 U	---	0.011 U	0.014 U	---	0.011 U	0.011 U	0.011 U	---	0.01 U	0.011 U	---	0.011 U	0.012 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.013 J	---	0.011 U	0.014 U	---	0.011 U	0.011 U	0.022 J	---	0.015 J	0.011 U	---	0.013 J	0.022 J
Di-N-Octylphthalate	5.7	0.019 U	0.022 U	---	0.019 U	0.024 U	---	0.027 J	0.019 U	0.02 U	---	0.018 U	0.019 U	---	0.019 U	0.02 U
Fluoranthene	8.9	0.011 U	0.13 J	---	0.019 J	0.35 J	---	0.026 J	0.013 J	0.9	---	0.033 J	0.079 J	---	0.065 J	0.012 U
Fluorene	0.54	0.0079 UJ	0.0093 UJ	---	0.008 U	0.01 U	---	0.0081 U	0.008 U	0.023 J	---	0.0076 U	0.0082 U	---	0.008 U	0.0087 U
Hexachlorobenzene	0.00012	0.015 U	0.017 U	---	0.015 U	0.019 U	---	0.015 U	0.015 U	0.016 U	---	0.014 UJ	0.015 U	---	0.015 U	0.016 U
Hexachlorobutadiene	0.00027	0.01 UJ	0.012 UJ	---	0.011 U	0.014 U	---	0.01 U	0.01 U	0.011 U	---	0.0098 UJ	0.011 U	---	0.01 U	0.011 U
Hexachlorocyclopentadiene	0.00013	0.023 U	0.027 U	---	0.023 U	0.03 U	---	0.023 U	0.023 U	0.024 U	---	0.022 U	0.023 U	---	0.023 U	0.025 U
Hexachloroethane	0.0002	0.013 U	0.016 U	---	0.014 U	0.018 U	---	0.014 U	0.013 U	0.014 U	---	0.013 U	0.014 U	---	0.014 U	0.015 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.024 U	0.1	---	0.025 U	0.3	---	0.025 U	0.024 U	0.71	---	0.023 J	0.091	---	0.037	0.027 U
Isophorone	0.026	0.0078 U	0.0092 U	---	0.008 U	0.01 U	---	0.008 U	0.0079 U	0.0084 U	---	0.0074 U	0.0081 U	---	0.0079 U	0.0086 U
Naphthalene	0.00054	0.0093 U	0.011 U	---	0.0095 U	0.012 U	---	0.0095 U	0.0093 U	0.012 J	---	0.0083 U	0.0096 U	---	0.0094 U	0.01 U
Nitrobenzene	0.000092	0.011 U	0.013 U	---	0.012 U	0.015 U	---	0.012 U	0.012 U	0.012 U	---	0.011 U	0.012 U	---	0.012 U	0.013 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.014 U	---	0.013 U	0.016 U	---	0.013 U	0.012 U	0.013 U	---	0.012 U	0.013 U	---	0.012 U	0.013 U
N-Nitrosodiphenylamine	0.067	0.033 U	0.039 U	---	0.034 U	0.044 U	---	0.034 U	0.033 U	0.035 U	---	0.031 U	0.034 U	---	0.033 U	0.036 U
Pentachlorophenol	0.000057	0.044 U	0.052 U	---	0.045 U	0.058 U	---	0.045 U	0.045 UJ	0.047 U	---	0.042 UJ	0.046 U	---	0.045 U	0.048 U
Phenanthrene	--	0.01 J	0.072 J	---	0.015 J	0.14 J	---	0.021 J	0.0098 U	0.47	---	0.018 J	0.049 J	---	0.06 J	0.011 U
Phenol	0.33	0.012 U	0.014 U	---	0.012 U	0.016 U	---	0.012 U	0.012 U	0.013 U	---	0.011 U	0.012 U	---	0.012 U	0.013 U
Pyrene	1.3	0.017 U	0.11 J	---	0.022 J	0.34 J	---	0.029 J	0.017 U	1.1	---	0.035 J	0.094 J	---	0.07 J	0.018 U
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00035 U	---	---	0.0004 U	---	---	0.00038 U	0.00034 UJ	---	---	0.00032 U	---	---	0.00037 U	---
1,1,2,2-Tetrachloroethane	0.00003	0.00016 U	---	---	0.00018 U	---	---	0.00017 U	0.00015 UJ	---	---	0.00014 U	---	---	0.00017 U	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00041 U	---	---	0.00046 U	---	---	0.00045 U	0.0004 UJ	---	---	0.00037 U	---	---	0.00043 U	---
1,1,2-Trichloroethane	0.000013	0.00026 U	---	---	0.00029 U	---	---	0.00028 U	0.00025 UJ	---	---	0.00024 U	---	---	0.00027 U	---
1,1-Dichloroethane	0.00078	0.00032 U	---	---	0.00036 U	---	---	0.00035 U	0.00031 UJ	---	---	0.00029 U	---	---	0.00033 U	---
1,1-Dichloroethene	0.01	0.00038 U	---	---	0.00043 U	---	---	0.00042 U	0.00037 UJ	---	---	0.00035 U	---	---	0.0004 U	---
1,2,3-Trichlorobenzene	0.0021	0.0001 U	---	---	0.00011 U	---	---	0.00011 U	0.000099 UJ	---	---	0.000093 UJ	---	---	0.00011 U	---
1,2,4-Trichlorobenzene	0.0012	0.0003 U	---	---	0.00033 U	---	---	0.00033 U	0.00029 UJ	---	---	0.00027 UJ	---	---	0.00031 U	---
1,2-Dibromo-3-Chloropropane	0.00000014	0.00044 U	---	---	0.00049 U	---	---	0.00048 U	0.00042 UJ	---	---	0.0004 U	---	---	0.00046 U	---

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-025A	CFMW-025A	CFMW-025A	CFMW-026	CFMW-026	CFMW-026	CFMW-026-DUP	CFMW-028A	CFMW-028A	CFMW-028A	CFMW-032A	CFMW-032A	CFMW-032A	CFMW-033	CFMW-033
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/13/2016	7/13/2016	7/13/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/30/2016	6/30/2016	6/30/2016	8/8/2016	8/8/2016	8/8/2016	7/1/2016	7/1/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00011 U	---	---	0.00013 U	---	---	0.00012 U	0.00011 UJ	---	---	0.0001 U	---	---	0.00012 U	---
1,2-Dichlorobenzene	0.03	0.00013 U	---	---	0.00015 U	---	---	0.00014 U	0.00013 UJ	---	---	0.00012 UJ	---	---	0.00014 U	---
1,2-Dichloroethane	0.000048	0.0001 U	---	---	0.00011 U	---	---	0.00011 U	0.000099 U	---	---	0.000093 U	---	---	0.00011 U	---
1,2-Dichloropropane	0.000047	0.00016 U	---	---	0.00018 U	---	---	0.00017 U	0.00015 UJ	---	---	0.00014 U	---	---	0.00017 U	---
1,3-Dichlorobenzene	--	0.00011 U	---	---	0.00013 U	---	---	0.00012 U	0.00011 UJ	---	---	0.0001 UJ	---	---	0.00012 U	---
1,4-Dichlorobenzene	0.00046	0.00012 U	---	---	0.00014 U	---	---	0.00013 U	0.00012 UJ	---	---	0.00011 UJ	---	---	0.00013 U	---
2-Hexanone	0.00088	0.00087 U	---	---	0.00098 U	---	---	0.00096 U	0.00084 U	---	---	0.00079 U	---	---	0.00091 U	---
Acetone	0.29	0.034	---	---	0.11 J+	---	---	0.17 J+	0.033 J	---	---	0.0071	---	---	0.013	---
Benzene	0.00023	0.00019 U	---	---	0.00034 J	---	---	0.001 J	0.00017 UJ	---	---	0.00017 U	---	---	0.00019 U	---
Bromochloromethane	0.0021	0.00016 U	---	---	0.00018 U	---	---	0.00017 U	0.00015 UJ	---	---	0.00014 U	---	---	0.00017 U	---
Bromodichloromethane	0.000036	0.00035 U	---	---	0.0004 U	---	---	0.00038 U	0.00034 UJ	---	---	0.00032 U	---	---	0.00037 U	---
Bromoform	0.00087	0.00012 U	---	---	0.00014 U	---	---	0.00013 U	0.00012 U	---	---	0.00011 U	---	---	0.00013 U	---
Bromomethane	0.00019	0.0003 U	---	---	0.00033 U	---	---	0.00032 U	0.00029 U	---	---	0.00027 U	---	---	0.00031 U	---
Carbon Disulfide	0.024	0.0004 U	---	---	0.00045 UJ	---	---	0.0016 J	0.00039 U	---	---	0.00036 U	---	---	0.00042 U	---
Carbon Tetrachloride	0.00018	0.0004 U	---	---	0.00045 U	---	---	0.00043 U	0.00039 UJ	---	---	0.00036 U	---	---	0.00042 U	---
Chlorobenzene	0.0053	0.00013 U	---	---	0.00015 U	---	---	0.00014 U	0.00013 UJ	---	---	0.00012 U	---	---	0.00014 U	---
Chloroethane	0.59	0.00033 U	---	---	0.00037 U	---	---	0.00036 U	0.00031 U	---	---	0.0003 U	---	---	0.00034 U	---
Chloroform	0.000061	0.0002 U	---	---	0.00022 U	---	---	0.00021 U	0.00019 UJ	---	---	0.00018 U	---	---	0.0002 U	---
Chloromethane	0.0049	0.00035 U	---	---	0.0004 U	---	---	0.00038 U	0.00034 U	---	---	0.00032 U	---	---	0.00037 U	---
Cis-1,2-Dichloroethylene	0.0011	0.0002 U	---	---	0.00023 U	---	---	0.00023 U	0.0002 UJ	---	---	0.00019 U	---	---	0.00021 U	---
Cis-1,3-Dichloropropene	--	0.00014 U	---	---	0.00016 U	---	---	0.00015 U	0.00013 UJ	---	---	0.00013 U	---	---	0.00015 U	---
Cyclohexane	1.3	0.00043 U	---	---	0.00048 U	---	---	0.00047 U	0.00041 UJ	---	---	0.00039 U	---	---	0.00045 U	---
Dibromochloromethane	0.00023	0.00014 U	---	---	0.00016 U	---	---	0.00015 U	0.00013 U	---	---	0.00013 U	---	---	0.00015 U	---
Dichlorodifluoromethane	0.03	0.0003 U	---	---	0.00033 U	---	---	0.00033 U	0.00029 U	---	---	0.00027 U	---	---	0.00031 U	---
Ethylbenzene	0.0017	0.00017 U	---	---	0.00019 U	---	---	0.00018 U	0.00016 UJ	---	---	0.00015 U	---	---	0.00018 U	---
Isopropylbenzene (Cumene)	0.074	0.00016 U	---	---	0.00018 U	---	---	0.00017 U	0.00015 UJ	---	---	0.00014 U	---	---	0.00017 U	---
M,P-Xylene	--	0.0001 U	---	---	0.00011 U	---	---	0.00011 U	0.000099 UJ	---	---	0.000093 U	---	---	0.00021 J	---
Methyl Acetate	0.41	0.0024 J	---	---	0.023 J	---	---	0.0018 J	0.0023 J	---	---	0.00076 U	---	---	0.00088 U	---
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0025 J	---	---	0.0053	---	---	0.0065	0.0026 J	---	---	0.00065 U	---	---	0.00075 U	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0021 U	---	---	0.0023 U	---	---	0.0023 U	0.002 UJ	---	---	0.0019 U	---	---	0.0022 U	---
Methylcyclohexane	--	0.00046 U	---	---	0.00052 U	---	---	0.00051 U	0.00045 UJ	---	---	0.00042 U	---	---	0.00049 U	---
Methylene Chloride	0.0027	0.0003 U	---	---	0.00033 U	---	---	0.00033 U	0.00029 UJ	---	---	0.00027 U	---	---	0.00031 U	---
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00015 U	---	---	0.00017 U	---	---	0.00016 U	0.00014 UJ	---	---	0.00014 U	---	---	0.00016 U	---
Styrene	0.13	0.00014 U	---	---	0.00016 U	---	---	0.00015 U	0.00013 UJ	---	---	0.00013 U	---	---	0.00015 U	---
Tert-Butyl Methyl Ether	0.0032	0.00016 U	---	---	0.00018 U	---	---	0.00017 U	0.00015 U	---	---	0.00014 U	---	---	0.00017 U	---
Tetrachloroethylene (PCE)	0.0018	0.00026 U	---	---	0.00029 U	---	---	0.00028 U	0.00025 UJ	---	---	0.00024 U	---	---	0.00027 U	---
Toluene	0.076	0.00018 U	---	---	0.0002 UJ	---	---	0.00034 J	0.00017 UJ	---	---	0.00016 U	---	---	0.00037 J	---
Trans-1,2-Dichloroethene	0.011	0.00036 U	---	---	0.00041 U	---	---	0.0004 U	0.00035 UJ	---	---	0.00033 U	---	---	0.00038 U	---
Trans-1,3-Dichloropropene	--	0.000093 U	---	---	0.0001 U	---	---	0.0001 U	0.00009 UJ	---	---	0.000085 U	---	---	0.000097 U	---
Trichloroethylene (TCE)	0.0001	0.00024 U	---	---	0.00027 U	---	---	0.00027 U	0.00023 UJ	---	---	0.00022 U	---	---	0.00025 U	---
Trichlorofluoromethane	0.33	0.00032 U	---	---	0.00036 U	---	---	0.00035 U	0.00031 U	---	---	0.00029 U	---	---	0.00033 U	---
Vinyl Chloride	0.0000065	0.00036 U	---	---	0.00041 U	---	---	0.0004 U	0.00035 U	---	---	0.00033 U	---	---	0.00038 U	---

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-033	CFMW-034	CFMW-034	CFMW-034-DUP	CFMW-035	CFMW-035	CFMW-035-DUP	CFMW-037	CFMW-037	CFMW-038	CFMW-038	CFMW-038	CFMW-040	CFMW-040	CFMW-040
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		7/1/2016	5/31/2016	5/31/2016	5/31/2016	6/1/2016	6/1/2016	6/1/2016	6/24/2016	6/24/2016	6/25/2016	6/25/2016	6/25/2016	6/28/2016	6/28/2016	6/28/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	2.6E-07 J	4.8E-07 J	--	2.2E-08 U	0.0000269	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	1.03E-06 J	2.01E-06 J	--	2.6E-08 U	0.0000998	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	4.1E-08 J	7.8E-08 J	--	2.7E-08 U	3.4E-07 U	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	7.3E-08 J	1.4E-07 J	--	4.8E-08 J	2.56E-06 J	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	2.1E-08 U	5.7E-08 J	--	2.1E-08 U	3.42E-06 J	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	2.4E-08 U	7.6E-08 J	--	1.7E-08 U	7.6E-07 J	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	7.5E-08 J	1.2E-07 J	--	2E-08 U	5.07E-06 J	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	2.6E-08 U	2.6E-08 U	--	1.8E-08 U	2.1E-07 U	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	9.1E-08 J	1.1E-07 J	--	7.1E-08 J	0.0000046 J	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	2.5E-08 U	2.8E-08 U	--	2.7E-08 U	1.59E-06 J	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	3.5E-08 U	4.1E-08 U	--	3.4E-08 U	1.21E-06 J	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	2.6E-08 U	2.6E-08 U	--	3.1E-08 J	5.4E-07 J	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	2.6E-08 U	2.9E-08 U	--	2.8E-08 U	1.71E-06 J	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	4.8E-08 J	8.9E-08 J	--	4.4E-08 U	5.26E-06	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	2.3E-08 U	2.9E-08 U	--	3.4E-08 U	5.8E-07 J	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	7.9E-07 J	0.0000017 J	--	3.4E-07 J	0.0000873	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	2.04E-06 J	3.55E-06 J	--	9.3E-07 J	0.000181	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	3.2E-07 J	6.8E-07 J	--	8E-08 J	0.0000233	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	2.8E-07 J	5.9E-07 J	--	1.3E-07 J	0.0000398	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	9.3E-07 J	1.99E-06 J	--	2.7E-08 U	0.0000972	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	0.0000118	0.0000212	--	3.02E-06 J	0.000664	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	3.5E-08 U	4.1E-08 U	--	3.4E-08 U	4.67E-06 J	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	1.3E-07 J	1.4E-07 J	--	2.8E-08 U	0.0000125	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	1.2E-07 J	1.3E-07 J	--	1.4E-07 J	0.0000241	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	2.8E-08 U	3.2E-08 J	--	5.9E-08 J	5.61E-06	--
GENERAL CHEMISTRY																
Fluoride	12	--	42.4 J	42.8 J	21.6 J-	111 J	98.3 J	123 J	39.2 J+	192 J	25.8 J+	22.3 J+	--	22.1 J+	27.6 J+	--
Cyanide	0.0015	--	0.13	0.11	0.019 J	0.017 U	0.22 J	0.13 J	0.13	0.09 J	0.035 J	0.024 J	--	0.058 J	0.12	--
METALS																
Aluminum	3000	--	6850	5610	10200	9430	27200	18500	8840	51200	12000	9980	--	13100	13700	--
Antimony	0.035	--	0.42 U	0.41 U	0.31 U	0.46 UJ	0.41 UJ	0.44 UJ	0.47 U	0.46 U	0.44 U	0.44 U	--	0.36 UJ	0.34 UJ	--
Arsenic	0.0015	--	3.7	3.2	4.4	3.9	5.1	5	3.9	5.2	3.8	4.4	--	5.1	3.6	--
Barium	16	--	66.4	53.4	88.7	42.4	93.4	81.2	108	76.3	189	92.6	--	116	122	--
Beryllium	1.9	--	0.3 J	0.21 J	0.45	0.29 J	0.85	0.62	0.38 J	0.7	0.42 J	0.4 J	--	0.56	0.54	--
Cadmium	0.069	--	0.32 U	0.31 U	0.25 U	0.35 U	0.44 J	0.33 U	0.35 U	0.65 J	0.33 U	0.33 U	--	0.27 U	0.26 U	--
Calcium	--	--	41900	37600	15200	34000	14000	21000	35900	7820	12700	24500	--	2260	3720	--
Chromium, Total	--	--	7.3	7.3	10.6	10	15.2	15.1	8.8	12.4	8.3	9.2	--	11.8 J-	10.2 J-	--
Cobalt	0.027	--	4.1	4	6.6	6.5	6.2	6.2	4.8	4.4	4.7	5.7	--	6.2 J-	4.1 J-	--
Copper	2.8	--	9.4	8.9	16.1	13.8	25.8	26.7	12.7	14.3	12.4	14.3	--	11.2 J-	15.3 J-	--
Iron	35	--	10300	9540	16000	16600	16400	20500	11800	8560	14500	14500	--	17600	10100	--
Lead	400	47.3	9.6	6.7	9.3	7.4	21.7	21	9.8	20.1	7	8.2	12.4	22.4 J-	57.7 J-	184
Magnesium	--	--	10500	9240	11100	12400	8430	10100	11200	4610	8820	9580	--	9180	5540	--
Manganese	2.8	--	310	305	472	417	364	390	391	178	445	391	--	498	753	--
Mercury	0.0033	--	0.018	0.026	0.048 J	0.018 J	0.025	0.021	0.012 U	0.013 U	0.013 U	0.017 J	--	0.012 U	0.012 J	--
Nickel	2.6	--	11	10	12.8	13.4	47.4	29.9	10.6	81.8	9	10.8	--	11.5 J-	21.8 J-	--
Potassium	--	--	440	388	901	502	956	823	640	425	764	718	--	1010	621	--
Selenium	0.052	--	0.39 U	0.39 U	0.31 U	0.43 U	0.38 U	0.41 U	0.44 U	0.43 U	0.41 U	0.41 U	--	0.34 U	0.32 U	--
Silver	0.08	--	0.77 U	0.76 U	0.6 U	0.85 U	0.75 UJ	1.5 J	0.85 U	0.84 U	0.8 U	0.8 U	--	0.66 U	0.63 U	--
Sodium	--	--	107	38.7 U	285	43.3 U	133	84.9 J	43.5 U	182	40.9 U	40.7 U	--	33.7 U	32.2 U	--
Thallium	0.0014	--	0.16 U	0.16 U	0.12 U	0.17 U	0.15 U	0.17 U	0.18 U	0.17 U	0.17 U	0.16 U	--	0.14 U	0.13 U	--
Vanadium	8.6	--	7.6	6	10.8	8.2	21.1	16.4	9	25.1	10.6	10.2	--	13.7	11.6	--
Zinc	37	--	29	26.7	42.2	40.4	151 J	55.6 J	33.4	64.2	39.8	43.2	--	39.2	52.3	--

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Table C-1a
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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-033	CFMW-034	CFMW-034	CFMW-034-DUP	CFMW-035	CFMW-035	CFMW-035-DUP	CFMW-037	CFMW-037	CFMW-038	CFMW-038	CFMW-038	CFMW-040	CFMW-040	CFMW-040
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		7/1/2016	5/31/2016	5/31/2016	5/31/2016	6/1/2016	6/1/2016	6/1/2016	6/24/2016	6/24/2016	6/25/2016	6/25/2016	6/25/2016	6/28/2016	6/28/2016	6/28/2016
PESTICIDES																
Aldrin	0.00015	---	---	0.00087 U	---	---	0.00089 U	0.00087 U	---	0.00094 U	---	0.00087 U	---	---	0.00089 U	---
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	---	---	0.00066 U	---	---	0.00067 U	0.00066 U	---	0.00071 U	---	0.00066 U	---	---	0.00067 U	---
Alpha Endosulfan	--	---	---	0.001 U	---	---	0.001 U	0.001 U	---	0.001 U	---	0.001 U	---	---	0.001 U	---
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	---	---	0.0007 U	---	---	0.00072 U	0.0007 U	---	0.00076 U	---	0.0007 U	---	---	0.00071 U	---
Beta Endosulfan	--	---	---	0.0011 U	---	---	0.0012 U	0.0011 U	---	0.0012 U	---	0.0011 U	---	---	0.0012 U	---
cis-Chlordane	--	---	---	0.0012 U	---	---	0.0012 U	0.0012 U	---	0.0013 U	---	0.0012 U	---	---	0.0012 U	---
Delta BHC (Delta Hexachlorocyclohexane)	--	---	---	0.00079 U	---	---	0.00081 U	0.00078 U	---	0.00085 U	---	0.00079 U	---	---	0.0008 U	---
Dieldrin	0.000071	---	---	0.00094 U	---	---	0.00096 U	0.00094 U	---	0.001 U	---	0.00094 U	---	---	0.00096 U	---
Endosulfan Sulfate	--	---	---	0.00084 U	---	---	0.00086 U	0.00084 U	---	0.00091 U	---	0.00084 U	---	---	0.00086 U	---
Endrin	0.0092	---	---	0.00092 U	---	---	0.00094 U	0.00091 U	---	0.00099 U	---	0.00092 U	---	---	0.00093 U	---
Endrin Aldehyde	--	---	---	0.0009 U	---	---	0.00092 U	0.00088 U	---	0.00097 U	---	0.0009 U	---	---	0.00091 U	---
Endrin Ketone	--	---	---	0.001 U	---	---	0.001 U	0.001 U	---	0.0011 U	---	0.001 U	---	---	0.001 U	---
Gamma Bhc (Lindane)	0.00024	---	---	0.00065 U	---	---	0.00066 U	0.00064 U	---	0.0007 U	---	0.00065 U	---	---	0.00066 U	---
Heptachlor	0.00012	---	---	0.00093 U	---	---	0.00095 U	0.00092 U	---	0.001 U	---	0.00093 U	---	---	0.00094 U	---
Heptachlor Epoxide	0.000028	---	---	0.0014 U	---	---	0.0014 U	0.0014 U	---	0.0015 U	---	0.0014 U	---	---	0.0014 U	---
Methoxychlor	0.2	---	---	0.0015 U	---	---	0.0016 U	0.0015 U	---	0.0017 U	---	0.0015 U	---	---	0.0016 U	---
P,P'-DDD	0.0075	---	---	0.00095 U	---	---	0.00097 U	0.00095 U	---	0.001 U	---	0.00095 U	---	---	0.00097 U	---
P,P'-DDE	0.011	---	---	0.001 U	---	---	0.0011 U	0.001 U	---	0.0011 U	---	0.001 U	---	---	0.0011 U	---
P,P'-DDT	0.077	---	---	0.00074 U	---	---	0.00076 U	0.00074 U	---	0.0008 U	---	0.00074 U	---	---	0.00076 U	---
Toxaphene	0.011	---	---	0.021 U	---	---	0.021 U	0.021 U	---	0.023 U	---	0.021 U	---	---	0.021 U	---
trans-Chlordane	--	---	---	0.0016 U	---	---	0.0016 U	0.0016 U	---	0.0017 U	---	0.0016 U	---	---	0.0016 U	---
PCB's																
PCB-1016 (Aroclor 1016)	0.013	---	0.0097 U	0.0096 U	0.0094 U	0.01 U	0.0098 U	0.0096 U	0.01 U	0.01 U	0.0098 U	0.0096 U	---	0.0097 U	0.0098 U	---
PCB-1221 (Aroclor 1221)	0.00008	---	0.0097 U	0.0096 U	0.0094 U	0.01 U	0.0098 U	0.0096 U	0.01 U	0.01 U	0.0098 U	0.0096 U	---	0.0097 U	0.0098 U	---
PCB-1232 (Aroclor 1232)	0.00008	---	0.0097 U	0.0096 U	0.0094 U	0.01 U	0.0098 U	0.0096 U	0.01 U	0.01 U	0.0098 U	0.0096 U	---	0.0097 U	0.0098 U	---
PCB-1242 (Aroclor 1242)	0.0012	---	0.0097 U	0.0096 U	0.0094 U	0.01 U	0.0098 U	0.0096 U	0.01 U	0.01 U	0.0098 U	0.0096 U	---	0.0097 U	0.0098 U	---
PCB-1248 (Aroclor 1248)	0.0012	---	0.0097 U	0.0096 U	0.0094 U	0.01 U	0.0098 U	0.0096 U	0.01 U	0.01 U	0.0098 U	0.0096 U	---	0.0097 U	0.0098 U	---
PCB-1254 (Aroclor 1254)	0.002	---	0.01 U	0.0099 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.011 U	0.01 U	0.0099 U	---	0.01 U	0.01 U	---
PCB-1260 (Aroclor 1260)	0.0055	---	0.01 U	0.0099 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.011 U	0.01 U	0.0099 U	---	0.01 U	0.01 U	---
PCB-1262 (Aroclor 1262)	--	---	0.01 U	0.0099 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.011 U	0.01 U	0.0099 U	---	0.01 U	0.01 U	---
PCB-1268 (Aroclor 1268)	--	---	0.01 U	0.0099 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.011 U	0.01 U	0.0099 U	---	0.01 U	0.01 U	---
Polychlorinated Biphenyl (PCBs)	--	---	0.01 U	0.0099 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.011 U	0.01 U	0.0099 U	---	0.01 U	0.01 U	---
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	---	0.027 U	0.026 U	0.026 U	0.028 UJ	0.14 U	0.13 U	0.028 U	0.14 U	0.027 U	0.027 U	---	0.027 U	0.027 U	---
1,4-Dioxane (P-Dioxane)	0.000094	---	0.096 U	0.095 U	0.093 U	0.1 UR	0.49 U	0.47 U	0.1 U	0.51 U	0.097 U	0.095 U	---	0.096 U	0.097 U	---
2,3,4,6-Tetrachlorophenol	0.018	---	0.034 U	0.034 U	0.033 U	0.035 UJ	0.17 U	0.17 U	0.035 U	0.18 U	0.034 U	0.034 U	---	0.034 U	0.034 U	---
2,4,5-Trichlorophenol	0.4	---	0.036 U	0.036 U	0.035 U	0.037 UJ	0.18 U	0.18 U	0.037 U	0.19 U	0.036 U	0.035 U	---	0.036 U	0.036 U	---
2,4,6-Trichlorophenol	0.0012	---	0.01 U	0.01 U	0.0099 U	0.011 UJ	0.052 U	0.05 U	0.011 U	0.055 U	0.01 U	0.01 U	---	0.01 U	0.01 U	---
2,4-Dichlorophenol	0.0023	---	0.0085 U	0.0084 U	0.0082 U	0.0089 U	0.043 U	0.042 U	0.0088 U	0.045 U	0.0085 U	0.0084 U	---	0.0085 U	0.0086 U	---
2,4-Dimethylphenol	0.042	---	0.079 U	0.078 U	0.076 U	0.083 U	0.4 U	0.39 U	0.082 U	0.42 U	0.08 U	0.078 U	---	0.079 U	0.08 U	---
2,4-Dinitrophenol	0.0044	---	0.27 U	0.27 U	0.26 U	0.28 UJ	1.4 U	1.3 U	0.28 U	1.5 U	0.27 U	0.27 U	---	0.27 U	0.27 U	---
2,4-Dinitrotoluene	0.00032	---	0.014 U	0.014 U	0.014 U	0.015 U	0.072 U	0.07 U	0.015 U	0.076 U	0.014 U	0.014 U	---	0.014 U	0.014 U	---
2,6-Dinitrotoluene	0.000067	---	0.019 U	0.019 U	0.019 U	0.02 U	0.097 U	0.094 U	0.02 U	0.1 U	0.019 U	0.019 U	---	0.019 U	0.019 U	---
2-Chloronaphthalene	0.39	---	0.0081 U	0.0081 U	0.0079 U	0.0085 U	0.041 U	0.04 U	0.0085 U	0.044 U	0.0082 U	0.0081 U	---	0.0081 U	0.0082 U	---
2-Chlorophenol	0.0089	---	0.0091 U	0.009 U	0.0088 U	0.0095 U	0.046 U	0.045 U	0.0095 U	0.049 U	0.0092 U	0.0091 U	---	0.0091 U	0.0092 U	---
2-Methylnaphthalene	0.019	---	0.0079 U	0.008 J	0.0077 U	0.0083 U	0.09 J	0.054 J	0.0082 U	0.096 J	0.008 U	0.0079 U	---	0.0079 U	0.031 J	---
2-Methylphenol (O-Cresol)	0.075	---	0.016 U	0.016 U	0.015 U	0.016 U	0.079 U	0.077 U	0.016 U	0.084 U	0.016 U	0.016 U	---	0.016 U	0.016 U	---
2-Nitroaniline	0.008	---	0.012 U	0.012 U	0.011 U	0.012 U	0.06 U	0.058 U	0.012 U	0.063 U	0.012 U	0.012 U	---	0.012 U	0.012 U	---
2-Nitrophenol	--	---	0.012 U	0.012 U	0.012 U	0.013 UJ	0.061 U	0.06 U	0.013 U	0.064 U	0.012 U	0.012 U	---	0.012 U	0.012 U	---
3- And 4- Methylphenol (Total)	--	---	0.0096 U	0.0095 U	0.0093 U	0.01 U	0.048 U	0.047 U	0.0099 U	0.051 U	0.0096 U	0.0095 U	---	0.0096 U	0.0097 U	---
3,3'-Dichlorobenzidine	0.00082	---	0.04 U	0.04 U	0.039 U	0.042 U	0.2 U	0.2 U	0.042 U	0.21 U	0.04 U	0.04 U	---	0.04 U	0.04 U	---
3-Nitroaniline	--	---	0.011 U	0.011 U	0.01 U	0.011 U	0.054 U	0.053 U	0.011 U	0.057 U	0.011 U	0.011 U	---	0.011 U	0.011 U	---
4,6-Dinitro-2-Methylphenol	0.00026	---	0.096 U	0.095 U	0.093 U	0.1 UJ	0.49 U	0.47 U	0.1 U	0.51 U	0.097 U	0.095 U	---	0.096 U	0.097 U	---
4-Bromophenyl Phenyl Ether	--	---	0.011 U	0.011 U	0.011 U	0.012 UJ	0.057 U	0.056 U	0.012 U	0.06 U	0.011 U	0.011 U	---	0.011 U	0.011 U	---
4-Chloro-3-Methylphenol	0.17	---	0.015 U	0.015 U	0.015 U	0.016 U	0.078 U	0.076 U	0.016 U	0.083 U	0.016 U	0.015 U	---	0.015 U	0.016 U	---

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-033	CFMW-034	CFMW-034	CFMW-034-DUP	CFMW-035	CFMW-035	CFMW-035-DUP	CFMW-037	CFMW-037	CFMW-038	CFMW-038	CFMW-038	CFMW-040	CFMW-040	CFMW-040
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		7/1/2016	5/31/2016	5/31/2016	5/31/2016	6/1/2016	6/1/2016	6/1/2016	6/24/2016	6/24/2016	6/25/2016	6/25/2016	6/25/2016	6/28/2016	6/28/2016	6/28/2016
4-Chloroaniline	0.00016	---	0.0092 U	0.0092 U	0.0089 U	0.0097 U	0.047 U	0.046 U	0.0096 U	0.049 U	0.0093 U	0.0092 U	---	0.0092 U	0.0093 U	---
4-Chlorophenyl Phenyl Ether	--	---	0.011 U	0.011 U	0.01 U	0.011 U	0.055 U	0.053 U	0.011 U	0.058 U	0.011 U	0.011 U	---	0.011 U	0.011 U	---
4-Nitroaniline	0.0016	---	0.014 U	0.013 U	0.013 U	0.014 U	0.069 U	0.067 U	0.014 U	0.073 U	0.014 U	0.013 U	---	0.014 U	0.014 U	---
4-Nitrophenol	--	---	0.17 U	0.17 U	0.17 U	0.18 U	0.88 U	0.85 U	0.18 U	0.92 U	0.17 U	0.17 U	---	0.17 U	0.17 U	---
Acenaphthene	0.55	---	0.04 J	0.064 J	0.012 J	0.03 J	0.9 J	0.47 J	0.013 J	0.9 J	0.0083 U	0.0086 U	---	0.0093 J	0.14 J	---
Acenaphthylene	--	---	0.0092 U	0.0092 U	0.0089 U	0.0097 U	0.047 U	0.046 U	0.0096 U	0.049 U	0.0093 U	0.0092 U	---	0.0092 U	0.0093 U	---
Acetophenone	0.058	---	0.0078 U	0.0078 U	0.0076 U	0.0082 U	0.04 U	0.039 U	0.0081 U	0.042 U	0.0079 U	0.0078 U	---	0.0078 U	0.0079 U	---
Anthracene	5.8	---	0.06 J	0.1 J	0.033 UJ	0.053 J	1.7 J	0.93 J	0.0[illegible]	2	0.034 U	0.034 U	---	0.034 U	0.26 J	---
Atrazine	0.0002	---	0.016 U	0.016 U	0.015 U	0.017 U	0.081 U	0.078 U	0.0[illegible]	0.085 U	0.016 U	0.016 U	---	0.016 U	0.016 U	---
Benzaldehyde	0.0041	---	0.027 U	0.027 U	0.027 U	0.029 U	0.14 U	0.14 U	0.028 U	0.15 U	0.028 U	0.027 U	---	0.027 U	0.028 U	---
Benzo(A)Anthracene	0.011	---	0.24 J	0.43	0.066 J	0.28 J-	10 J	5.6 J	0.24	17	0.03 U	0.11	---	0.03 U	1.7	---
Benzo(A)Pyrene	0.018	---	0.25 J	0.43	0.073 J	0.39 J-	14 J	7.5 J	0.29	19	0.011 U	0.13	---	0.017 J	2.3	---
Benzo(B)Fluoranthene	0.18	---	0.63 J	1.1	0.086 J	0.49 J-	18 J	9 J	0.55	27	0.014 U	0.21	---	0.039	5.1	---
Benzo(G,H,I)Perylene	--	---	0.26 J	0.45	0.08 J	0.31 J+	13 J	6.5 J	0.36 J	21	0.021 U	0.11 J	---	0.025 J	4.4	---
Benzo(K)Fluoranthene	1.8	---	0.19 J	0.38	0.031 J	0.19	6.5	4 J	0.2	10	0.016 U	0.07	---	0.016 U	1.9	---
Benzyl Butyl Phthalate	0.24	---	0.011 U	0.21 J	0.011 U	0.012 U	0.056 U	0.055 U	0.012 U	5.6	0.011 U	0.011 U	---	0.011 U	0.038 J	---
Biphenyl (Diphenyl)	0.00087	---	0.031 U	0.03 U	0.03 U	0.032 U	0.16 U	0.15 U	0.032 U	0.16 U	0.031 U	0.03 U	---	0.031 U	0.031 U	---
Bis(2-Chloroethoxy) Methane	0.0013	---	0.011 U	0.011 U	0.011 U	0.012 U	0.057 U	0.055 U	0.012 U	0.06 U	0.011 U	0.011 U	---	0.011 U	0.011 U	---
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	---	0.0085 U	0.0084 U	0.0082 U	0.0089 U	0.043 U	0.042 U	0.0088 U	0.045 U	0.0085 U	0.0084 U	---	0.0085 U	0.0086 U	---
Bis(2-Chloroisopropyl) Ether	0.026	---	0.015 U	0.015 U	0.014 U	0.015 UR	0.07[illegible]	0.073 U	0.015 U	0.079 U	0.015 U	0.015 U	---	0.015 U	0.015 U	---
Bis(2-Ethylhexyl) Phthalate	1.3	---	0.014 U	0.014 U	0.014 U	0.015 U	0.2 J	0.069 U	0.14 J	2	0.014 U	0.014 U	---	0.014 U	0.094 J	---
Caprolactam	0.25	---	0.026 U	0.026 U	0.025 U	0.027 UJ	0.13 U	0.13 U	0.027 UJ	0.14 U	0.026 UJ	0.026 UJ	---	0.026 U	0.026 U	---
Carbazole	--	---	0.044 J	0.074 J	0.0086 UJ	0.051 J+	1.8 J	0.97 J	0.048 J	2.3	0.009 U	0.0088 U	---	0.0089 U	0.78	---
Chrysene	9	---	0.41 J	0.75	0.085 J	0.42 J-	14 J	7.4 J	0.38	21	0.0059 U	0.15 J	---	0.019 J	2.9	---
Dibenz(A,H)Anthracene	0.096	---	0.1 J	0.17	0.019 J	0.061 J+	3 J	1.4 J	0.065	5.1	0.019 U	0.019 U	---	0.019 U	0.85	---
Dibenzofuran	0.015	---	0.014 J	0.02 J	0.011 U	0.01[illegible] U	0.24 J	0.14 J	0.011 U	0.25 J	0.011 U	0.011 U	---	0.011 U	0.059 J	---
Diethyl Phthalate	0.61	---	0.01 U	0.01 U	0.0099 U	0.01[illegible] U	0.052 U	0.05 U	0.011 U	0.055 U	0.01 U	0.01 U	---	0.01 U	0.01 U	---
Dimethyl Phthalate	--	---	0.01 U	0.01 U	0.01 U	0.01[illegible] U	0.053 U	0.052 U	0.011 U	0.056 U	0.011 U	0.01 U	---	0.01 U	0.011 U	---
Di-N-Butyl Phthalate	0.23	---	0.011 U	0.011 U	0.01 U	0.011 U	0.055 U	0.053 U	0.011 U	0.058 U	0.011 U	0.011 U	---	0.011 U	0.027 J	---
Di-N-Octylphthalate	5.7	---	0.018 U	0.018 U	0.018 U	0.019 U	0.093 U	0.09 U	0.019 U	0.099 U	0.018 U	0.018 U	---	0.018 U	0.018 U	---
Fluoranthene	8.9	---	0.44 J	0.71	0.12 J	0.58	20 J	11 J	0.34 J	22	0.011 U	0.15 J	---	0.022 J	3	---
Fluorene	0.54	---	0.027 J	0.044 J	0.007[illegible]	0.015 J	0.54 J	0.31 J	0.0081 U	0.53 J	0.0079 U	0.0078 U	---	0.0078 U	0.11 J	---
Hexachlorobenzene	0.00012	---	0.015 U	0.014 U	0.0[illegible]	0.015 UJ	0.074 U	0.072 U	0.015 U	0.078 U	0.015 U	0.014 U	---	0.015 U	0.015 U	---
Hexachlorobutadiene	0.00027	---	0.01 U	0.01 U	0.0[illegible]	0.011 U	0.051 U	0.05 U	0.011 U	0.054 U	0.01 U	0.01 U	---	0.01 U	0.01 U	---
Hexachlorocyclopentadiene	0.00013	---	0.022 U	0.022 U	0.022 UJ	0.023 U	0.11 U	0.11 U	0.023 U	0.12 U	0.023 U	0.022 U	---	0.022 U	0.023 U	---
Hexachloroethane	0.0002	---	0.013 U	0.013 U	0.013 U	0.014 U	0.067 U	0.065 U	0.014 U	0.07 U	0.013 U	0.013 U	---	0.013 U	0.013 U	---
Indeno(1,2,3-C,D)Pyrene	0.98	---	0.27 J	0.47	0.083 J	0.32 J+	13 J	6.6 J	0.28	20	0.024 U	0.1	---	0.028 J	3.6	---
Isophorone	0.026	---	0.0077 U	0.007[illegible]	0.0075 U	0.0081 U	0.039 U	0.038 U	0.008 U	0.041 U	0.0078 U	0.0077 U	---	0.0077 U	0.0078 U	---
Naphthalene	0.00054	---	0.016 J	0.014 J	0.0088 UJ	0.012 J	0.16 J	0.1 J	0.0095 U	0.22 J	0.0092 U	0.0091 U	---	0.0091 U	0.056 J	---
Nitrobenzene	0.000092	---	0.011 U	0.011 U	0.011 U	0.012 U	0.057 U	0.056 U	0.012 U	0.06 U	0.011 U	0.011 U	---	0.011 U	0.011 U	---
N-Nitrosodi-N-Propylamine	0.0000081	---	0.012 U	0.012 U	0.012 U	0.013 U	0.061 U	0.06 U	0.013 U	0.064 U	0.012 U	0.012 U	---	0.012 U	0.012 U	---
N-Nitrosodiphenylamine	0.067	---	0.033 U	0.032 U	0.032 U	0.034 UJ	0.17 U	0.16 U	0.034 U	0.17 U	0.033 U	0.032 U	---	0.033 U	0.033 U	---
Pentachlorophenol	0.000057	---	0.043 U	0.043 U	0.042 U	0.045 UJ	0.22 U	0.21 U	0.045 U	0.23 U	0.044 U	0.043 U	---	0.043 U	0.044 U	---
Phenanthrene	--	---	0.28 J	0.45	0.073 J	0.32 J-	12 J	6.4 J	0.16 J	11	0.0096 U	0.068 J	---	0.012 J	1.4	---
Phenol	0.33	---	0.012 U	0.012 U	0.011 U	0.012 U	0.06 U	0.058 U	0.012 U	0.063 U	0.012 U	0.012 U	---	0.012 U	0.012 U	---
Pyrene	1.3	---	0.37 J	0.65	0.13 J	0.69	23 J	13 J	0.44	35	0.016 U	0.17 J	---	0.023 J	3	---
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	---	0.00038 U	---	0.00038 U	0.00042 U	---	---	0.0003 U	---	0.00029 U	---	---	0.00038 U	---	---
1,1,2,2-Tetrachloroethane	0.00003	---	0.00017 U	---	0.00017 U	0.00019 U	---	---	0.00013 U	---	0.00013 U	---	---	0.00017 U	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	---	0.00044 U	---	0.00044 U	0.00049 U	---	---	0.00034 U	---	0.00033 U	---	---	0.00043 U	---	---
1,1,2-Trichloroethane	0.000013	---	0.00028 U	---	0.00028 U	0.00031 U	---	---	0.00022 U	---	0.00021 U	---	---	0.00028 U	---	---
1,1-Dichloroethane	0.00078	---	0.00034 U	---	0.00034 U	0.00038 U	---	---	0.00027 U	---	0.00026 U	---	---	0.00034 U	---	---
1,1-Dichloroethene	0.01	---	0.00041 U	---	0.00041 U	0.00046 U	---	---	0.00032 U	---	0.00031 U	---	---	0.00041 U	---	---
1,2,3-Trichlorobenzene	0.0021	---	0.00011 U	---	0.00011 U	0.00012 U	---	---	0.000086 U	---	0.000083 U	---	---	0.00011 U	---	---
1,2,4-Trichlorobenzene	0.0012	---	0.00032 U	---	0.00032 U	0.00036 U	---	---	0.00025 U	---	0.00024 U	---	---	0.00032 U	---	---
1,2-Dibromo-3-Chloropropane	0.00000014	---	0.00047 U	---	0.00047 U	0.00052 U	---	---	0.00037 U	---	0.00035 U	---	---	0.00046 U	---	---

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-033	CFMW-034	CFMW-034	CFMW-034-DUP	CFMW-035	CFMW-035	CFMW-035-DUP	CFMW-037	CFMW-037	CFMW-038	CFMW-038	CFMW-038	CFMW-040	CFMW-040	CFMW-040
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		7/1/2016	5/31/2016	5/31/2016	5/31/2016	6/1/2016	6/1/2016	6/1/2016	6/24/2016	6/24/2016	6/25/2016	6/25/2016	6/25/2016	6/28/2016	6/28/2016	6/28/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.00012 U	...	0.00012 U	0.00013 U	...	...	0.000094 U	...	0.000091 U	...	...	0.00012 U	...	...
1,2-Dichlorobenzene	0.03	...	0.00014 U	...	0.00014 U	0.00016 U	...	...	0.00011 U	...	0.00011 U	...	...	0.00014 U	...	...
1,2-Dichloroethane	0.000048	...	0.00011 U	...	0.00011 U	0.00012 U	...	...	0.000086 U	...	0.000083 U	...	...	0.00011 U	...	...
1,2-Dichloropropane	0.000047	...	0.00017 U	...	0.00017 U	0.00019 U	...	...	0.00013 U	...	0.00013 U	...	...	0.00017 U	...	...
1,3-Dichlorobenzene	--	...	0.00012 U	...	0.00012 U	0.00013 U	...	...	0.000094 U	...	0.000091 U	...	...	0.00012 U	...	...
1,4-Dichlorobenzene	0.00046	...	0.00013 U	...	0.00013 U	0.00014 U	...	...	0.0001 U	...	0.000098 U	...	...	0.00013 U	...	...
2-Hexanone	0.00088	...	0.00094 U	...	0.00095 U	0.001 U	...	...	0.00073 U	...	0.00071 U	...	...	0.00093 U	...	...
Acetone	0.29	...	0.0096	...	0.01	0.0012 U	...	...	0.012	...	0.017	...	...	0.022 J+	...	...
Benzene	0.00023	...	0.00043 J	...	0.00041 J	0.00022 U	...	...	0.00028 J	...	0.00031 J	...	...	0.0002 U	...	...
Bromochloromethane	0.0021	...	0.00017 U	...	0.00017 U	0.00019 U	...	...	0.00013 U	...	0.00013 U	...	...	0.00017 U	...	...
Bromodichloromethane	0.000036	...	0.00038 U	...	0.00038 U	0.00042 U	...	...	0.0003 U	...	0.00029 U	...	...	0.00038 U	...	...
Bromoform	0.00087	...	0.00013 U	...	0.00013 U	0.00014 U	...	...	0.0001 U	...	0.000098 U	...	...	0.00013 U	...	...
Bromomethane	0.00019	...	0.00032 U	...	0.00032 U	0.00036 U	...	...	0.00025 U	...	0.00024 U	...	...	0.00032 U	...	...
Carbon Disulfide	0.024	...	0.00043 U	...	0.00043 U	0.00048 U	...	...	0.00034 U	...	0.00067 J	...	...	0.00042 UJ	...	...
Carbon Tetrachloride	0.00018	...	0.00043 U	...	0.00043 U	0.00048 U	...	...	0.00034 U	...	0.00032 U	...	...	0.00042 UJ	...	...
Chlorobenzene	0.0053	...	0.00014 U	...	0.00014 U	0.00016 U	...	...	0.00011 U	...	0.00011 U	...	...	0.00014 U	...	...
Chloroethane	0.59	...	0.00035 U	...	0.00035 U	0.00039 UJ	...	...	0.00027 U	...	0.00026 U	...	...	0.00035 U	...	...
Chloroform	0.000061	...	0.00021 U	...	0.00021 U	0.00023 U	...	...	0.00016 U	...	0.00016 U	...	...	0.00021 U	...	...
Chloromethane	0.0049	...	0.00038 U	...	0.00038 U	0.00042 U	...	...	0.0003 U	...	0.00029 U	...	...	0.00038 UJ	...	...
Cis-1,2-Dichloroethylene	0.0011	...	0.00022 U	...	0.00022 U	0.00025 U	...	...	0.00017 U	...	0.00017 U	...	...	0.00022 U	...	...
Cis-1,3-Dichloropropene	--	...	0.00015 U	...	0.00015 U	0.00017 U	...	...	0.00012 U	...	0.00011 U	...	...	0.00015 U	...	...
Cyclohexane	1.3	...	0.00046 U	...	0.00046 U	0.00051 U	...	...	0.0006 J	...	0.00039 J	...	...	0.00045 U	...	...
Dibromochloromethane	0.00023	...	0.00015 U	...	0.00015 U	0.00017 U	...	...	0.00012 U	...	0.00011 U	...	...	0.00015 U	...	...
Dichlorodifluoromethane	0.03	...	0.00032 U	...	0.00032 U	0.00036 U	...	...	0.00025 U	...	0.00024 U	...	...	0.00032 U	...	...
Ethylbenzene	0.0017	...	0.00018 U	...	0.00018 U	0.0001[illegible] U	...	...	0.00014 U	...	0.00014 U	...	...	0.00018 U	...	...
Isopropylbenzene (Cumene)	0.074	...	0.00017 U	...	0.00017 U	0.00019 U	...	...	0.00013 U	...	0.00013 U	...	...	0.00017 U	...	...
M,P-Xylene	--	...	0.00024 J	...	0.00015 J	0.0003 J	...	...	0.000086 U	...	0.000083 U	...	...	0.00011 U	...	...
Methyl Acetate	0.41	...	0.0009 U	...	0.00091 U	0.001 U	...	...	0.0007 U	...	0.00068 U	...	...	0.00089 U	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.00077 U	...	0.00078 U	0.000086 U	...	...	0.0006 U	...	0.0012 J	...	...	0.0018 J	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.0022 U	...	0.0022 U	0.0025 U	...	...	0.0017 U	...	0.0017 U	...	...	0.0022 U	...	...
Methylcyclohexane	--	...	0.0012	...	0.00076 J	0.00056 U	...	...	0.00083	...	0.00068 J	...	...	0.00049 U	...	...
Methylene Chloride	0.0027	...	0.00032 U	...	0.0003[illegible]	0.00036 U	...	...	0.00025 U	...	0.00024 U	...	...	0.00032 U	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00016 U	...	0.00016 U	0.00018 U	...	...	0.00012 U	...	0.00012 U	...	...	0.00016 U	...	...
Styrene	0.13	...	0.00015 U	...	0.00015 U	0.00017 U	...	...	0.00012 U	...	0.00011 U	...	...	0.00015 U	...	...
Tert-Butyl Methyl Ether	0.0032	...	0.00017 U	...	0.00017 U	0.00019 U	...	...	0.00013 U	...	0.00013 U	...	...	0.00017 U	...	...
Tetrachloroethylene (PCE)	0.0018	...	0.00028 U	...	0.00032 J	0.00031 U	...	...	0.00022 U	...	0.00021 U	...	...	0.00028 U	...	...
Toluene	0.076	...	0.00069 J	...	0.00048 J	0.00032 J	...	...	0.00065 J	...	0.00048 J	...	...	0.00019 U	...	...
Trans-1,2-Dichloroethene	0.011	...	0.00039 U	...	0.00039 U	0.00043 U	...	...	0.0003 U	...	0.00029 U	...	...	0.00039 U	...	...
Trans-1,3-Dichloropropene	--	...	0.0001 U	...	0.0001 U	0.00011 U	...	...	0.000078 U	...	0.000076 U	...	...	0.000098 U	...	...
Trichloroethylene (TCE)	0.0001	...	0.00026 U	...	0.00026 U	0.00029 U	...	...	0.0002 U	...	0.0002 U	...	...	0.00026 U	...	...
Trichlorofluoromethane	0.33	...	0.00034 U	...	0.00034 U	0.00038 U	...	...	0.00027 U	...	0.00026 U	...	...	0.00034 U	...	...
Vinyl Chloride	0.0000065	...	0.00039 U	...	0.00039 U	0.00043 U	...	...	0.0003 U	...	0.00029 U	...	...	0.00039 UJ	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-042	CFMW-042	CFMW-042	CFMW-042-DUP	CFMW-043	CFMW-043	CFMW-043	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-045A	CFMW-045A	CFMW-047	CFMW-047	CFMW-047
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/15/2016	6/15/2016	6/15/2016	7/20/2016	7/20/2016	7/20/2016	8/12/2016	8/12/2016	6/21/2016	6/21/2016	6/21/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	22.9 J	47.5 J-	--	41.5 J	86.2 J-	84.9 J-	--	34 J+	59.8 J+	--	65.3 J	74.8 J	36.2 J	22.2 J	--
Cyanide	0.0015	0.03 J	0.87	--	0.023 J	0.11 J	0.11	--	0.02 J	0.068 J	--	0.013 U	0.1 J	0.061 J	0.037 J	--
METALS																
Aluminum	3000	10400	32000	--	13700	28400	14700	--	9620	22900	--	14700	29500	13600	14100	--
Antimony	0.035	0.43 UJ	0.54 UJ	--	0.47 UJ	0.36 UJ	0.34 UJ	--	0.37 UJ	0.44 UJ	--	0.43 U	0.46 U	0.46 UJ	0.41 UJ	--
Arsenic	0.0015	4.6 J	5.5	--	4.8 J	5.1	5	--	3.5	3.7	--	3.3	4.1	6.8 J	4.7	--
Barium	16	78.8 J	376	--	146 J	392	131	--	73.1	196	--	131	101	148	108 J	--
Beryllium	1.9	0.45	0.89	--	0.51	0.64	0.43	--	0.53	0.6	--	0.64	0.61	0.47	0.42	--
Cadmium	0.069	0.32 U	1.2 J	--	0.32 U	0.28 U	0.26 U	--	0.28 U	0.33 U	--	0.33 U	0.54 J	0.35 U	0.31 U	--
Calcium	--	12800 J	9850	--	6480 J	5980	21500	--	1560	3150	--	6420	9260	17700 J	23800 J	--
Chromium, Total	--	9.3	28.3	--	8.2	9.8	11.9	--	12.7 J+	11.3 J+	--	9.8	11.9	9.8	10.3 J	--
Cobalt	0.027	5.5	6.1	--	4.7	6.1	4.9	--	5.1	6.6	--	4.5	4.6	5.3	5.4	--
Copper	2.8	18.9 J	23.8 J+	--	16.9 J	16 J+	17.3 J+	--	13.2 J+	11.4 J+	--	13.6	16.3	16	19.9	--
Iron	35	13900	16700	--	12600	18100	14100	--	13700	18400	--	12100	10500	14200	14700	--
Lead	400	9.2	28.2 J+	20.7	14.1	10.9 J+	23.2 J+	23.7	6.7 J	10.5 J	13.8	19.3 J	47.6 J	9.6	11.6 J	13.2
Magnesium	--	10800	7240	--	6670	6630	8590	--	6820	7130	--	8130	7590	9630	9580	--
Manganese	2.8	394	548 J	--	414	920 J	569 J	--	257	455	--	370	269	481	385	--
Mercury	0.0033	0.041 J	0.031	--	0.018 J	0.014 J	0.018 J	--	0.011 U	0.014 U	--	0.013 U	0.013 U	0.026	0.023	--
Nickel	2.6	11.1	27.5	--	9.2	11.8	18.9	--	14	12.4	--	20.3	59.9	11.1	16.4	--
Potassium	--	658	1450	--	745	1330	889	--	519 J+	858 J+	--	609	596	935	864	--
Selenium	0.052	0.4 U	0.5 U	--	0.39 U	0.34 U	0.32 U	--	0.35 U	0.41 U	--	0.4 UJ	0.43 UJ	0.43 U	0.39 U	--
Silver	0.08	0.78 U	0.99 U	--	0.76 U	0.66 U	0.63 U	--	0.68 U	0.8 U	--	0.78 U	0.85 U	0.84 U	0.75 U	--
Sodium	--	43.8 J	67.1 J	--	135 J	55.3 J	32.2 U	--	34.7 U	60.3 J	--	78.1 J	198	42.8 U	42.7 J	--
Thallium	0.0014	0.16 U	0.2 U	--	0.16 U	0.14 U	0.13 U	--	0.14 U	0.17 U	--	0.16 U	0.17 U	0.17 U	0.16 U	--
Vanadium	8.6	9.6	31.6	--	13.3	17.4	12.4	--	12.2 J	19.7 J	--	14.7 J-	24.7 J-	11	11.4	--
Zinc	37	38.4	106	--	36.8	80.1	57.8	--	26.6	48.5	--	54.1	85.3	45.3	64.3	--

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-042	CFMW-042	CFMW-042	CFMW-042-DUP	CFMW-043	CFMW-043	CFMW-043	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-045A	CFMW-045A	CFMW-047	CFMW-047	CFMW-047
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/15/2016	6/15/2016	6/15/2016	7/20/2016	7/20/2016	7/20/2016	8/12/2016	8/12/2016	6/21/2016	6/21/2016	6/21/2016
PESTICIDES																
Aldrin	0.00015	...	0.0013 U	...	...	...	0.0009 U	...	...	0.00092 U	...	...	0.00092 U	...	0.00088 U	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	0.00097 U	...	...	...	0.00068 U	...	...	0.00069 U	...	...	0.0007 U	...	0.00066 U	...
Alpha Endosulfan	--	...	0.0015 U	...	...	...	0.001 U	...	...	0.0011 U	...	...	0.0011 U	...	0.001 U	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	0.001 U	...	...	...	0.00072 U	...	...	0.00074 U	...	...	0.00074 U	...	0.0007 U	...
Beta Endosulfan	--	...	0.0017 U	...	...	...	0.0012 U	...	...	0.0012 U	...	...	0.0012 U	...	0.0011 U	...
cis-Chlordane	--	...	0.0017 U	...	...	...	0.0012 U	...	...	0.0012 U	...	...	0.0012 U	...	0.0012 U	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	0.0012 U	...	...	...	0.00081 U	...	...	0.00083 U	...	...	0.00083 U	...	0.00079 U	...
Dieldrin	0.000071	...	0.0014 U	...	...	...	0.00097 U	...	...	0.00098 U	...	...	0.00099 U	...	0.00094 U	...
Endosulfan Sulfate	--	...	0.0012 U	...	...	...	0.00087 U	...	...	0.00089 U	...	...	0.00089 U	...	0.00084 U	...
Endrin	0.0092	...	0.0013 U	...	...	...	0.00095 U	...	...	0.00096 U	...	...	0.00097 U	...	0.00092 U	...
Endrin Aldehyde	--	...	0.0013 U	...	...	...	0.00093 U	...	...	0.00094 U	...	...	0.00095 U	...	0.0009 U	...
Endrin Ketone	--	...	0.0015 U	...	...	...	0.001 U	...	...	0.0011 U	...	...	0.0011 U	...	0.001 U	...
Gamma Bhc (Lindane)	0.00024	...	0.00095 U	...	...	...	0.00067 U	...	...	0.00068 U	...	...	0.00068 U	...	0.00065 U	...
Heptachlor	0.00012	...	0.0014 U	...	...	...	0.00096 U	...	...	0.00097 U	...	...	0.00098 U	...	0.00093 U	...
Heptachlor Epoxide	0.000028	...	0.0021 U	...	...	...	0.0015 U	...	...	0.0015 U	...	...	0.0015 U	...	0.0014 U	...
Methoxychlor	0.2	...	0.0023 U	...	...	...	0.0016 U	...	...	0.0016 U	...	...	0.0016 U	...	0.0015 U	...
P,P'-DDD	0.0075	...	0.0014 U	...	...	...	0.00098 U	...	...	0.001 U	...	...	0.001 U	...	0.00095 U	...
P,P'-DDE	0.011	...	0.0015 U	...	...	...	0.0011 U	...	...	0.0011 U	...	...	0.0011 U	...	0.001 U	...
P,P'-DDT	0.077	...	0.0011 U	...	...	...	0.00075 U	...	...	0.00078 U	...	...	0.00079 U	...	0.00075 U	...
Toxaphene	0.011	...	0.031 U	...	...	...	0.021 U	...	...	0.022 U	...	...	0.022 U	...	0.021 U	...
trans-Chlordane	--	...	0.0023 U	...	...	...	0.0016 U	...	...	0.0016 U	...	...	0.0017 U	...	0.0016 U	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.01 U	0.014 U	...	0.0093 U	0.01 U	0.0099 U	...	0.0095 U	0.01 U	...	0.0097 U	0.01 U	0.01 U	0.0096 U	...
PCB-1221 (Aroclor 1221)	0.00008	0.01 U	0.014 U	...	0.0093 U	0.01 U	0.0099 U	...	0.0095 U	0.01 U	...	0.0097 U	0.01 U	0.01 U	0.0096 U	...
PCB-1232 (Aroclor 1232)	0.00008	0.01 U	0.014 U	...	0.0093 U	0.01 U	0.0099 U	...	0.0095 U	0.01 U	...	0.0097 U	0.01 U	0.01 U	0.0096 U	...
PCB-1242 (Aroclor 1242)	0.0012	0.01 U	0.014 U	...	0.0093 U	0.01 U	0.0099 U	...	0.0095 U	0.01 U	...	0.0097 U	0.01 U	0.01 U	0.0096 U	...
PCB-1248 (Aroclor 1248)	0.0012	0.01 U	0.014 U	...	0.0093 U	0.01 U	0.0099 U	...	0.0095 U	0.01 U	...	0.0097 U	0.01 U	0.01 U	0.0096 U	...
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.015 U	...	0.0096 U	0.011 U	0.01 U	...	0.0098 U	0.01 U	...	0.01 U	0.01 U	0.011 U	0.0099 U	...
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.015 U	...	0.0096 U	0.011 U	0.01 U	...	0.0098 U	0.01 U	...	0.01 U	0.01 U	0.011 U	0.0099 U	...
PCB-1262 (Aroclor 1262)	--	0.01 U	0.015 U	...	0.0096 U	0.011 U	0.01 U	...	0.0098 U	0.01 U	...	0.01 U	0.01 U	0.011 U	0.0099 U	...
PCB-1268 (Aroclor 1268)	--	0.01 U	0.015 U	...	0.0096 U	0.011 U	0.01 U	...	0.0098 U	0.01 U	...	0.01 U	0.01 U	0.011 U	0.0099 U	...
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.015 U	...	0.0096 U	0.011 U	0.01 U	...	0.0098 U	0.01 U	...	0.01 U	0.01 U	0.011 U	0.0099 U	...
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.028 U	0.039 U	...	0.026 U	0.029 U	0.027 U	...	0.026 U	0.028 U	...	0.027 U	0.056 U	0.028 U	0.027 U	...
1,4-Dioxane (P-Dioxane)	0.000094	0.1 U	0.14 U	...	0.092 U	0.1 U	0.098 U	...	0.094 U	0.1 U	...	0.097 U	0.2 U	0.1 U	0.095 U	...
2,3,4,6-Tetrachlorophenol	0.018	0.035 U	0.049 U	...	0.032 U	0.036 U	0.035 U	...	0.033 U	0.035 U	...	0.034 U	0.071 U	0.036 U	0.034 U	...
2,4,5-Trichlorophenol	0.4	0.037 U	0.052 U	...	0.034 U	0.038 U	0.037 U	...	0.035 U	0.037 U	...	0.036 U	0.075 U	0.038 U	0.036 U	...
2,4,6-Trichlorophenol	0.0012	0.011 U	0.015 U	...	0.0098 U	0.011 U	0.01 U	...	0.01 U	0.011 U	...	0.01 U	0.021 U	0.011 U	0.01 U	...
2,4-Dichlorophenol	0.0023	0.0089 U	0.012 U	...	0.0081 U	0.0091 U	0.0087 U	...	0.0083 U	0.0089 U	...	0.0085 U	0.018 U	0.0089 U	0.0084 U	...
2,4-Dimethylphenol	0.042	0.083 U	0.12 U	...	0.076 U	0.085 U	0.081 U	...	0.077 U	0.082 U	...	0.079 U	0.17 U	0.083 U	0.078 U	...
2,4-Dinitrophenol	0.0044	0.28 U	0.4 U	...	0.26 U	0.29 U	0.28 U	...	0.27 U	0.28 U	...	0.27 U	0.57 U	0.29 U	0.27 U	...
2,4-Dinitrotoluene	0.00032	0.015 U	0.021 U	...	0.014 U	0.015 U	0.015 U	...	0.014 U	0.015 U	...	0.014 U	0.03 U	0.015 U	0.014 U	...
2,6-Dinitrotoluene	0.000067	0.02 U	0.028 U	...	0.018 U	0.021 U	0.02 U	...	0.019 U	0.02 U	...	0.019 U	0.04 U	0.02 U	0.019 U	...
2-Chloronaphthalene	0.39	0.0085 U	0.012 U	...	0.0078 U	0.0087 U	0.0084 U	...	0.008 U	0.0085 U	...	0.0082 U	0.017 U	0.0086 U	0.0081 U	...
2-Chlorophenol	0.0089	0.0095 U	0.013 U	...	0.0088 U	0.0098 U	0.0094 U	...	0.009 U	0.0095 U	...	0.0092 U	0.019 U	0.0096 U	0.0091 U	...
2-Methylnaphthalene	0.019	0.0083 U	0.022 J	...	0.0076 U	0.085 J	0.11 J	...	0.0078 U	0.0083 U	...	0.11 J	0.15 J	0.0084 U	0.0079 U	...
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.023 U	...	0.015 U	0.017 U	0.016 U	...	0.015 U	0.016 U	...	0.016 U	0.033 U	0.017 U	0.016 U	...
2-Nitroaniline	0.008	0.012 U	0.017 U	...	0.011 U	0.013 U	0.012 U	...	0.012 U	0.012 U	...	0.012 U	0.025 U	0.013 U	0.012 U	...
2-Nitrophenol	--	0.013 U	0.018 U	...	0.012 U	0.013 U	0.012 U	...	0.012 U	0.013 U	...	0.012 U	0.025 U	0.013 U	0.012 U	...
3- And 4- Methylphenol (Total)	--	0.01 U	0.014 U	...	0.0092 U	0.01 U	0.0098 U	...	0.0094 U	0.01 U	...	0.0096 U	0.02 U	0.01 U	0.0095 U	...
3,3'-Dichlorobenzidine	0.00082	0.042 U	0.058 U	...	0.038 U	0.043 U	0.041 U	...	0.039 U	0.042 U	...	0.04 U	0.084 U	0.042 U	0.04 U	...
3-Nitroaniline	--	0.011 U	0.016 U	...	0.01 U	0.011 U	0.011 U	...	0.01 U	0.011 U	...	0.011 U	0.022 U	0.011 U	0.011 U	...
4,6-Dinitro-2-Methylphenol	0.00026	0.1 U	0.14 U	...	0.092 U	0.1 U	0.098 U	...	0.094 U	0.1 U	...	0.096 U	0.2 U	0.1 U	0.095 U	...
4-Bromophenyl Phenyl Ether	--	0.012 U	0.016 U	...	0.011 U	0.012 U	0.012 U	...	0.011 U	0.012 U	...	0.011 U	0.024 U	0.012 U	0.011 U	...
4-Chloro-3-Methylphenol	0.17	0.016 U	0.022 U	...	0.015 U	0.017 U	0.016 U	...	0.015 U	0.016 U	...	0.016 U	0.032 U	0.016 U	0.015 U	...

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-042	CFMW-042	CFMW-042	CFMW-042-DUP	CFMW-043	CFMW-043	CFMW-043	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-045A	CFMW-045A	CFMW-047	CFMW-047	CFMW-047
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/15/2016	6/15/2016	6/15/2016	7/20/2016	7/20/2016	7/20/2016	8/12/2016	8/12/2016	6/21/2016	6/21/2016	6/21/2016
4-Chloroaniline	0.00016	0.0097 U	0.013 U	...	0.0089 U	0.0099 U	0.0095 U	...	0.0091 U	0.0096 U	...	0.0093 U	0.019 U	0.0098 U	0.0092 U	...
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.016 U	...	0.01 U	0.012 U	0.011 U	...	0.011 U	0.011 U	...	0.011 U	0.023 U	0.011 U	0.011 U	...
4-Nitroaniline	0.0016	0.014 U	0.02 U	...	0.013 U	0.015 U	0.014 U	...	0.013 U	0.014 U	...	0.014 U	0.028 U	0.014 U	0.013 U	...
4-Nitrophenol	--	0.18 U	0.25 U	...	0.17 U	0.19 U	0.18 U	...	0.17 U	0.18 U	...	0.17 U	0.36 U	0.18 U	0.17 U	...
Acenaphthene	0.55	0.0091 U	0.11 J	...	0.0083 U	0.0093 U	0.28 J	...	0.0085 U	0.009 U	...	0.54	0.46 J	0.0092 U	0.011 J	...
Acenaphthylene	--	0.0097 U	0.013 U	...	0.0089 U	0.0099 U	0.013 J	...	0.0091 U	0.0096 U	...	0.0093 U	0.039 J	0.0098 U	0.0092 U	...
Acetophenone	0.058	0.0082 U	0.011 U	...	0.0075 U	0.0084 U	0.008 U	...	0.0077 U	0.0081 U	...	0.0079 U	0.016 U	0.0083 U	0.0078 U	...
Anthracene	5.8	0.036 U	0.2 J	...	0.033 U	0.037 U	0.93	...	0.034 U	0.036 U	...	0.68	1	0.036 U	0.034 U	...
Atrazine	0.0002	0.017 U	0.023 U	...	0.015 U	0.017 U	0.016 U	...	0.015 U	0.017 U	...	0.016 U	0.033 U	0.017 U	0.016 U	...
Benzaldehyde	0.0041	0.029 U	0.04 U	...	0.026 U	0.029 U	0.028 U	...	0.027 U	0.093 J	...	0.028 U	0.057 U	0.029 U	0.027 U	...
Benzo(A)Anthracene	0.011	0.031 U	1	...	0.029 U	0.044	3	...	0.029 U	0.031 U	...	1.8	4.7	0.032 U	0.18	...
Benzo(A)Pyrene	0.018	0.016 J	1.3	...	0.015 J	0.05	3.7	...	0.011 U	0.033 J	...	2.1	5.7	0.03 J	0.23	...
Benzo(B)Fluoranthene	0.18	0.021 J	2.4	...	0.02 J	0.066	4.5	...	0.014 U	0.03 J	...	3.5	9.2	0.054	0.33	...
Benzo(G,H,I)Perylene	--	0.022 U	1.7	...	0.02 U	0.031 J	4.4	...	0.02 U	0.035 J	...	2.2	7.5	0.048 J	0.34 J	...
Benzo(K)Fluoranthene	1.8	0.016 U	0.87	...	0.015 U	0.03 J	2.1	...	0.015 U	0.016 J	...	1.4	3.8	0.017 U	0.12	...
Benzyl Butyl Phthalate	0.24	0.012 U	0.04 J	...	0.011 U	0.012 U	0.011 U	...	0.011 U	0.045 J	...	0.18 J	0.63 J+	0.012 U	0.011 U	...
Biphenyl (Diphenyl)	0.00087	0.032 U	0.045 U	...	0.029 U	0.033 U	0.031 U	...	0.03 U	0.032 U	...	0.031 U	0.064 U	0.032 U	0.03 U	...
Bis(2-Chloroethoxy) Methane	0.0013	0.012 U	0.016 U	...	0.011 U	0.012 U	0.011 U	...	0.011 U	0.012 U	...	0.011 U	0.023 U	0.012 U	0.011 U	...
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0089 U	0.012 U	...	0.0081 U	0.0091 U	0.0087 U	...	0.0083 U	0.0089 U	...	0.0085 U	0.018 U	0.0089 U	0.0084 U	...
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.022 U	...	0.014 U	0.016 U	0.015 U	...	0.014 U	0.015 U	...	0.015 U	0.031 U	0.016 U	0.015 U	...
Bis(2-Ethylhexyl) Phthalate	1.3	0.015 U	0.049 J	...	0.013 U	0.015 U	0.055 J	...	0.014 U	0.015 U	...	0.035 J	0.14 J	0.015 U	0.33 J	...
Caprolactam	0.25	0.027 U	0.038 U	...	0.025 U	0.028 U	0.027 U	...	0.025 U	0.027 U	...	0.026 U	0.054 U	0.027 U	0.026 U	...
Carbazole	--	0.0093 U	0.23 J	...	0.0086 U	0.0096 U	0.86	...	0.0087 U	0.0093 U	...	0.41	1.4	0.0094 U	0.023 J	...
Chrysene	9	0.017 J	1.6	...	0.017 J	0.05 J	4	...	0.0096 U	0.037 J	...	2.5	6.8	0.035 J	0.27 J	...
Dibenz(A,H)Anthracene	0.096	0.02 U	0.39	...	0.018 U	0.01 U	1	...	0.018 U	0.019 U	...	0.51	1.4	0.02 U	0.079	...
Dibenzofuran	0.015	0.011 U	0.049 J	...	0.01 U	0.012 U	0.15 J	...	0.011 U	0.011 U	...	0.22 J	0.29 J	0.011 U	0.011 U	...
Diethyl Phthalate	0.61	0.011 U	0.015 U	...	0.0098 U	0.01 U	0.01 U	...	0.01 U	0.011 U	...	0.01 U	0.021 U	0.011 U	0.01 U	...
Dimethyl Phthalate	--	0.011 U	0.015 U	...	0.01 U	0.011 U	0.011 U	...	0.01 U	0.011 U	...	0.01 U	0.022 U	0.011 U	0.01 U	...
Di-N-Butyl Phthalate	0.23	0.011 U	0.016 J	...	0.01 U	0.012 U	0.011 U	...	0.011 U	0.011 U	...	0.011 U	0.039 J	0.011 U	0.044 J	...
Di-N-Octylphthalate	5.7	0.019 U	0.027 U	...	0.018 U	0.02 U	0.019 U	...	0.018 U	0.019 U	...	0.018 U	0.038 U	0.019 U	0.018 U	...
Fluoranthene	8.9	0.034 J	1.8	...	0.039 J	0.079 J	8.1	...	0.01 U	0.038 J	...	3.9	9	0.039 J	0.27 J	...
Fluorene	0.54	0.0082 U	0.091 J	...	0.0075 U	0.01 J	0.29 J	...	0.0077 U	0.0081 U	...	0.43	0.44 J	0.0083 U	0.0078 U	...
Hexachlorobenzene	0.00012	0.015 U	0.021 U	...	0.013 U	0.016 U	0.015 U	...	0.014 U	0.015 U	...	0.015 U	0.031 U	0.015 U	0.014 U	...
Hexachlorobutadiene	0.00027	0.011 U	0.015 U	...	0.0097 U	0.011 U	0.01 U	...	0.0099 U	0.011 U	...	0.01 U	0.021 U	0.011 U	0.01 U	...
Hexachlorocyclopentadiene	0.00013	0.023 U	0.033 U	...	0.021 U	0.024 U	0.023 U	...	0.022 U	0.023 U	...	0.023 U	0.047 U	0.024 U	0.022 U	...
Hexachloroethane	0.0002	0.014 U	0.019 U	...	0.013 U	0.014 U	0.013 U	...	0.013 U	0.014 U	...	0.013 U	0.028 U	0.014 U	0.013 U	...
Indeno(1,2,3-C,D)Pyrene	0.98	0.025 U	1.8	...	0.023 U	0.034 J	4.5	...	0.023 U	0.028 J	...	2.2	6	0.026 J	0.32	...
Isophorone	0.026	0.0081 U	0.011 U	...	0.0074 U	0.0083 U	0.0079 U	...	0.0076 U	0.008 U	...	0.0078 U	0.016 U	0.0081 U	0.0077 U	...
Naphthalene	0.00054	0.0095 U	0.055 J	...	0.0088 U	0.1 J	0.15 J	...	0.009 U	0.0095 U	...	0.26 J	0.75	0.0096 U	0.0091 U	...
Nitrobenzene	0.000092	0.012 U	0.016 U	...	0.011 U	0.012 U	0.012 U	...	0.011 U	0.012 U	...	0.011 U	0.024 U	0.012 U	0.011 U	...
N-Nitrosodi-N-Propylamine	0.0000081	0.013 U	0.018 U	...	0.012 U	0.013 U	0.012 U	...	0.012 U	0.013 U	...	0.012 U	0.025 U	0.013 U	0.012 U	...
N-Nitrosodiphenylamine	0.067	0.034 U	0.048 U	...	0.031 U	0.035 U	0.033 U	...	0.032 U	0.034 U	...	0.033 U	0.068 U	0.034 U	0.032 U	...
Pentachlorophenol	0.000057	0.045 U	0.063 U	...	0.042 U	0.047 U	0.045 U	...	0.043 U	0.045 U	...	0.044 U	0.091 U	0.046 U	0.043 U	...
Phenanthrene	--	0.027 J	1.1	...	0.031 J	0.046 J	6.4	...	0.0094 U	0.022 J	...	3.4	6	0.026 J	0.13 J	...
Phenol	0.33	0.012 U	0.017 U	...	0.011 U	0.013 U	0.012 U	...	0.012 U	0.012 U	...	0.012 U	0.025 U	0.012 U	0.012 U	...
Pyrene	1.3	0.024 J	2.1	...	0.029 J	0.072 J	7.4	...	0.016 U	0.044 J	...	4.6	9.9	0.043 J	0.3 J	...
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00037 U	...	...	0.00034 U	0.00027 U	...	...	0.00032 U	...	...	0.00029 U	...	0.00034 U	...	...
1,1,2,2-Tetrachloroethane	0.00003	0.00016 U	...	...	0.00015 U	0.00012 U	...	...	0.00014 U	...	...	0.00013 U	...	0.00015 U	...	...
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00043 U	...	...	0.00039 U	0.00032 U	...	...	0.00037 U	...	...	0.00033 U	...	0.00039 U	...	...
1,1,2-Trichloroethane	0.000013	0.00027 U	...	...	0.00025 U	0.0002 U	...	...	0.00024 U	...	...	0.00021 U	...	0.00025 U	...	...
1,1-Dichloroethane	0.00078	0.00033 U	...	...	0.0003 U	0.00024 U	...	...	0.00029 U	...	...	0.00026 U	...	0.0003 U	...	...
1,1-Dichloroethene	0.01	0.0004 U	...	...	0.00036 U	0.00029 U	...	...	0.00035 U	...	...	0.00031 U	...	0.00037 U	...	...
1,2,3-Trichlorobenzene	0.0021	0.00011 U	...	...	0.000098 U	0.000079 U	...	...	0.000093 U	...	...	0.000083 U	...	0.000098 U	...	...
1,2,4-Trichlorobenzene	0.0012	0.00031 U	...	...	0.00028 U	0.00023 U	...	...	0.00027 U	...	...	0.00024 U	...	0.00029 U	...	...
1,2-Dibromo-3-Chloropropane	0.00000014	0.00046 U	...	...	0.00042 U	0.00034 U	...	...	0.0004 U	...	...	0.00035 U	...	0.00042 U	...	...

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-042	CFMW-042	CFMW-042	CFMW-042-DUP	CFMW-043	CFMW-043	CFMW-043	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-045A	CFMW-045A	CFMW-047	CFMW-047	CFMW-047
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/15/2016	6/15/2016	6/15/2016	7/20/2016	7/20/2016	7/20/2016	8/12/2016	8/12/2016	6/21/2016	6/21/2016	6/21/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00012 U	---	---	0.00011 U	0.000086 U	---	---	0.0001 U	---	---	0.00009 U	---	0.00011 U	---	---
1,2-Dichlorobenzene	0.03	0.00014 U	---	---	0.00012 U	0.0001 U	---	---	0.00012 U	---	---	0.00011 U	---	0.00012 U	---	---
1,2-Dichloroethane	0.000048	0.00011 U	---	---	0.000098 U	0.000079 U	---	---	0.000093 U	---	---	0.000083 U	---	0.000098 U	---	---
1,2-Dichloropropane	0.000047	0.00016 U	---	---	0.00015 U	0.00012 U	---	---	0.00014 U	---	---	0.00013 U	---	0.00015 U	---	---
1,3-Dichlorobenzene	--	0.00012 U	---	---	0.00011 U	0.000086 U	---	---	0.0001 U	---	---	0.00009 U	---	0.00011 U	---	---
1,4-Dichlorobenzene	0.00046	0.00013 U	---	---	0.00012 U	0.000093 U	---	---	0.00011 U	---	---	0.000098 U	---	0.00012 U	---	---
2-Hexanone	0.00088	0.00091 U	---	---	0.00083 U	0.00067 U	---	---	0.0008 U	---	---	0.00071 U	---	0.00084 U	---	---
Acetone	0.29	0.041	---	---	0.039	0.048	---	---	0.017 J+	---	---	0.017	---	0.11 J+	---	---
Benzene	0.00023	0.00034 J	---	---	0.00018 UJ	0.00034 J	---	---	0.0001 U	---	---	0.00035 J	---	0.0009	---	---
Bromochloromethane	0.0021	0.00016 U	---	---	0.00015 U	0.00012 U	---	---	0.00014 U	---	---	0.00013 U	---	0.00015 U	---	---
Bromodichloromethane	0.000036	0.00037 U	---	---	0.00034 U	0.00027 U	---	---	0.00032 U	---	---	0.00029 U	---	0.00034 U	---	---
Bromoform	0.00087	0.00013 U	---	---	0.00012 U	0.000093 U	---	---	0.00011 UJ	---	---	0.000088 U	---	0.00012 U	---	---
Bromomethane	0.00019	0.00031 UJ	---	---	0.00028 UJ	0.00023 UJ	---	---	0.00027 U	---	---	0.00024 U	---	0.00029 U	---	---
Carbon Disulfide	0.024	0.00042 UJ	---	---	0.0025 J	0.00031 U	---	---	0.00037 U	---	---	0.00032 U	---	0.0006 J	---	---
Carbon Tetrachloride	0.00018	0.00042 U	---	---	0.00038 U	0.00031 U	---	---	0.00037 U	---	---	0.00032 U	---	0.00038 U	---	---
Chlorobenzene	0.0053	0.00014 U	---	---	0.00012 U	0.0001 U	---	---	0.00012 U	---	---	0.00011 U	---	0.00012 U	---	---
Chloroethane	0.59	0.00034 UJ	---	---	0.00031 UJ	0.00025 UJ	---	---	0.0003 U	---	---	0.00026 U	---	0.00031 U	---	---
Chloroform	0.000061	0.0002 U	---	---	0.00019 U	0.00015 U	---	---	0.00018 U	---	---	0.00016 U	---	0.00019 U	---	---
Chloromethane	0.0049	0.00037 UJ	---	---	0.00034 UJ	0.00027 UJ	---	---	0.00032 U	---	---	0.00029 U	---	0.00034 U	---	---
Cis-1,2-Dichloroethylene	0.0011	0.00021 U	---	---	0.0002 U	0.00016 U	---	---	0.00019 U	---	---	0.00017 U	---	0.0002 U	---	---
Cis-1,3-Dichloropropene	--	0.00015 U	---	---	0.00013 U	0.00011 U	---	---	0.00013 U	---	---	0.00011 U	---	0.00013 U	---	---
Cyclohexane	1.3	0.00045 U	---	---	0.00041 U	0.00033 U	---	---	0.00039 U	---	---	0.00035 U	---	0.00041 U	---	---
Dibromochloromethane	0.00023	0.00015 U	---	---	0.00013 U	0.00011 U	---	---	0.00013 U	---	---	0.00011 U	---	0.00013 U	---	---
Dichlorodifluoromethane	0.03	0.00031 UJ	---	---	0.00028 UJ	0.00023 UJ	---	---	0.00027 UJ	---	---	0.00024 U	---	0.00029 U	---	---
Ethylbenzene	0.0017	0.00017 U	---	---	0.00016 U	0.00013 U	---	---	0.00015 U	---	---	0.00014 U	---	0.00016 U	---	---
Isopropylbenzene (Cumene)	0.074	0.00016 U	---	---	0.00015 U	0.00012 U	---	---	0.00014 U	---	---	0.00013 U	---	0.00015 U	---	---
M,P-Xylene	--	0.00011 U	---	---	0.000098 U	0.000079 U	---	---	0.000093 U	---	---	0.000083 U	---	0.000098 U	---	---
Methyl Acetate	0.41	0.00087 U	---	---	0.0008 U	0.00065 U	---	---	0.00076 U	---	---	0.0067	---	0.0045	---	---
Methyl Ethyl Ketone (2-Butanone)	0.12	0.00075 UJ	---	---	0.004 J	0.00055 U	---	---	0.00065 U	---	---	0.0023 J	---	0.0075	---	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0022 U	---	---	0.002 U	0.0016 U	---	---	0.0019 U	---	---	0.0017 U	---	0.002 U	---	---
Methylcyclohexane	--	0.00077 J	---	---	0.00082 J	0.00036 U	---	---	0.00042 U	---	---	0.00038 U	---	0.00045 U	---	---
Methylene Chloride	0.0027	0.00031 U	---	---	0.00028 U	0.00023 U	---	---	0.00027 U	---	---	0.00024 U	---	0.00029 U	---	---
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00016 U	---	---	0.00015 U	0.00011 U	---	---	0.00014 U	---	---	0.00012 U	---	0.00014 U	---	---
Styrene	0.13	0.00015 U	---	---	0.00013 U	0.00011 U	---	---	0.00013 U	---	---	0.00011 U	---	0.00013 U	---	---
Tert-Butyl Methyl Ether	0.0032	0.00016 U	---	---	0.00015 U	0.00012 U	---	---	0.00014 U	---	---	0.00013 U	---	0.00015 U	---	---
Tetrachloroethylene (PCE)	0.0018	0.00027 U	---	---	0.00025 U	0.0002 U	---	---	0.00024 U	---	---	0.00021 U	---	0.00025 U	---	---
Toluene	0.076	0.00059 J	---	---	0.00065 J	0.00014 U	---	---	0.00016 U	---	---	0.00014 U	---	0.00058 J	---	---
Trans-1,2-Dichloroethene	0.011	0.00038 U	---	---	0.00035 U	0.00028 U	---	---	0.00033 U	---	---	0.00029 U	---	0.00035 U	---	---
Trans-1,3-Dichloropropene	--	0.000097 U	---	---	0.000089 U	0.000072 U	---	---	0.000085 U	---	---	0.000075 U	---	0.000089 U	---	---
Trichloroethylene (TCE)	0.0001	0.00025 U	---	---	0.00023 U	0.00019 U	---	---	0.00022 U	---	---	0.0002 U	---	0.00023 U	---	---
Trichlorofluoromethane	0.33	0.00033 U	---	---	0.0003 U	0.00024 U	---	---	0.00029 U	---	---	0.00026 U	---	0.0003 U	---	---
Vinyl Chloride	0.0000065	0.00038 U	---	---	0.00035 U	0.00028 U	---	---	0.00033 U	---	---	0.00029 U	---	0.00035 U	---	---

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-049	CFMW-049A	CFMW-049A	CFMW-050	CFMW-050	CFMW-050	CFMW-050-DUP	CFMW-053A	CFMW-053A	CFMW-053A	CFMW-053A-DUP	CFMW-054	CFMW-054	CFSB-010	CFSB-012
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft
Chemical Name		8/20/2016	8/20/2016	8/20/2016	6/22/2016	6/22/2016	6/22/2016	6/22/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	6/20/2016	6/20/2016	5/21/2016	5/28/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	11.4 J+	10.9 J+	--	26 J+	21.2 J+	--	33 J+	8.47 J	8.82	--	3.85 J	355 J	231 J	37.9 J-	42.4 J
Cyanide	0.0015	0.066 J	0.056 J	--	0.11	0.8	--	0.099 J	0.038 J	0.19	--	0.04 J	0.028 J	0.027 J	0.046 J	0.13 J-
METALS																
Aluminum	3000	6580	6780	--	17100	19500	--	18700	13100	14500	--	11900	17200	18600	7780	9400
Antimony	0.035	0.28 UJ	0.26 UJ	--	0.41 U	0.52 U	--	0.45 U	0.42 U	0.47 U	--	0.43 U	0.42 UJ	0.43 UJ	0.45 UJ	0.33 U
Arsenic	0.0015	4.1 J	2.2 J	--	7.2	5.9	--	7.2	4.4	5.5	--	4.6	5.4	6	4.5 J	3.9 J
Barium	16	70.9 J	53.3 J	--	201	239	--	220	168	259	--	213	92.7 J	104 J	83.7	82.6 J
Beryllium	1.9	0.26 J	0.18 J	--	0.64	0.69	--	0.66	0.52	0.54	--	0.48	0.53	0.61	0.32 J	0.42
Cadmium	0.069	0.3 U	0.28 U	--	0.34 U	0.39 U	--	0.34 U	0.32 U	0.35 U	--	0.33 U	0.32 U	0.33 U	0.34 U	0.25 U
Calcium	--	6920 J	13200 J	--	2930	4040	--	3100	16500 J	4510 J	--	42200 J	2400 J	3640 J	16400 J	27400 J
Chromium, Total	--	6.4	7.9	--	9.9	12.4	--	11.1	9.7	8.9	--	10.8	12.3 J	11.3 J	8.3	9 J
Cobalt	0.027	3.3	3.9	--	5.8	6.3	--	6.4	5.3	6.7	--	5.4	5.7	6.2	5.1	5.5
Copper	2.8	13.2 J	7 J	--	14.5 J	17.5 J	--	15.5 J	14.2	14.9	--	14.4	13.9	13.7	19 J+	15.7
Iron	35	8070	7940	--	16100	15800	--	17100	14400	16400	--	15000	17900	19700	12900	13800
Lead	400	5.8 J	4.4 J	19.4	16.4	31.7	23.7	17.6	10.2 J+	12.2 J+	17.2	10.3 J+	9.4 J	9.1 J	11.4 J	7.4
Magnesium	--	5960	8210	--	8440	6760	--	8230	8490 J	7140 J	--	12400 J	11200	11000	8730 J	13100 J
Manganese	2.8	332	161 J	--	580	739	--	584	458	1270	--	552	344	413	388	442 J
Mercury	0.0033	0.021	0.022	--	0.029	0.031	--	0.018	0.023	0.019	--	0.029	0.022	0.021	0.032	0.024
Nickel	2.6	7.6	9.1	--	10.8	26.3	--	12.1	10.4	13.9	--	10.7	15.7	15	9 J+	10.4 J
Potassium	--	408 J+	386 J+	--	1180	1510	--	1260	746	929	--	796	971	1070	695 J	819 J
Selenium	0.052	0.26 U	0.25 U	--	0.41 U	0.48 U	--	0.42 U	0.39 U	0.44 U	--	0.4 U	0.39 U	0.41 U	0.42 U	0.31 U
Silver	0.08	0.55 U	0.52 U	--	0.81 U	0.95 U	--	0.82 U	0.77 U	0.85 U	--	0.79 U	0.77 U	0.79 U	0.83 U	0.61 U
Sodium	--	38 U	35.8 U	--	41.3 U	48.3 U	--	42.1 U	44.7 J	214	--	54.2 J	622	676	78.5 J	38.7 J
Thallium	0.0014	0.11 U	0.1 U	--	0.17 U	0.19 U	--	0.17 U	0.16 U	0.18 U	--	0.16 U	0.16 U	0.16 U	0.17 U	0.13 U
Vanadium	8.6	6.1	5.7	--	13.5 J	19.2 J	--	19.6 J	12.2	15	--	11.6	12.4	14.5	8.8	9.1 J
Zinc	37	26.3	26.3	--	49.4	76.7	--	53.7	45.3	49.5	--	43.1	51.2	52.8	37.7 J	34.6

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-049	CFMW-049A	CFMW-049A	CFMW-050	CFMW-050	CFMW-050	CFMW-050-DUP	CFMW-053A	CFMW-053A	CFMW-053A	CFMW-053A-DUP	CFMW-054	CFMW-054	CFSB-010	CFSB-012
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft
Chemical Name		8/20/2016	8/20/2016	8/20/2016	6/22/2016	6/22/2016	6/22/2016	6/22/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	6/20/2016	6/20/2016	5/21/2016	5/28/2016
PESTICIDES																
Aldrin	0.00015	0.00081 U	...	...	...	0.0011 U	...	...	...	0.00094 U	...	...	...	0.00089 U	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	0.00069 U	...	...	...	0.0008 U	...	...	...	0.0007 U	...	...	...	0.00067 U	...	...
Alpha Endosulfan	--	0.001 U	...	...	...	0.0012 U	...	...	...	0.001 U	...	...	...	0.001 U	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	0.00073 U	...	...	...	0.00085 U	...	...	...	0.00075 U	...	...	...	0.00071 U	...	...
Beta Endosulfan	--	0.0012 U	...	...	...	0.0014 U	...	...	...	0.0012 U	...	...	...	0.0012 U	...	...
cis-Chlordane	--	0.0012 U	...	...	...	0.0014 U	...	...	...	0.0013 U	...	...	...	0.0012 U	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	0.00082 U	...	...	...	0.00095 U	...	...	...	0.00084 U	...	...	...	0.0008 U	...	...
Dieldrin	0.000071	0.00098 U	...	...	...	0.0011 U	...	...	...	0.001 U	...	...	...	0.00095 U	...	...
Endosulfan Sulfate	--	0.00088 U	...	...	...	0.001 U	...	...	...	0.0009 U	...	...	...	0.00085 U	...	...
Endrin	0.0092	0.00096 U	...	...	...	0.0011 U	...	...	...	0.00098 U	...	...	...	0.00093 U	...	...
Endrin Aldehyde	--	0.00093 U	...	...	...	0.0011 U	...	...	...	0.00096 U	...	...	...	0.00091 U	...	...
Endrin Ketone	--	0.001 U	...	...	...	0.0012 U	...	...	...	0.0011 U	...	...	...	0.001 U	...	...
Gamma Bhc (Lindane)	0.00024	0.00068 U	...	...	...	0.00078 U	...	...	...	0.00069 U	...	...	...	0.00066 U	...	...
Heptachlor	0.00012	0.00097 U	...	...	...	0.0011 U	...	...	...	0.00099 U	...	...	...	0.00094 U	...	...
Heptachlor Epoxide	0.000028	0.0015 U	...	...	...	0.0017 U	...	...	...	0.0015 U	...	...	...	0.0014 U	...	...
Methoxychlor	0.2	0.0016 U	...	...	...	0.0019 U	...	...	...	0.0016 U	...	...	...	0.0016 U	...	...
P,P'-DDD	0.0075	0.00099 U	...	...	...	0.0012 U	...	...	...	0.001 U	...	...	...	0.00096 U	...	...
P,P'-DDE	0.011	0.0011 U	...	...	...	0.0013 U	...	...	...	0.0011 U	...	...	...	0.0011 U	...	...
P,P'-DDT	0.077	0.00078 U	...	...	...	0.0009 U	...	...	...	0.0008 U	...	...	...	0.00076 U	...	...
Toxaphene	0.011	0.022 U	...	...	...	0.025 U	...	...	...	0.023 U	...	...	...	0.021 U	...	...
trans-Chlordane	--	0.0016 U	...	...	...	0.0019 U	...	...	...	0.0017 U	...	...	...	0.0016 U	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.01 U	0.0094 U	...	0.0099 U	0.012 U	...	0.0098 U	0.0094 U	0.01 U	...	0.0093 U	0.0098 U	0.0097 U	0.0098 U	0.0095 U
PCB-1221 (Aroclor 1221)	0.00008	0.01 U	0.0094 U	...	0.0099 U	0.012 U	...	0.0098 U	0.0094 U	0.01 U	...	0.0093 U	0.0098 U	0.0097 U	0.0098 U	0.0095 U
PCB-1232 (Aroclor 1232)	0.00008	0.01 U	0.0094 U	...	0.0099 U	0.012 U	...	0.0098 U	0.0094 U	0.01 U	...	0.0093 U	0.0098 U	0.0097 U	0.0098 U	0.0095 U
PCB-1242 (Aroclor 1242)	0.0012	0.01 U	0.0094 U	...	0.0099 U	0.012 U	...	0.0098 U	0.0094 U	0.01 U	...	0.0093 U	0.0098 U	0.0097 U	0.0098 U	0.0095 U
PCB-1248 (Aroclor 1248)	0.0012	0.01 U	0.0094 U	...	0.0099 U	0.012 U	...	0.0098 U	0.0094 U	0.01 U	...	0.0093 U	0.0098 U	0.0097 U	0.0098 U	0.0095 U
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.0098 U	...	0.01 U	0.012 U	...	0.01 U	0.0097 U	0.011 U	...	0.0096 U	0.01 U	0.01 U	0.01 U	0.0098 U
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.0098 U	...	0.01 U	0.012 U	...	0.01 U	0.0097 U	0.011 U	...	0.0096 U	0.01 U	0.01 U	0.01 U	0.0098 U
PCB-1262 (Aroclor 1262)	--	0.01 U	0.0098 U	...	0.01 U	0.012 U	...	0.01 U	0.0097 U	0.011 U	...	0.0096 U	0.01 U	0.01 U	0.01 U	0.0098 U
PCB-1268 (Aroclor 1268)	--	0.01 U	0.0098 U	...	0.01 U	0.012 U	...	0.01 U	0.0097 U	0.011 U	...	0.0096 U	0.01 U	0.01 U	0.01 U	0.0098 U
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.0098 U	...	0.01 U	0.012 U	...	0.01 U	0.0097 U	0.011 U	...	0.0096 U	0.01 U	0.01 U	0.01 U	0.0098 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.028 U	0.026 U	...	0.027 U	0.032 U	...	0.027 U	0.026 U	0.028 U	...	0.026 U	0.027 U	0.027 U	0.027 U	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	0.1 U	0.094 U	...	0.099 U	0.12 U	...	0.097 U	0.093 U	0.1 U	...	0.092 U	0.097 U	0.097 U	0.097 U	0.094 U
2,3,4,6-Tetrachlorophenol	0.018	0.035 U	0.033 U	...	0.035 U	0.041 U	...	0.034 U	0.033 U	0.036 U	...	0.033 U	0.034 U	0.034 U	0.034 U	0.033 U
2,4,5-Trichlorophenol	0.4	0.037 U	0.035 U	...	0.037 U	0.043 U	...	0.036 U	0.035 U	0.039 U	...	0.034 U	0.036 U	0.036 U	0.036 U	0.035 U
2,4,6-Trichlorophenol	0.0012	0.011 U	0.01 U	...	0.01 U	0.012 U	...	0.01 U	0.0099 U	0.011 U	...	0.0098 U	0.01 U	0.01 U	0.01 U	0.01 U
2,4-Dichlorophenol	0.0023	0.0088 U	0.0083 U	...	0.0087 U	0.01 U	...	0.0085 U	0.0082 U	0.009 U	...	0.0082 U	0.0086 U	0.0085 U	0.0086 U	0.0083 U
2,4-Dimethylphenol	0.042	0.082 U	0.077 U	...	0.081 U	0.095 U	...	0.08 U	0.077 U	0.084 U	...	0.076 U	0.08 U	0.08 U	0.08 U	0.077 U
2,4-Dinitrophenol	0.0044	0.28 U	0.26 U	...	0.28 U	0.33 U	...	0.27 U	0.26 U	0.29 U	...	0.26 U	0.28 U	0.27 U	0.27 U	0.27 U
2,4-Dinitrotoluene	0.00032	0.015 U	0.014 U	...	0.015 U	0.017 U	...	0.014 U	0.014 U	0.015 U	...	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.02 U	0.019 U	...	0.02 U	0.023 U	...	0.019 U	0.019 U	0.02 U	...	0.018 U	0.019 U	0.019 U	0.019 U	0.019 U
2-Chloronaphthalene	0.39	0.0085 U	0.0079 U	...	0.0084 U	0.0098 U	...	0.0082 U	0.0079 U	0.0086 U	...	0.0078 U	0.0083 U	0.0082 U	0.0082 U	0.008 U
2-Chlorophenol	0.0089	0.0095 U	0.0089 U	...	0.0094 U	0.011 U	...	0.0092 U	0.0088 U	0.0097 U	...	0.0088 U	0.0092 U	0.0092 U	0.0092 U	0.0089 U
2-Methylnaphthalene	0.019	0.0083 U	0.0077 U	...	0.0081 U	0.01 J	...	0.008 U	0.0077 U	0.0084 U	...	0.0076 U	0.008 U	0.008 U	0.44	0.0077 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.015 U	...	0.016 U	0.019 U	...	0.016 U	0.015 U	0.017 U	...	0.015 U	0.016 U	0.016 U	0.016 U	0.015 U
2-Nitroaniline	0.008	0.012 U	0.012 U	...	0.012 U	0.014 U	...	0.012 U	0.011 U	0.013 U	...	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U
2-Nitrophenol	--	0.013 U	0.012 U	...	0.012 U	0.014 U	...	0.012 U	0.012 U	0.013 U	...	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.0099 U	0.0093 U	...	0.0098 U	0.036 J	...	0.0096 U	0.0093 U	0.01 U	...	0.0092 U	0.0097 U	0.0096 U	0.033 J	0.0093 U
3,3'-Dichlorobenzidine	0.00082	0.042 U	0.039 U	...	0.041 U	0.048 U	...	0.04 U	0.039 U	0.043 U	...	0.039 U	0.041 U	0.04 U	0.04 U	0.039 U
3-Nitroaniline	--	0.011 U	0.01 U	...	0.011 U	0.013 U	...	0.011 U	0.01 U	0.011 U	...	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.1 U	0.093 U	...	0.098 U	0.12 U	...	0.097 U	0.093 U	0.1 U	...	0.092 U	0.097 U	0.096 U	0.097 U	0.093 U
4-Bromophenyl Phenyl Ether	--	0.012 U	0.011 U	...	0.012 U	0.014 U	...	0.011 U	0.011 U	0.012 U	...	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.016 U	0.015 U	...	0.016 U	0.019 U	...	0.016 U	0.015 U	0.016 U	...	0.015 U	0.016 U	0.016 U	0.016 U	0.015 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-049	CFMW-049A	CFMW-049A	CFMW-050	CFMW-050	CFMW-050	CFMW-050-DUP	CFMW-053A	CFMW-053A	CFMW-053A	CFMW-053A-DUP	CFMW-054	CFMW-054	CFSB-010	CFSB-012
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft
Chemical Name		8/20/2016	8/20/2016	8/20/2016	6/22/2016	6/22/2016	6/22/2016	6/22/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	6/20/2016	6/20/2016	5/21/2016	5/28/2016
4-Chloroaniline	0.00016	0.0096 U	0.009 U	...	0.0095 U	0.011 U	...	0.0093 U	0.0089 U	0.0098 U	...	0.0089 U	0.0094 U	0.0093 U	0.0093 U	0.009 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.01 U	...	0.011 U	0.013 U	...	0.011 U	0.01 U	0.011 U	...	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U
4-Nitroaniline	0.0016	0.014 U	0.013 U	...	0.014 U	0.016 U	...	0.014 U	0.013 U	0.014 U	...	0.013 U	0.014 U	0.014 U	0.014 U	0.013 U
4-Nitrophenol	--	0.18 U	0.17 U	...	0.18 U	0.21 U	...	0.17 U	0.17 U	0.18 U	...	0.17 U	0.18 U	0.17 U	0.17 U	0.17 U
Acenaphthene	0.55	0.009 U	0.0085 U	...	0.0089 U	0.014 J	...	0.0088 U	0.0084 UJ	0.015 J	...	0.0084 UJ	0.0088 U	0.0087 U	1.1	0.0085 U
Acenaphthylene	--	0.0096 U	0.009 U	...	0.0095 U	0.011 U	...	0.0093 U	0.0089 U	0.0098 U	...	0.0089 U	0.0094 U	0.0093 U	0.025 J	0.009 U
Acetophenone	0.058	0.0081 U	0.0076 U	...	0.008 U	0.0094 U	...	0.0079 U	0.0076 U	0.0083 U	...	0.0075 U	0.0079 U	0.0079 U	0.0079 U	0.0076 U
Anthracene	5.8	0.035 U	0.033 U	...	0.035 U	0.041 U	...	0.034 U	0.033 U	0.036 U	...	0.033 U	0.035 U	0.034 U	1.5	0.033 U
Atrazine	0.0002	0.017 U	0.016 U	...	0.016 U	0.019 U	...	0.016 U	0.015 U	0.017 U	...	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U
Benzaldehyde	0.0041	0.028 U	0.027 U	...	0.028 U	0.033 U	...	0.028 U	0.027 U	0.037 J	...	0.026 U	0.028 U	0.028 U	0.028 U	0.027 U
Benzo(A)Anthracene	0.011	0.031 U	0.029 U	...	0.048	0.23	...	0.035 J	0.029 U	0.21	...	0.029 U	0.043	0.053	2.3	0.045
Benzo(A)Pyrene	0.018	0.11	0.011 U	...	0.051	0.32	...	0.037	0.015 J	0.24	...	0.01 U	0.053	0.063	2.1	0.046
Benzo(B)Fluoranthene	0.18	0.21	0.014 U	...	0.11	0.75	...	0.081	0.026 J	0.49	...	0.013 UJ	0.15	0.14	2.5	0.065
Benzo(G,H,I)Perylene	--	0.18 J	0.02 U	...	0.041 J	0.4 J	...	0.03 J	0.02 U	0.3 J	...	0.02 U	0.076 J	0.068 J	1.8 J+	0.052 J+
Benzo(K)Fluoranthene	1.8	0.071	0.015 U	...	0.033 J	0.22	...	0.024 J	0.015 U	0.15	...	0.015 U	0.039	0.051	0.99	0.025 J
Benzyl Butyl Phthalate	0.24	0.012 U	0.011 U	...	0.011 U	0.013 U	...	0.011 U	0.011 U	0.012 U	...	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.032 U	0.03 U	...	0.031 U	0.037 U	...	0.031 U	0.03 U	0.033 U	...	0.029 U	0.031 U	0.031 U	0.11 J	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.012 U	0.011 U	...	0.011 U	0.013 U	...	0.011 U	0.011 U	0.012 U	...	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0088 U	0.0083 U	...	0.0087 U	0.01 U	...	0.0085 U	0.0082 U	0.009 U	...	0.0082 U	0.0086 U	0.0085 U	0.0086 U	0.0083 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.014 U	...	0.015 U	0.018 U	...	0.015 U	0.014 U	0.016 U	...	0.014 U	0.015 U	0.015 U	0.015 U	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.015 U	0.014 U	...	0.14 J	5.8	...	0.014 U	0.035 J	0.055 J	...	0.013 UJ	0.12 J	0.1 J	0.014 U	0.014 U
Caprolactam	0.25	0.027 U	0.025 U	...	0.027 U	0.031 U	...	0.026 U	0.025 U	0.027 U	...	0.025 U	0.026 U	0.026 U	0.026 UJ	0.025 U
Carbazole	--	0.0093 U	0.0087 U	...	0.0092 U	0.036 J	...	0.009 U	0.0086 U	0.038 J	...	0.0086 U	0.009 U	0.009 U	0.75	0.0087 U
Chrysene	9	0.18 J	0.0095 U	...	0.069 J	0.45	...	0.059 J	0.018 J	0.34 J	...	0.0094 UJ	0.088 J	0.098 J	2.2	0.045 J
Dibenz(A,H)Anthracene	0.096	0.019 U	0.018 U	...	0.019 U	0.088	...	0.019 U	0.018 U	0.048	...	0.018 U	0.019 U	0.019 U	0.45 J+	0.018 U
Dibenzofuran	0.015	0.011 U	0.011 U	...	0.011 U	0.013 U	...	0.011 U	0.011 U	0.012 U	...	0.01 U	0.011 U	0.011 U	0.63	0.011 U
Diethyl Phthalate	0.61	0.011 U	0.01 U	...	0.01 U	0.013 U	...	0.01 U	0.0099 U	0.011 U	...	0.0098 U	0.01 U	0.01 U	0.01 U	0.01 U
Dimethyl Phthalate	--	0.011 U	0.01 U	...	0.011 U	0.013 U	...	0.011 U	0.01 U	0.011 U	...	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.01 U	...	0.02 J	0.013 U	...	0.037 J	0.027 J	0.021 J	...	0.01 UJ	0.021 J	0.042 J	0.011 U	0.01 U
Di-N-Octylphthalate	5.7	0.019 U	0.018 U	...	0.019 U	0.022 U	...	0.018 U	0.018 U	0.019 U	...	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Fluoranthene	8.9	0.086 J	0.01 U	...	0.076 J	0.45	...	0.07 J	0.025 J	0.37 J	...	0.01 J	0.059 J	0.086 J	5.4	0.071 J
Fluorene	0.54	0.0081 U	0.0076 U	...	0.008 U	0.0094 U	...	0.0079 U	0.0076 U	0.012 J	...	0.0075 U	0.0079 U	0.0079 U	1.1	0.0076 U
Hexachlorobenzene	0.00012	0.015 U	0.014 U	...	0.015 U	0.017 U	...	0.015 U	0.014 U	0.015 U	...	0.014 U	0.015 U	0.015 U	0.015 U	0.014 U
Hexachlorobutadiene	0.00027	0.011 U	0.0099 U	...	0.011 U	0.012 U	...	0.01 U	0.0098 U	0.011 U	...	0.0097 U	0.01 U	0.01 U	0.01 U	0.0099 U
Hexachlorocyclopentadiene	0.00013	0.023 U	0.022 U	...	0.023 U	0.027 U	...	0.023 U	0.022 U	0.024 U	...	0.022 U	0.023 U	0.023 U	0.023 U	0.022 UJ
Hexachloroethane	0.0002	0.014 U	0.013 U	...	0.014 U	0.016 U	...	0.013 U	0.013 U	0.014 U	...	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.15	0.023 U	...	0.049	0.42	...	0.033 J	0.023 U	0.29	...	0.023 U	0.075	0.064	2 J+	0.047
Isophorone	0.026	0.008 U	0.0075 U	...	0.0079 U	0.046 J	...	0.0078 U	0.0075 U	0.0082 U	...	0.0074 U	0.0078 U	0.0078 U	0.0078 U	0.0075 U
Naphthalene	0.00054	0.0095 U	0.0089 U	...	0.0094 U	0.02 J	...	0.0092 U	0.0088 U	0.015 J	...	0.0088 U	0.0092 U	0.0092 U	1.5	0.0089 U
Nitrobenzene	0.000092	0.012 U	0.011 U	...	0.012 U	0.014 U	...	0.011 U	0.011 U	0.012 U	...	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.013 U	0.012 U	...	0.012 U	0.014 U	...	0.012 U	0.012 U	0.013 U	...	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.034 U	0.032 U	...	0.033 U	0.039 U	...	0.033 U	0.032 U	0.035 U	...	0.031 U	0.033 U	0.033 U	0.033 U	0.032 U
Pentachlorophenol	0.000057	0.045 U	0.042 U	...	0.045 U	0.052 U	...	0.044 U	0.042 U	0.046 U	...	0.042 U	0.044 U	0.044 U	0.044 U	0.042 U
Phenanthrene	--	0.047 J	0.0093 U	...	0.046 J	0.2 J	...	0.04 J	0.019 J	0.19 J	...	0.0092 UJ	0.03 J	0.041 J	5.8	0.035 J
Phenol	0.33	0.012 U	0.011 U	...	0.012 U	0.014 U	...	0.012 U	0.011 U	0.012 U	...	0.011 U	0.012 U	0.012 U	0.021 J	0.011 U
Pyrene	1.3	0.11 J	0.016 U	...	0.073 J	0.43	...	0.061 J	0.024 J	0.36 J	...	0.016 U	0.073 J	0.096 J	4.9	0.077 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	...	0.0003 U	...	0.00051 U	...	...	0.00033 U	0.00045 U	...	...	0.00037 U	0.00047 U	...	0.00039 U	0.00031 U
1,1,2,2-Tetrachloroethane	0.00003	...	0.00014 U	...	0.00023 U	...	...	0.00015 U	0.0002 U	...	...	0.00017 U	0.00021 U	...	0.00017 U	0.00014 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	...	0.00035 U	...	0.0006 U	...	...	0.00038 U	0.00052 U	...	...	0.00043 U	0.00055 U	...	0.00045 U	0.00036 U
1,1,2-Trichloroethane	0.000013	...	0.00022 U	...	0.00038 U	...	...	0.00024 U	0.00033 U	...	...	0.00028 U	0.00035 U	...	0.00029 U	0.00023 U
1,1-Dichloroethane	0.00078	...	0.00027 U	...	0.00046 U	...	...	0.0003 U	0.0004 U	...	...	0.00033 U	0.00042 U	...	0.00035 U	0.00028 U
1,1-Dichloroethene	0.01	...	0.00033 U	...	0.00056 U	...	...	0.00036 U	0.00048 U	...	...	0.0004 U	0.00051 U	...	0.00042 U	0.00034 U
1,2,3-Trichlorobenzene	0.0021	...	0.000088 U	...	0.00015 U	...	...	0.000095 U	0.00013 U	...	...	0.00011 U	0.00014 U	...	0.00011 U	0.00009 U
1,2,4-Trichlorobenzene	0.0012	...	0.00026 U	...	0.00043 U	...	...	0.00028 U	0.00038 U	...	...	0.00031 U	0.0004 U	...	0.00033 U	0.00026 U
1,2-Dibromo-3-Chloropropane	0.00000014	...	0.00038 U	...	0.00064 U	...	...	0.00041 U	0.00055 U	...	...	0.00046 U	0.00058 U	...	0.00048 U	0.00039 U

Preliminary - Under EPA and IDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-049	CFMW-049A	CFMW-049A	CFMW-050	CFMW-050	CFMW-050	CFMW-050-DUP	CFMW-053A	CFMW-053A	CFMW-053A	CFMW-053A-DUP	CFMW-054	CFMW-054	CFSB-010	CFSB-012
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft
Chemical Name		8/20/2016	8/20/2016	8/20/2016	6/22/2016	6/22/2016	6/22/2016	6/22/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	6/20/2016	6/20/2016	5/21/2016	5/28/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.000096 U	...	0.00016 U	...	...	0.0001 U	0.00014 U	...	...	0.00012 U	0.00015 U	...	0.00012 U	0.000099 U
1,2-Dichlorobenzene	0.03	...	0.00011 U	...	0.00019 U	...	...	0.00012 U	0.00017 U	...	...	0.00014 U	0.00017 U	...	0.00014 U	0.00011 U
1,2-Dichloroethane	0.000048	...	0.000088 U	...	0.00015 U	...	...	0.000095 U	0.00013 U	...	...	0.00011 U	0.00014 J	...	0.00011 U	0.00009 U
1,2-Dichloropropane	0.000047	...	0.00014 U	...	0.00023 U	...	...	0.00015 U	0.0002 U	...	...	0.00017 U	0.00021 U	...	0.00017 U	0.00014 U
1,3-Dichlorobenzene	--	...	0.000096 U	...	0.00016 U	...	...	0.0001 U	0.00014 U	...	...	0.00012 U	0.00015 U	...	0.00012 U	0.000099 U
1,4-Dichlorobenzene	0.00046	...	0.0001 U	...	0.00018 U	...	...	0.00011 U	0.00015 UJ	...	...	0.00013 UJ	0.00016 U	...	0.00013 U	0.00011 U
2-Hexanone	0.00088	...	0.00075 U	...	0.0013 U	...	...	0.00082 U	0.0011 U	...	...	0.00093 U	0.0012 U	...	0.00096 U	0.00077 U
Acetone	0.29	...	0.014	...	0.072 J+	...	...	0.06 J+	0.036	...	...	0.042	0.056 J+	...	0.027	0.03
Benzene	0.00023	...	0.0013 J	...	0.0009 J	...	...	0.00037 J	0.00052 J	...	...	0.00064 J	0.00092 J	...	0.00042 J	0.00046 J
Bromochloromethane	0.0021	...	0.00014 U	...	0.00023 U	...	...	0.00015 U	0.0002 U	...	...	0.00017 U	0.00021 U	...	0.00017 U	0.00014 U
Bromodichloromethane	0.000036	...	0.0003 U	...	0.00051 U	...	...	0.00033 U	0.00045 U	...	...	0.00037 U	0.00047 U	...	0.00039 U	0.00031 U
Bromoform	0.00087	...	0.0001 U	...	0.00018 U	...	...	0.00011 U	0.00015 U	...	...	0.00013 U	0.00016 U	...	0.00013 U	0.00011 U
Bromomethane	0.00019	...	0.00026 U	...	0.00043 U	...	...	0.00028 U	0.00038 U	...	...	0.00031 U	0.0004 U	...	0.00033 U	0.00026 U
Carbon Disulfide	0.024	...	0.00045 J	...	0.00058 U	...	...	0.00035 U	0.00051 UJ	...	...	0.0011 J	0.00053 U	...	0.00086 J	0.00045 J
Carbon Tetrachloride	0.00018	...	0.00034 U	...	0.00058 U	...	...	0.00035 U	0.00051 U	...	...	0.00042 U	0.00053 U	...	0.00044 U	0.00035 U
Chlorobenzene	0.0053	...	0.00011 U	...	0.00019 U	...	...	0.00012 U	0.00017 U	...	...	0.00014 U	0.00017 U	...	0.00014 U	0.00011 U
Chloroethane	0.59	...	0.00028 U	...	0.00047 U	...	...	0.00003 U	0.00041 U	...	...	0.00034 U	0.00043 U	...	0.00036 U	0.00029 U
Chloroform	0.000061	...	0.00017 U	...	0.00028 U	...	...	0.00018 U	0.00025 U	...	...	0.00021 U	0.00026 U	...	0.00022 U	0.00017 U
Chloromethane	0.0049	...	0.0003 U	...	0.00051 U	...	...	0.00033 U	0.00045 U	...	...	0.00037 U	0.00047 U	...	0.00039 U	0.00031 U
Cis-1,2-Dichloroethylene	0.0011	...	0.00018 U	...	0.0003 U	...	...	0.00019 U	0.00026 U	...	...	0.00022 U	0.00027 U	...	0.00023 U	0.00018 U
Cis-1,3-Dichloropropene	--	...	0.00012 U	...	0.0002 U	...	...	0.00013 U	0.00018 U	...	...	0.00015 U	0.00019 U	...	0.00015 U	0.00012 U
Cyclohexane	1.3	...	0.0055 J	...	0.00062 U	...	...	0.0004 U	0.00054 U	...	...	0.00046 U	0.00057 U	...	0.00047 U	0.00087 J+
Dibromochloromethane	0.00023	...	0.00012 U	...	0.0002 U	...	...	0.00013 U	0.00018 U	...	...	0.00015 U	0.00019 U	...	0.00015 U	0.00012 U
Dichlorodifluoromethane	0.03	...	0.00026 U	...	0.00043 U	...	...	0.00028 U	0.00038 U	...	...	0.00031 U	0.0004 U	...	0.00033 U	0.00026 U
Ethylbenzene	0.0017	...	0.00039 J	...	0.00024 U	...	...	0.00016 U	0.00021 U	...	...	0.00018 U	0.00022 U	...	0.00043 J	0.00033 J
Isopropylbenzene (Cumene)	0.074	...	0.00014 U	...	0.00023 U	...	...	0.00015 U	0.0002 U	...	...	0.00017 U	0.00021 U	...	0.00017 U	0.00014 U
M,P-Xylene	--	...	0.0011	...	0.00031 J	...	...	0.000095 UJ	0.00013 U	...	...	0.00011 U	0.0003 J	...	0.00094 J	0.001
Methyl Acetate	0.41	...	0.00072 UJ	...	0.0016 J	...	...	0.0025 J	0.0011 U	...	...	0.00089 U	0.0025 J	...	0.00092 U	0.00074 U
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.0018 J	...	0.0063 J	...	...	0.0043	0.0034 J	...	...	0.0034 J	0.0043 J	...	0.00079 U	0.0026 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.0018 U	...	0.003 U	...	...	0.0019 U	0.0026 U	...	...	0.0022 U	0.0028 U	...	0.0023 U	0.0018 U
Methylcyclohexane	--	...	0.0076 J	...	0.00058 U	...	...	0.00043 U	0.00059 U	...	...	0.00055 J	0.00062 U	...	0.0006 J	0.0013
Methylene Chloride	0.0027	...	0.00026 U	...	0.00043 U	...	...	0.00028 U	0.00038 U	...	...	0.00031 U	0.0004 U	...	0.00033 U	0.00026 U
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00034 J	...	0.00019 U	...	...	0.00014 U	0.00019 U	...	...	0.00016 U	0.00028 J	...	0.00039 J	0.00036 J
Styrene	0.13	...	0.00012 U	...	0.00022 U	...	...	0.00013 U	0.00018 U	...	...	0.00015 U	0.00019 U	...	0.00015 U	0.00012 U
Tert-Butyl Methyl Ether	0.0032	...	0.00014 U	...	0.00023 U	...	...	0.00015 U	0.0002 U	...	...	0.00017 U	0.00021 U	...	0.00017 U	0.00014 U
Tetrachloroethylene (PCE)	0.0018	...	0.00022 U	...	0.00038 U	...	...	0.00024 U	0.00033 U	...	...	0.00028 U	0.00035 U	...	0.00029 U	0.00023 U
Toluene	0.076	...	0.0024	...	0.00094 J	...	...	0.00028 J	0.00045 J	...	...	0.00044 J	0.00082 J	...	0.0011	0.0015
Trans-1,2-Dichloroethene	0.011	...	0.00031 U	...	0.00053 U	...	...	0.00034 U	0.00046 U	...	...	0.00038 U	0.00048 U	...	0.0004 U	0.00032 U
Trans-1,3-Dichloropropene	--	...	0.00008 U	...	0.00014 U	...	...	0.000087 U	0.00012 U	...	...	0.000098 U	0.00012 U	...	0.0001 U	0.000082 U
Trichloroethylene (TCE)	0.0001	...	0.00021 U	...	0.00035 U	...	...	0.00023 U	0.00031 U	...	...	0.00026 U	0.00032 U	...	0.00027 U	0.00021 U
Trichlorofluoromethane	0.33	...	0.00027 U	...	0.00046 U	...	...	0.0003 U	0.0004 U	...	...	0.00033 U	0.00042 U	...	0.00035 U	0.00028 U
Vinyl Chloride	0.0000065	...	0.00031 U	...	0.00053 U	...	...	0.00034 U	0.00046 U	...	...	0.00038 U	0.00048 U	...	0.0004 U	0.00032 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
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Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-013	CFSB-013	CFSB-038	CFSB-038	CFSB-040	CFSB-040	CFSB-042	CFSB-042	CFSB-044	CFSB-044	CFSB-045	CFSB-045	CFSB-046	CFSB-046	CFSB-048
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/19/2016	5/19/2016	5/21/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/21/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	8 J-	15.8 J-	54.4 J-	87.3	66.8 J-	203 J-	33.1 J-	50.7 J-	310 J-	330 J-	140	199	13.7 J-	31.7 J-	57.7 J-
Cyanide	0.0015	0.17	0.23	0.067 J	0.07 J	0.032 J	0.044 J	0.039 J	0.055 J	0.46	0.17	0.076 J	0.14	0.016 U	0.015 U	0.066 J
METALS																
Aluminum	3000	13900 J	16900 J	6880	10300 J	8420	12500	12500	9540	13900	12900	9830 J	9500 J	8110	9230	10700
Antimony	0.035	0.4 UJ	0.39 UJ	0.4 UJ	0.45 UJ	0.42 UJ	0.44 J-	0.44 UJ	0.57 J-	0.44 UJ	0.48 J-	0.43 UJ	0.42 UJ	0.38 UJ	0.41 UJ	0.45 UJ
Arsenic	0.0015	5.8 J	5.3 J	3.2 J	7.6	4.2 J	4.9 J	4.7 J	4.8 J	5.2	5.5	4.8	4.3	4.6	4.6	3.9
Barium	16	222	267	77.1	113	71.7	70	132	76.6	92.8 J+	104 J+	84.5	91.2	51.3 J+	83.2 J+	123 J+
Beryllium	1.9	0.52	0.59	0.22 J	0.39 J	0.35 J	0.4 J	0.5	0.37 J	0.7	0.59	0.4 J	0.41	0.28 J	0.35 J	0.49
Cadmium	0.069	0.3 U	0.29 U	0.3 U	0.34 U	0.32 U	0.39 J	0.33 U	0.31 U	0.39 J	0.39 J	0.33 U	0.32 U	0.29 U	0.31 U	0.34 U
Calcium	--	3790	4240	11600 J	12900 J	22900 J	18500 J	4760 J	17500 J	17000	23900	14100 J	33000 J	64600	54700	19700
Chromium, Total	--	9.2	8.9	8.7	9.7 J	9.8	10.7	10.8	13.8	10.6	10.5	15.3 J	9.5 J	21.3	74.2	9.1
Cobalt	0.027	4.8	5.6	4.1	6.3	5.5	5.2	6.4	4.7	5.7	5.4	5.3	4.1	4.5	5.4	5.3
Copper	2.8	12.1 J	12.5 J	10.6 J+	23.4 J	12.7 J+	20.7 J+	13.6 J+	19.8 J+	15.5	18.6	15.3 J	13.4 J	11.6	23.4	15.1
Iron	35	13300	14000	10200	16000 J	13800	13100	16600	14900	13900	13200	14500 J	11900 J	13900	14300	13300
Lead	400	9	10.2	8.4 J	16.3 J	9.4 J	27.2 J	12.3 J	16.4 J	15	14.5	29.4 J	41.9 J	6.7	32.1	10.2
Magnesium	--	5980	5750	5590 J	8020 J	9560 J	7660 J	8430 J	12200 J	8770	8290	9050 J	10300 J	15600	14100	7660
Manganese	2.8	554 J	518 J	379	560	374	332	588	425	403	358	455	353	386	510	438
Mercury	0.0033	0.025	0.032	0.016 J	0.019	0.017	0.025	0.016	0.029	0.02	0.022	0.024	0.024	0.019	0.02	0.018
Nickel	2.6	9.1	10.1	10 J+	16 J	12.4 J+	18.2 J+	11.6 J+	12.8 J+	45.3	46.1	13.2 J	12 J	10.2	13.4	18.4
Potassium	--	903	1020	526 J	863	704 J	895 J	851 J	754 J	960	980	910	1040	880	1410	658
Selenium	0.052	0.43 J	0.41 J	0.38 U	0.42 J	0.39 U	0.39 U	0.41 U	0.38 U	0.55 J	0.63 J	0.41 U	0.39 U	0.35 U	0.38 U	0.46 J
Silver	0.08	0.73 U	0.71 U	0.73 U	0.82 U	0.76 U	0.77 U	0.81 U	0.75 U	0.8 U	0.78 U	0.79 U	0.77 U	0.69 U	0.75 U	0.82 U
Sodium	--	37 U	39.5 J	37.4 U	61.9 J	55.1 J	256	45.9 J	95 J	618	576	214	256	46.1 J	75.3 J	92.8 J
Thallium	0.0014	0.15 U	0.15 U	0.15 U	0.17 U	0.16 U	0.16 U	0.17 U	0.15 U	0.16 U	0.16 U	0.16 U	0.16 U	0.14 U	0.15 U	0.17 U
Vanadium	8.6	9.8	11	7.9	11.6 J	9.7	12.7	13.4	9.5	23.6	23.1	11.6 J	11.8 J	6.5	7.9	13.5
Zinc	37	51.7	61.3	31.2 J	47.7 J	42.3 J	72.9 J	42.6 J	53.5 J	50	57.3	57.2 J	51.6 J	41.3	39.3	62.2

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-013	CFSB-013	CFSB-038	CFSB-038	CFSB-040	CFSB-040	CFSB-042	CFSB-042	CFSB-044	CFSB-044	CFSB-045	CFSB-045	CFSB-046	CFSB-046	CFSB-048
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/19/2016	5/19/2016	5/21/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/21/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016
PESTICIDES																
Aldrin	0.00015	...	...	...	...	...	...	...	0.00092 U	...	0.00089 U	...	...	...	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	...	...	...	...	...	...	0.0007 U	...	0.00067 U	...	...	...	...	...
Alpha Endosulfan	--	...	...	...	...	...	...	...	0.0011 U	...	0.001 U	...	...	...	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	...	...	...	...	...	...	0.00074 U	...	0.00071 U	...	...	...	...	...
Beta Endosulfan	--	...	...	...	...	...	...	...	0.0012 U	...	0.0012 U	...	...	...	...	...
cis-Chlordane	--	...	...	...	...	...	...	...	0.0012 U	...	0.0012 U	...	...	...	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	...	...	...	...	...	...	0.0009 U	...	0.0008 U	...	...	...	...	...
Dieldrin	0.000071	...	...	...	...	...	...	...	0.00096 U	...	0.00095 U	...	...	...	...	...
Endosulfan Sulfate	--	...	...	...	...	...	...	...	0.0009 U	...	0.00086 U	...	...	...	...	...
Endrin	0.0092	...	...	...	...	...	...	...	0.0097 U	...	0.00093 U	...	...	...	...	...
Endrin Aldehyde	--	...	...	...	...	...	...	...	0.00095 U	...	0.00091 U	...	...	...	...	...
Endrin Ketone	--	...	...	...	...	...	...	...	0.0011 U	...	0.001 U	...	...	...	...	...
Gamma Bhc (Lindane)	0.00024	...	...	...	...	...	...	...	0.00068 U	...	0.00066 U	...	...	...	...	...
Heptachlor	0.00012	...	...	...	...	...	...	...	0.00098 U	...	0.00094 U	...	...	...	...	...
Heptachlor Epoxide	0.000028	...	...	...	...	...	...	...	0.0015 U	...	0.0014 U	...	...	...	...	...
Methoxychlor	0.2	...	...	...	...	...	...	...	0.0016 U	...	0.0016 U	...	...	...	...	...
P,P'-DDD	0.0075	...	...	...	...	...	...	...	0.001 U	...	0.00096 U	...	...	...	...	...
P,P'-DDE	0.011	...	...	...	...	...	...	...	0.0011 U	...	0.0011 U	...	...	...	...	...
P,P'-DDT	0.077	...	...	...	...	...	...	...	0.00079 U	...	0.00076 U	...	...	...	...	...
Toxaphene	0.011	...	...	...	...	...	...	...	0.022 U	...	0.021 U	...	...	...	...	...
trans-Chlordane	--	...	...	...	...	...	...	...	0.0017 U	...	0.0016 U	...	...	...	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.01 U	0.011 U	0.0093 U	0.0098 U	0.0094 U	0.0096 U	0.0096 U	0.01 U	0.0098 U	0.0098 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0099 U
PCB-1221 (Aroclor 1221)	0.00008	0.01 U	0.011 U	0.0093 U	0.0098 U	0.0094 U	0.0096 U	0.0096 U	0.01 U	0.0098 U	0.0098 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0099 U
PCB-1232 (Aroclor 1232)	0.00008	0.01 U	0.011 U	0.0093 U	0.0098 U	0.0094 U	0.0096 U	0.0096 U	0.01 U	0.0098 U	0.0098 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0099 U
PCB-1242 (Aroclor 1242)	0.0012	0.01 U	0.011 U	0.0093 U	0.0098 U	0.0094 U	0.0096 U	0.0096 U	0.01 U	0.0098 U	0.0098 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0099 U
PCB-1248 (Aroclor 1248)	0.0012	0.01 U	0.011 U	0.0093 U	0.0098 U	0.0094 U	0.0096 U	0.0096 U	0.01 U	0.0098 U	0.0098 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0099 U
PCB-1254 (Aroclor 1254)	0.002	0.011 U	0.012 U	0.0096 U	0.01 U	0.0098 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.01 U
PCB-1260 (Aroclor 1260)	0.0055	0.011 U	0.012 U	0.0096 U	0.01 U	0.0098 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.01 U
PCB-1262 (Aroclor 1262)	--	0.011 U	0.012 U	0.0096 U	0.01 U	0.0098 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.01 U
PCB-1268 (Aroclor 1268)	--	0.011 U	0.012 U	0.0096 U	0.01 U	0.0098 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.01 U
Polychlorinated Biphenyl (PCBs)	--	0.011 U	0.012 U	0.0096 U	0.01 U	0.0098 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.01 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.028 U	0.032 U	0.026 U	0.027 U	0.13 U	1.3 U	0.13 U	0.28 U	0.27 U	0.54 U	0.13 U	0.13 U	0.026 U	0.026 U	0.027 U
1,4-Dioxane (P-Dioxane)	0.000094	0.1 U	0.11 U	0.092 U	0.098 U	0.47 U	4.7 U	0.48 U	1 U	0.97 U	1.9 U	0.46 U	0.46 U	0.093 U	0.092 U	0.098 U
2,3,4,6-Tetrachlorophenol	0.018	0.036 U	0.04 U	0.032 U	0.034 U	0.16 U	1.7 U	0.17 U	0.35 U	0.34 U	0.68 U	0.16 U	0.16 U	0.033 U	0.032 U	0.035 U
2,4,5-Trichlorophenol	0.4	0.038 U	0.042 U	0.034 U	0.036 U	0.17 U	1.8 U	0.18 U	0.37 U	0.36 U	0.72 U	0.17 U	0.17 U	0.035 U	0.034 U	0.037 U
2,4,6-Trichlorophenol	0.0012	0.011 U	0.012 U	0.0096 U	0.01 U	0.05 U	0.5 U	0.051 U	0.11 U	0.1 U	0.21 U	0.049 U	0.049 U	0.0098 U	0.0098 U	0.01 U
2,4-Dichlorophenol	0.0023	0.009 U	0.01 U	0.0081 U	0.0086 U	0.041 U	0.42 U	0.042 U	0.089 U	0.086 U	0.17 U	0.041 U	0.041 U	0.0082 U	0.0081 U	0.0087 U
2,4-Dimethylphenol	0.042	0.084 U	0.093 U	0.076 U	0.08 U	0.39 U	3.9 U	0.38 U	0.83 U	0.8 U	1.6 U	0.38 U	0.38 U	0.077 U	0.076 U	0.081 U
2,4-Dinitrophenol	0.0044	0.28 U	0.32 U	0.26 U	0.28 U	1.3 U	13 U	1.4 U	2.8 U	2.8 U	5.5 U	1.3 U	1.3 U	0.26 U	0.26 U	0.28 U
2,4-Dinitrotoluene	0.00032	0.015 U	0.017 U	0.014 U	0.014 U	0.069 U	0.7 U	0.071 U	0.15 U	0.14 U	0.29 U	0.069 U	0.069 U	0.014 U	0.014 U	0.015 U
2,6-Dinitrotoluene	0.000067	0.02 U	0.023 U	0.018 U	0.019 U	0.093 U	0.94 U	0.095 U	0.2 U	0.19 U	0.39 U	0.093 U	0.092 U	0.019 U	0.018 U	0.02 U
2-Chloronaphthalene	0.39	0.0087 U	0.0096 U	0.0078 U	0.0083 U	0.04 U	0.4 U	0.041 U	0.085 U	0.083 U	0.16 U	0.039 U	0.039 U	0.0079 U	0.0078 U	0.0083 U
2-Chlorophenol	0.0089	0.0097 U	0.011 U	0.0087 U	0.0093 U	0.045 U	0.45 U	0.045 U	0.096 U	0.092 U	0.18 U	0.044 U	0.044 U	0.0089 U	0.0087 U	0.0093 U
2-Methylnaphthalene	0.019	0.0084 U	0.0094 U	0.017 J	0.03 J	0.29 J	1.4 J	0.1 J	0.4 J	0.71 J	1.7 J	0.081 J	0.1 J	0.026 J	0.014 J	0.39
2-Methylphenol (O-Cresol)	0.075	0.017 U	0.018 U	0.015 U	0.016 U	0.076 U	0.77 U	0.078 U	0.16 U	0.16 U	0.31 U	0.076 U	0.076 U	0.015 U	0.015 U	0.016 U
2-Nitroaniline	0.008	0.013 U	0.014 U	0.011 U	0.012 U	0.058 U	0.59 U	0.059 U	0.12 U	0.12 U	0.24 U	0.057 U	0.057 U	0.011 U	0.011 U	0.012 U
2-Nitrophenol	--	0.013 U	0.014 U	0.012 U	0.012 U	0.059 U	0.6 U	0.06 U	0.13 U	0.12 U	0.24 U	0.058 U	0.058 U	0.012 U	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.01 U	0.011 U	0.0092 U	0.0097 U	0.047 U	0.47 U	0.048 U	0.1 U	0.097 U	0.19 U	0.046 U	0.046 U	0.0093 U	0.0092 U	0.0098 U
3,3'-Dichlorobenzidine	0.00082	0.043 U	0.047 U	0.038 U	0.041 U	0.2 U	2 U	0.2 U	0.42 U	0.41 U	0.81 U	0.19 U	0.19 U	0.039 U	0.038 U	0.041 U
3-Nitroaniline	--	0.011 U	0.013 U	0.01 U	0.011 U	0.052 U	0.53 U	0.053 U	0.11 U	0.11 U	0.21 U	0.052 U	0.051 U	0.01 U	0.01 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	0.1 U	0.11 U	0.092 U	0.097 U	0.47 U	4.7 U	0.48 U	1 U	0.97 U	1.9 U	0.46 U	0.46 U	0.093 U	0.092 U	0.098 U
4-Bromophenyl Phenyl Ether	--	0.012 U	0.013 U	0.011 U	0.011 U	0.055 U	0.56 U	0.056 U	0.12 U	0.11 U	0.23 U	0.055 U	0.055 U	0.011 U	0.011 U	0.012 U
4-Chloro-3-Methylphenol	0.17	0.016 U	0.018 U	0.015 U	0.016 U	0.075 U	0.76 U	0.077 U	0.16 U	0.16 U	0.31 U	0.075 U	0.074 U	0.015 U	0.015 U	0.016 U

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Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-013	CFSB-013	CFSB-038	CFSB-038	CFSB-040	CFSB-040	CFSB-042	CFSB-042	CFSB-044	CFSB-044	CFSB-045	CFSB-045	CFSB-046	CFSB-046	CFSB-048
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/19/2016	5/19/2016	5/21/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/21/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016
4-Chloroaniline	0.00016	0.0098 U	0.011 U	0.0088 U	0.0094 U	0.045 U	0.46 U	0.046 U	0.097 U	0.094 U	0.19 U	0.045 U	0.045 U	0.009 U	0.0088 U	0.0095 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.013 U	0.01 U	0.011 U	0.052 U	0.53 U	0.054 U	0.11 U	0.11 U	0.22 U	0.052 U	0.052 U	0.01 U	0.01 U	0.011 U
4-Nitroaniline	0.0016	0.014 U	0.016 U	0.013 U	0.014 U	0.066 U	0.67 U	0.068 U	0.14 U	0.14 U	0.27 U	0.066 U	0.066 U	0.013 U	0.013 U	0.014 U
4-Nitrophenol	--	0.18 U	0.2 U	0.17 U	0.18 U	0.84 U	8.5 U	0.86 U	1.8 U	1.7 UJ	3.5 U	0.84 U	0.83 U	0.17 U	0.17 U	0.18 UJ
Acenaphthene	0.55	0.0092 U	0.01 U	0.12 J	0.22 J	2.6	15 J	0.74 J	2.2 J	3 J	3.7 J	0.72 J	0.82 J	0.021 J	0.097 J	0.25 J
Acenaphthylene	--	0.0098 U	0.011 U	0.0088 U	0.0094 U	0.048 J	0.46 U	0.046 U	0.097 U	0.094 U	0.19 U	0.045 U	0.045 U	0.009 U	0.0088 U	0.0095 U
Acetophenone	0.058	0.0083 U	0.0092 U	0.0075 U	0.0079 U	0.038 U	0.39 U	0.039 U	0.082 U	0.079 U	0.16 U	0.038 U	0.038 U	0.0076 U	0.0075 U	0.008 U
Anthracene	5.8	0.036 U	0.04 U	0.2 J	0.33 J	4.6	22	1.9	9.5	7.6	7.6	1.3 J	1.4 J	0.033 U	0.22 J	0.36 J
Atrazine	0.0002	0.017 U	0.019 U	0.015 U	0.016 U	0.078 U	0.79 U	0.078 U	0.16 U	0.16 U	0.32 U	0.077 U	0.077 U	0.015 U	0.015 U	0.016 U
Benzaldehyde	0.0041	0.029 U	0.032 U	0.026 U	0.028 U	0.13 U	1.4 U	0.14 U	0.29 U	0.28 U	0.55 U	0.13 U	0.13 U	0.027 U	0.026 U	0.028 U
Benzo(A)Anthracene	0.011	0.033 J	0.14	0.83	1.2	19	110	7.5	21	40	46	8	8.2	0.22	1.6	2.6
Benzo(A)Pyrene	0.018	0.036 J	0.16	0.86	1.3	24	130	8.6	24	34	42	10	11	0.27	2	3.3
Benzo(B)Fluoranthene	0.18	0.11	0.41	2.2	2.9	26	150	11	31	48	62	14	14	0.34	2.8	3.8
Benzo(G,H,I)Perylene	--	0.05 J	0.19 J	1.1 J+	1.4	23	99	8.4	20	24 J+	33	17 J+	19 J+	0.24 J	2.1	3.2 J+
Benzo(K)Fluoranthene	1.8	0.032 J	0.13	0.64	0.97	12	68	4.4	13	17	23	4.9	5	0.16	1	1.7
Benzyl Butyl Phthalate	0.24	0.012 U	0.013 U	0.011 U	0.011 U	0.054 U	0.55 U	0.055 U	0.12 U	0.11 U	0.22 U	0.22 J	0.31 J	0.011 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.033 U	0.036 U	0.029 U	0.031 U	0.15 U	1.5 U	0.15 U	0.32 U	0.31 U	0.62 U	0.15 U	0.15 U	0.03 U	0.029 U	0.077 J
Bis(2-Chloroethoxy) Methane	0.0013	0.012 U	0.013 U	0.011 U	0.011 U	0.055 U	0.55 U	0.056 U	0.12 U	0.11 U	0.23 U	0.054 U	0.054 U	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.009 U	0.01 U	0.0081 U	0.0086 U	0.041 U	0.42 U	0.042 U	0.089 U	0.086 U	0.17 U	0.041 U	0.041 U	0.0082 U	0.0081 U	0.0087 U
Bis(2-Chloroisopropyl) Ether	0.026	0.016 U	0.017 U	0.014 U	0.015 U	0.072 U	0.7 U	0.073 U	0.15 U	0.15 UJ	0.3 U	0.071 U	0.071 U	0.014 U	0.014 U	0.015 UJ
Bis(2-Ethylhexyl) Phthalate	1.3	0.015 U	0.017 U	0.013 U	0.014 U	0.068 U	0.7 U	0.07 U	0.15 U	0.14 U	0.28 U	0.068 U	0.26 J	0.014 U	0.013 U	0.014 U
Caprolactam	0.25	0.028 U	0.031 U	0.026 UJ	0.026 U	0.13 U	1.3 U	0.13 U	0.27 U	0.26 U	0.52 U	0.13 UJ	0.12 UJ	0.025 U	0.025 U	0.026 U
Carbazole	--	0.0095 U	0.017 J	0.12 J	0.2 J	3	17 J	1.5 J	6.5	7.3	6.8 J	1.1 J	1.2 J	0.025 J	0.22 J	0.27 J
Chrysene	9	0.086 J	0.25 J	1.4	1.9	25	130	10	28	50	57	10	10	0.27 J	2.1	3.1
Dibenz(A,H)Anthracene	0.096	0.02 U	0.056 J+	0.36 J+	0.42	4 J+	28	1.9	5.4	7 J+	8.3 J+	3.4 J+	3.1 J+	0.054 J+	0.52 J+	0.85 J+
Dibenzofuran	0.015	0.012 U	0.013 U	0.047 J	0.081 J	1 J	4.8 J	0.26 J	0.88 J	1.2 J	1.5 J	0.34 J	0.37 J	0.011 U	0.041 J	0.11 J
Diethyl Phthalate	0.61	0.011 U	0.012 U	0.0098 U	0.01 U	0.051 U	0.5 U	0.051 U	0.11 U	0.1 U	0.21 U	0.049 U	0.049 U	0.0099 U	0.0098 U	0.01 U
Dimethyl Phthalate	--	0.011 U	0.012 U	0.01 U	0.011 U	0.051 U	0.52 U	0.052 U	0.11 U	0.11 U	0.21 U	0.05 U	0.05 U	0.01 U	0.01 U	0.011 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.013 U	0.01 U	0.011 U	0.052 U	0.53 U	0.054 U	0.11 U	0.11 U	0.22 U	0.052 U	0.052 U	0.01 U	0.01 U	0.011 U
Di-N-Octylphthalate	5.7	0.019 U	0.022 U	0.017 U	0.019 U	0.089 U	0.9 U	0.091 U	0.19 U	0.18 U	0.37 U	0.088 U	0.088 U	0.018 U	0.017 U	0.019 U
Fluoranthene	8.9	0.048 J	0.21 J	1.5	2.2	35	170	14	46	87	75	13	14	0.28 J	2.3	4
Fluorene	0.54	0.0083 U	0.0092 U	0.09 J	0.17 J	2	10 J	0.5 J	1.9 J	1.6 J	2.2 J	0.52 J	0.62 J	0.014 J	0.074 J	0.11 J
Hexachlorobenzene	0.00012	0.015 U	0.017 U	0.014 U	0.015 U	0.071 U	0.72 U	0.072 U	0.15 U	0.15 U	0.29 U	0.07 U	0.07 U	0.014 U	0.014 U	0.015 U
Hexachlorobutadiene	0.00027	0.011 U	0.012 U	0.0097 U	0.011 U	0.049 U	0.5 U	0.05 U	0.11 U	0.1 U	0.2 U	0.049 U	0.049 U	0.0098 U	0.0097 U	0.01 U
Hexachlorocyclopentadiene	0.00013	0.024 U	0.026 U	0.021 U	0.023 U	0.11 U	1.1 U	0.11 U	0.23 U	0.23 U	0.45 U	0.11 U	0.11 U	0.022 U	0.021 U	0.023 U
Hexachloroethane	0.0002	0.014 U	0.016 U	0.013 U	0.013 U	0.064 U	0.65 U	0.065 U	0.14 U	0.13 U	0.26 U	0.064 U	0.063 U	0.013 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.049 J+	0.2 J+	1.2 J+	1.4	25 J+	100 J+	7.1 J+	21 J+	29 J+	37 J+	15 J+	16 J+	0.26 J+	2 J+	3.7 J+
Isophorone	0.026	0.0082 U	0.013 J	0.007 J	0.0078 U	0.038 U	0.38 U	0.038 U	0.081 U	0.078 U	0.16 U	0.037 U	0.076 J	0.0075 U	0.0074 U	0.0079 U
Naphthalene	0.00054	0.0097 U	0.011 U	0.039 J	0.062 J	0.62 J	3 J	0.24 J	0.72 J	1.9 J	4 J	0.32 J	0.29 J	0.078 J	0.038 J	0.96
Nitrobenzene	0.000092	0.012 U	0.013 U	0.011 U	0.011 U	0.055 U	0.56 U	0.056 U	0.12 U	0.11 U	0.23 U	0.055 U	0.055 U	0.011 U	0.011 U	0.012 U
N-Nitrosodi-N-Propylamine	0.0000081	0.013 U	0.014 U	0.012 U	0.012 U	0.059 UJ	0.6 UJ	0.06 UJ	0.13 UJ	0.12 U	0.24 U	0.058 U	0.058 U	0.012 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.035 U	0.038 U	0.031 U	0.033 U	0.16 U	1.6 U	0.16 U	0.34 U	0.33 U	0.66 U	0.16 U	0.16 U	0.032 U	0.031 U	0.033 U
Pentachlorophenol	0.000057	0.046 U	0.051 U	0.042 U	0.044 U	0.21 U	2.1 U	0.22 U	0.46 U	0.44 U	0.87 U	0.21 U	0.21 U	0.042 U	0.042 U	0.044 U
Phenanthrene	--	0.031 J	0.098 J	0.93	1.5	27	120	9.4	32	35	39	6.6	6.9	0.18 J	1.3	1.5
Phenol	0.33	0.012 U	0.014 U	0.011 U	0.012 U	0.057 U	0.58 U	0.058 U	0.12 U	0.12 U	0.24 U	0.057 U	0.057 U	0.011 U	0.011 U	0.012 U
Pyrene	1.3	0.058 J	0.22 J	1.3	2.4	39	220	19	57	52	86	13	12	0.36	2.6	3
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00046 U	--	0.00036 U	--	0.001 U	--	0.00038 U	--	0.00036 U	--	0.00035 U	--	0.00035 U	--	0.00036 U
1,1,2,2-Tetrachloroethane	0.00003	0.0002 U	--	0.00016 U	--	0.00046 U	--	0.00017 U	--	0.00016 U	--	0.00016 U	--	0.00016 U	--	0.00016 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00053 U	--	0.00041 U	--	0.0012 U	--	0.00045 U	--	0.00042 U	--	0.00041 U	--	0.0004 U	--	0.00042 U
1,1,2-Trichloroethane	0.000013	0.00034 U	--	0.00026 U	--	0.00076 U	--	0.00028 U	--	0.00027 U	--	0.00026 U	--	0.00026 U	--	0.00027 U
1,1-Dichloroethane	0.00078	0.00041 U	--	0.00032 U	--	0.00092 U	--	0.00034 U	--	0.00032 U	--	0.00032 U	--	0.00031 U	--	0.00032 U
1,1-Dichloroethene	0.01	0.00049 U	--	0.00039 U	--	0.0011 U	--	0.00042 U	--	0.00039 U	--	0.00038 U	--	0.00038 U	--	0.00039 U
1,2,3-Trichlorobenzene	0.0021	0.00013 U	--	0.0001 U	--	0.0003 U	--	0.00011 U	--	0.0001 U	--	0.0001 U	--	0.0001 U	--	0.0001 U
1,2,4-Trichlorobenzene	0.0012	0.00038 U	--	0.0003 U	--	0.00087 U	--	0.00032 U	--	0.00031 U	--	0.0003 U	--	0.00029 U	--	0.0003 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00056 U	--	0.00044 U	--	0.0013 U	--	0.00048 U	--	0.00045 U	--	0.00044 U	--	0.00043 U	--	0.00045 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-013	CFSB-013	CFSB-038	CFSB-038	CFSB-040	CFSB-040	CFSB-042	CFSB-042	CFSB-044	CFSB-044	CFSB-045	CFSB-045	CFSB-046	CFSB-046	CFSB-048
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/19/2016	5/19/2016	5/21/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/20/2016	5/21/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00014 U	---	0.00011 U	---	0.00032 U	---	0.00012 U	---	0.00011 U	---	0.00011 U	---	0.00011 U	---	0.00011 U
1,2-Dichlorobenzene	0.03	0.00017 U	---	0.00013 U	---	0.00038 U	---	0.00014 U	---	0.00013 U	---	0.00013 U	---	0.00013 U	---	0.00013 U
1,2-Dichloroethane	0.000048	0.00013 U	---	0.0001 U	---	0.0003 U	---	0.00011 U	---	0.0001 U	---	0.0001 U	---	0.0001 U	---	0.0001 U
1,2-Dichloropropane	0.000047	0.0002 U	---	0.00016 U	---	0.00046 U	---	0.00017 U	---	0.00016 U	---	0.00016 U	---	0.00016 U	---	0.00016 U
1,3-Dichlorobenzene	--	0.00014 U	---	0.00011 U	---	0.00032 U	---	0.00012 U	---	0.00011 U	---	0.00011 U	---	0.00011 U	---	0.00011 U
1,4-Dichlorobenzene	0.00046	0.00016 U	---	0.00012 U	---	0.00035 U	---	0.00013 U	---	0.00012 U	---	0.00012 U	---	0.00012 U	---	0.00012 U
2-Hexanone	0.00088	0.0011 U	---	0.00088 U	---	0.0025 U	---	0.00095 U	---	0.0009 U	---	0.00088 U	---	0.00086 U	---	0.00049 U
Acetone	0.29	0.071	---	0.036	---	0.046	---	0.046	---	0.06	---	0.029	---	0.007	---	0.023
Benzene	0.00023	0.00024 U	---	0.00039 J	---	0.0011 J	---	0.00024 J	---	0.00082 J	---	0.00038 J	---	0.00018 U	---	0.00055 J
Bromochloromethane	0.0021	0.0002 U	---	0.00016 U	---	0.00046 U	---	0.00017 U	---	0.00016 U	---	0.00016 U	---	0.00016 U	---	0.00016 U
Bromodichloromethane	0.000036	0.00046 U	---	0.00036 U	---	0.001 U	---	0.00038 U	---	0.00036 U	---	0.00035 U	---	0.00035 U	---	0.00036 U
Bromoform	0.00087	0.00016 U	---	0.00012 U	---	0.00035 U	---	0.00013 U	---	0.00012 U	---	0.00012 U	---	0.00012 U	---	0.00012 U
Bromomethane	0.00019	0.00038 U	---	0.0003 U	---	0.00087 U	---	0.00032 U	---	0.00031 U	---	0.0003 UJ	---	0.00029 U	---	0.0003 U
Carbon Disulfide	0.024	0.00052 U	---	0.0011	---	0.0015 J	---	0.00068 J	---	0.00041 U	---	0.0014	---	0.00039 U	---	0.001
Carbon Tetrachloride	0.00018	0.00052 U	---	0.0004 U	---	0.0012 U	---	0.00043 U	---	0.00041 U	---	0.0004 U	---	0.00039 U	---	0.00041 U
Chlorobenzene	0.0053	0.00017 U	---	0.00013 U	---	0.00038 U	---	0.00014 U	---	0.00013 U	---	0.00013 U	---	0.00013 U	---	0.00013 U
Chloroethane	0.59	0.00042 U	---	0.00033 U	---	0.00095 U	---	0.00035 U	---	0.00033 U	---	0.00033 U	---	0.00032 U	---	0.00033 U
Chloroform	0.000061	0.00025 U	---	0.0002 U	---	0.00057 U	---	0.00021 U	---	0.0002 U	---	0.0002 U	---	0.00019 U	---	0.0002 U
Chloromethane	0.0049	0.00046 U	---	0.00036 U	---	0.001 U	---	0.00038 U	---	0.00036 U	---	0.00035 UJ	---	0.00035 U	---	0.00036 U
Cis-1,2-Dichloroethylene	0.0011	0.00026 U	---	0.00021 U	---	0.0006 U	---	0.00022 U	---	0.00021 U	---	0.00021 U	---	0.0002 U	---	0.00021 U
Cis-1,3-Dichloropropene	--	0.00018 U	---	0.00014 U	---	0.00041 U	---	0.00015 U	---	0.00014 U	---	0.00014 U	---	0.00014 U	---	0.00014 U
Cyclohexane	1.3	0.00055 U	---	0.00058 J	---	0.0015 J	---	0.00047 U	---	0.00044 U	---	0.00043 U	---	0.00042 U	---	0.00044 U
Dibromochloromethane	0.00023	0.00018 U	---	0.00014 U	---	0.00041 U	---	0.00015 U	---	0.00014 U	---	0.00014 U	---	0.00014 U	---	0.00014 U
Dichlorodifluoromethane	0.03	0.00038 U	---	0.0003 U	---	0.00087 U	---	0.00032 U	---	0.00031 U	---	0.0003 U	---	0.00029 U	---	0.0003 U
Ethylbenzene	0.0017	0.00022 U	---	0.00017 U	---	0.00094 J	---	0.00018 U	---	0.00017 U	---	0.00017 U	---	0.00016 U	---	0.00017 U
Isopropylbenzene (Cumene)	0.074	0.0002 U	---	0.00016 U	---	0.00046 U	---	0.00017 U	---	0.00016 U	---	0.00016 U	---	0.00016 U	---	0.00016 U
M,P-Xylene	--	0.00013 U	---	0.00019 J	---	0.0024 J	---	0.00023 J	---	0.0001 U	---	0.00039 J	---	0.0001 U	---	0.0001 U
Methyl Acetate	0.41	0.0058 J	---	0.00085 U	---	0.0024 U	---	0.00091 U	---	0.0022 J	---	0.00084 U	---	0.00082 U	---	0.014
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0034 J	---	0.00072 U	---	0.0021 U	---	0.0017 J	---	0.00073 U	---	0.0017 J	---	0.0007 U	---	0.00073 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0027 U	---	0.0021 U	---	0.006 U	---	0.0022 U	---	0.0021 U	---	0.0021 U	---	0.002 U	---	0.0021 U
Methylcyclohexane	--	0.0006 U	---	0.0011	---	0.0024 J	---	0.00091 U	---	0.00048 U	---	0.00057 J	---	0.00046 U	---	0.00047 U
Methylene Chloride	0.0027	0.00038 U	---	0.0003 U	---	0.00087 U	---	0.00032 U	---	0.00031 U	---	0.0003 U	---	0.00029 U	---	0.0003 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00019 U	---	0.00015 U	---	0.0011 J	---	0.00016 U	---	0.00015 U	---	0.00016 J	---	0.00015 U	---	0.00015 U
Styrene	0.13	0.00018 U	---	0.00014 U	---	0.00041 U	---	0.00015 U	---	0.00014 U	---	0.00014 U	---	0.00014 U	---	0.00014 U
Tert-Butyl Methyl Ether	0.0032	0.0002 U	---	0.00016 U	---	0.00046 U	---	0.00017 U	---	0.00016 U	---	0.00016 U	---	0.00016 U	---	0.00016 U
Tetrachloroethylene (PCE)	0.0018	0.00034 U	---	0.00026 U	---	0.00076 U	---	0.00028 U	---	0.00027 U	---	0.00026 U	---	0.00026 U	---	0.00027 U
Toluene	0.076	0.00023 U	---	0.00048 J	---	0.0037	---	0.00066 J	---	0.00068 J	---	0.00068 J	---	0.00017 U	---	0.00053 J
Trans-1,2-Dichloroethene	0.011	0.00047 U	---	0.00037 U	---	0.0011 U	---	0.0004 U	---	0.00037 U	---	0.00036 U	---	0.00036 U	---	0.00037 U
Trans-1,3-Dichloropropene	--	0.00012 U	---	0.000094 U	---	0.00027 U	---	0.0001 U	---	0.000095 U	---	0.000093 U	---	0.000091 U	---	0.000095 U
Trichloroethylene (TCE)	0.0001	0.00031 U	---	0.00024 U	---	0.0007 U	---	0.00026 U	---	0.00025 U	---	0.00024 U	---	0.00024 U	---	0.00025 U
Trichlorofluoromethane	0.33	0.00041 U	---	0.00032 U	---	0.00092 U	---	0.00034 U	---	0.00032 U	---	0.00032 U	---	0.00031 U	---	0.00032 U
Vinyl Chloride	0.0000065	0.00047 U	---	0.00037 U	---	0.0011 U	---	0.0004 U	---	0.00037 U	---	0.00036 U	---	0.00036 U	---	0.00037 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-048	CFSB-049	CFSB-050	CFSB-050	CFSB-051	CFSB-051	CFSB-052	CFSB-053	CFSB-054	CFSB-054	CFSB-055	CFSB-055	CFSB-057	CFSB-057	CFSB-059
Sample Depth		0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/20/2016	5/28/2016	5/21/2016	5/21/2016	5/21/2016	5/21/2016	5/20/2016	5/31/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	109 J-	23.3 J	165	126	73 J-	77 J-	1.55 J-	25.8 J	58.1 J-	44 J	129 J	147 J	76.2 J	75.7 J-	42.5 J-
Cyanide	0.0015	0.16	0.037 J-	0.11	0.048 J	0.052 J	0.026 J	0.091 J	0.023 J	0.07 J-	0.083 J-	0.26 J-	0.59 J-	0.066 J-	0.085 J-	0.038 J-
METALS																
Aluminum	3000	12700	7140	15200 J	6780 J	7450	7960	9000	7340	12100	13200	16300	24500	15300	22100	10100
Antimony	0.035	0.46 UJ	0.4 U	0.45 UJ	0.41 UJ	0.44 UJ	0.44 UJ	0.4 UJ	0.47 UJ	0.34 UJ	0.35 U	0.33 U	0.37 U	0.43 U	0.32 UJ	0.37 UJ
Arsenic	0.0015	4.3	4.3	3.4 J	2.7	4.4 J	4.5 J	4.1 J	1.9	3.9	4.8 J	4.2 J	5.4 J	2.5	4.1	4.7
Barium	16	78.5 J+	65.3	208	54.3	72.6	72.7	104	66.3	125	89.4 J	69 J	79.9 J	81.5	146 J	66
Beryllium	1.9	0.56	0.27 J	0.5	0.26 J	0.32 J	0.3 J	0.33 J	0.23 J	0.63	0.47	0.65	0.96	0.28 J	0.55	0.43
Cadmium	0.069	0.35 U	0.31 U	0.34 U	0.34 U	0.33 U	0.33 U	0.31 U	0.35 U	0.26 U	0.27 U	0.25 U	0.28 U	0.33 U	0.24 U	0.28 U
Calcium	--	17300	32500	16300 J	12400 J	13100 J	31000 J	81500 J	10200	34000	20800 J	28300 J	22900 J	16000	45000 J	8950
Chromium, Total	--	9	7.2	20	7.5 J	23.3	27.9	16.9	6.4	9.5	9.7 J	9.9 J	20.1 J	8.1	11	8.9
Cobalt	0.027	4.8	3.9	6.1	3.7	4.8	5.1	9.6	3.5	4.9	5.6	4.6	5.8	3.5	4.8	4.9
Copper	2.8	15.5	9.6	30.8 J	14.7 J	15.2 J+	13.1 J+	18 J+	7.1 J	11.5	11.5	15.4	16	10.3	12.9	13.6
Iron	35	11400	11100	16000 J	9380 J	12400	13500	12600	9690	14300	13200	12200	14800	7960	11200	13900
Lead	400	16.2	5.9	27.1 J	22 J	26.7 J	39.4 J	8.7 J	13.6 J	10.1	11.1	14	23.7	8.4	11.4 J	11.7
Magnesium	--	8960	8200	6110 J	6350 J	7230 J	8550 J	8860 J	5970	14800	11700 J	10100 J	9220 J	5670	20800 J	8960
Manganese	2.8	301	376	630	261	369	374	402	253	484	419 J	373 J	394 J	225	562 J	347
Mercury	0.0033	0.021	0.022	0.018	0.019	0.043	0.015 J	0.012 U	0.018 J	0.016 J	0.021	0.028	0.017	0.012 U	0.013 U	0.031
Nickel	2.6	31.4	7.7	18 J	11.8 J	10.4 J+	13.4 J+	9.3 J+	7.1 J	15.3	14.9 J	23.1 J	38.7 J	36	29.6	10.6
Potassium	--	783	477	808 J	552	702 J	700 J	1390 J	476	781	861 J	885 J	1140 J	330	866	866
Selenium	0.052	0.43 U	0.38 U	0.42 U	0.42 U	0.41 U	0.41 U	0.38 U	0.44 U	0.32 U	0.33 U	0.31 U	0.35 U	0.4 U	0.3 UJ	0.34 U
Silver	0.08	0.96 J	0.74 U	0.82 U	0.81 U	0.8 U	0.8 U	0.74 U	0.86 U	0.62 U	0.65 U	0.6 U	0.68 U	0.79 U	0.59 U	0.67 U
Sodium	--	124	37.7 U	226	68.1 J	132	197	214	43.7 U	54.1 J	56.3 J	91.3	164	58.9 J	62.8 J	34.2 U
Thallium	0.0014	0.17 U	0.15 U	0.17 U	0.17 U	0.16 U	0.16 U	0.15 U	0.18 U	0.13 U	0.13 U	0.12 U	0.14 U	0.16 U	0.12 U	0.14 U
Vanadium	8.6	15.8	6.7	13.6 J	9 J	9.6	12	8.9	6.2	10.6	11.1 J	11.6 J	18.6 J	13.1	14.7	9.3
Zinc	37	50.1	27.4	66 J	63.8 J	86.1 J	81.6 J	145	24.3	38.1	39.9	52.1	66.4	38.4	61.4	34.5

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-048	CFSB-049	CFSB-050	CFSB-050	CFSB-051	CFSB-051	CFSB-052	CFSB-053	CFSB-054	CFSB-054	CFSB-055	CFSB-055	CFSB-057	CFSB-057	CFSB-059
Sample Depth		0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/20/2016	5/28/2016	5/21/2016	5/21/2016	5/21/2016	5/21/2016	5/20/2016	5/31/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016
PESTICIDES																
Aldrin	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
cis-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dieldrin	0.000071	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endosulfan Sulfate	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin	0.0092	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Aldehyde	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Ketone	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gamma Bhc (Lindane)	0.00024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor	0.00012	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor Epoxide	0.000028	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methoxychlor	0.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDD	0.0075	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDE	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDT	0.077	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toxaphene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
trans-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.01 U	0.0096 U	0.01 U	0.0099 U	0.0095 U	0.0095 U	0.0093 U	0.01 U	0.0096 U	0.0096 U	0.0095 U	0.0097 U	0.0095 U	0.0096 U	0.0098 U
PCB-1221 (Aroclor 1221)	0.00008	0.01 U	0.0096 U	0.01 U	0.0099 U	0.0095 U	0.0095 U	0.0093 U	0.01 U	0.0096 U	0.0096 U	0.0095 U	0.0097 U	0.0095 U	0.0096 U	0.0098 U
PCB-1232 (Aroclor 1232)	0.00008	0.01 U	0.0096 U	0.01 U	0.0099 U	0.0095 U	0.0095 U	0.0093 U	0.01 U	0.0096 U	0.0096 U	0.0095 U	0.0097 U	0.0095 U	0.0096 U	0.0098 U
PCB-1242 (Aroclor 1242)	0.0012	0.01 U	0.0096 U	0.01 U	0.0099 U	0.0095 U	0.0095 U	0.0093 U	0.01 U	0.0096 U	0.0096 U	0.0095 U	0.0097 U	0.0095 U	0.0096 U	0.0098 U
PCB-1248 (Aroclor 1248)	0.0012	0.01 U	0.0096 U	0.01 U	0.0099 U	0.0095 U	0.0095 U	0.0093 U	0.01 U	0.0096 U	0.0096 U	0.0095 U	0.0097 U	0.0095 U	0.0096 U	0.0098 U
PCB-1254 (Aroclor 1254)	0.002	0.011 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0096 U	0.011 U	0.0099 U	0.0099 U	0.0098 U	0.01 U	0.0099 U	0.01 U	0.01 U
PCB-1260 (Aroclor 1260)	0.0055	0.011 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0096 U	0.011 U	0.0099 U	0.0099 U	0.0098 U	0.01 U	0.0099 U	0.01 U	0.01 U
PCB-1262 (Aroclor 1262)	--	0.011 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0096 U	0.011 U	0.0099 U	0.0099 U	0.0098 U	0.01 U	0.0099 U	0.01 U	0.01 U
PCB-1268 (Aroclor 1268)	--	0.011 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0096 U	0.011 U	0.0099 U	0.0099 U	0.0098 U	0.01 U	0.0099 U	0.01 U	0.01 U
Polychlorinated Biphenyl (PCBs)	--	0.011 U	0.0099 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0096 U	0.011 U	0.0099 U	0.0099 U	0.0098 U	0.01 U	0.0099 U	0.01 U	0.01 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.28 U	0.026 UJ	0.028 U	0.027 U	0.026 U	0.026 U	0.026 U	0.028 U	0.027 U	0.026 U	0.026 U	0.13 U	0.026 UJ	0.027 U	0.027 U
1,4-Dioxane (P-Dioxane)	0.000094	1 U	0.095 UJ	0.1 U	0.098 U	0.094 U	0.094 U	0.093 U	0.1 U	0.095 U	0.095 U	0.094 U	0.48 U	0.094 UJ	0.095 U	0.097 U
2,3,4,6-Tetrachlorophenol	0.018	0.38 U	0.033 UJ	0.035 U	0.035 U	0.033 U	0.033 U	0.033 UR	0.036 U	0.034 U	0.033 U	0.033 U	0.17 U	0.033 UJ	0.034 UJ	0.034 U
2,4,5-Trichlorophenol	0.4	0.38 U	0.035 UJ	0.037 U	0.037 U	0.035 U	0.035 U	0.034 UR	0.038 U	0.035 U	0.035 U	0.035 U	0.18 U	0.035 UJ	0.036 UJ	0.036 U
2,4,6-Trichlorophenol	0.0012	0.11 U	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U	0.0098 UR	0.011 U	0.01 U	0.01 U	0.01 U	0.051 U	0.01 UJ	0.01 UJ	0.01 U
2,4-Dichlorophenol	0.0023	0.09 U	0.0084 UJ	0.0089 U	0.0087 U	0.0083 U	0.0083 U	0.0082 UR	0.0089 U	0.0084 U	0.0084 U	0.0083 U	0.043 U	0.0083 UJ	0.0084 U	0.0086 U
2,4-Dimethylphenol	0.042	0.84 U	0.078 UJ	0.082 U	0.081 U	0.078 U	0.078 U	0.076 UR	0.083 U	0.078 U	0.078 U	0.077 U	0.4 U	0.078 UJ	0.078 U	0.08 U
2,4-Dinitrophenol	0.0044	2.9 U	0.27 UJ	0.28 U	0.28 U	0.27 U	0.27 U	0.26 UR	0.29 U	0.27 U	0.27 U	0.27 U	1.4 U	0.27 UJ	0.27 UJ	0.28 U
2,4-Dinitrotoluene	0.00032	0.15 U	0.014 UJ	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.072 U	0.014 UJ	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.2 U	0.019 UJ	0.02 U	0.02 U	0.019 U	0.019 U	0.018 U	0.02 U	0.019 U	0.019 U	0.019 U	0.096 U	0.019 UJ	0.019 U	0.019 U
2-Chloronaphthalene	0.39	0.087 U	0.0081 UJ	0.0085 U	0.0083 U	0.008 U	0.008 U	0.0079 U	0.0086 U	0.0081 U	0.008 U	0.008 U	0.041 U	0.008 UJ	0.0081 U	0.0083 U
2-Chlorophenol	0.0089	0.097 U	0.009 UJ	0.0095 U	0.0093 U	0.009 U	0.009 U	0.0088 UR	0.0096 U	0.0091 U	0.009 U	0.009 U	0.046 U	0.009 UJ	0.0091 U	0.0092 U
2-Methylnaphthalene	0.019	0.26 J	0.0079 UJ	0.0083 U	0.1 J	0.028 J	0.027 J	0.0076 U	0.0084 U	0.01 J	0.011 J	0.024 J	0.081 J	0.013 J-	0.0079 U	0.008 U
2-Methylphenol (O-Cresol)	0.075	0.17 U	0.016 UJ	0.016 U	0.016 U	0.015 U	0.015 U	0.015 UR	0.017 U	0.016 U	0.015 U	0.015 U	0.079 U	0.015 UJ	0.016 U	0.016 U
2-Nitroaniline	0.008	0.13 U	0.012 UJ	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.06 U	0.012 UJ	0.012 U	0.012 U
2-Nitrophenol	--	0.13 U	0.012 UJ	0.013 U	0.012 U	0.012 U	0.012 U	0.012 UR	0.013 U	0.012 U	0.012 U	0.012 U	0.061 U	0.012 UJ	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.1 U	0.0095 UJ	0.011 J	0.0098 U	0.0094 U	0.0094 U	0.0092 UR	0.01 U	0.0095 U	0.0094 U	0.0094 U	0.048 U	0.0094 UJ	0.0095 U	0.0097 U
3,3'-Dichlorobenzidine	0.00082	0.43 U	0.04 UJ	0.042 U	0.041 U	0.039 U	0.039 U	0.039 U	0.042 U	0.04 U	0.04 U	0.039 U	0.2 U	0.039 UJ	0.04 U	0.041 U
3-Nitroaniline	--	0.11 U	0.011 UJ	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.054 U	0.01 UJ	0.011 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	1 U	0.095 UJ	0.1 U	0.098 U	0.094 U	0.094 U	0.092 UR	0.1 U	0.095 U	0.095 U	0.094 U	0.48 U	0.094 UJ	0.095 UJ	0.097 U
4-Bromophenyl Phenyl Ether	--	0.12 U	0.011 UJ	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.057 U	0.011 UJ	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.16 U	0.015 UJ	0.016 U	0.016 U	0.015 U	0.015 U	0.015 UR	0.016 U	0.015 U	0.015 U	0.015 U	0.078 U	0.015 UJ	0.015 U	0.016 U

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Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-048	CFSB-049	CFSB-050	CFSB-050	CFSB-051	CFSB-051	CFSB-052	CFSB-053	CFSB-054	CFSB-054	CFSB-055	CFSB-055	CFSB-057	CFSB-057	CFSB-059
Sample Depth		0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/20/2016	5/28/2016	5/21/2016	5/21/2016	5/21/2016	5/21/2016	5/20/2016	5/31/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016
4-Chloroaniline	0.00016	0.098 U	0.0092 UJ	0.0096 U	0.0095 U	0.0091 U	0.0091 U	0.0089 U	0.0097 U	0.0092 U	0.0091 U	0.0091 U	0.046 U	0.0091 UJ	0.0092 U	0.0094 U
4-Chlorophenyl Phenyl Ether	--	0.11 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.054 U	0.011 UJ	0.011 U	0.011 U
4-Nitroaniline	0.0016	0.14 U	0.013 UJ	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.068 U	0.013 UJ	0.013 U	0.014 U
4-Nitrophenol	--	1.8 U	0.17 UJ	0.18 U	0.18 U	0.17 U	0.17 U	0.17 UR	0.18 U	0.17 U	0.17 U	0.17 U	0.87 U	0.17 UJ	0.17 U	0.18 U
Acenaphthene	0.55	1.6 J	0.0086 UJ	0.021 J	0.58	0.15 J	0.21 J	0.017 J	0.012 J	0.1 J	0.1 J	0.22 J	0.69 J	0.093 J-	0.047 J	0.012 J
Acenaphthylene	--	0.098 U	0.0092 UJ	0.0096 U	0.0095 U	0.0091 U	0.0091 U	0.0089 U	0.0097 U	0.0092 U	0.0091 U	0.0091 U	0.046 U	0.01 J-	0.014 J	0.0094 U
Acetophenone	0.058	0.083 U	0.0078 UJ	0.0082 U	0.008 U	0.0077 U	0.0077 U	0.0075 U	0.0083 U	0.0078 U	0.0077 U	0.0077 U	0.039 U	0.0077 UJ	0.0078 U	0.0079 U
Anthracene	5.8	4.2	0.034 UJ	0.044 J	0.9	0.34 J	0.47	0.033 U	0.04 U	0.18 J	0.18 J	0.35	1.2 J	0.23 J-	0.12 J	0.035 U
Atrazine	0.0002	0.17 U	0.016 UJ	0.017 U	0.016 U	0.016 U	0.016 U	0.015 U	0.017 U	0.016 U	0.016 U	0.016 U	0.08 U	0.016 UJ	0.016 U	0.016 U
Benzaldehyde	0.0041	0.28 U	0.027 UJ	0.029 U	0.028 U	0.027 U	0.027 U	0.026 U	0.029 U	0.027 U	0.027 U	0.027 U	0.14 U	0.027 UJ	0.027 U	0.028 U
Benzo(A)Anthracene	0.011	29	0.03 UJ	0.25	3.3	2.2	3.4	0.34	0.053	1.4	1.2	1.9	7.3	1.7 J-	0.66	0.19
Benzo(A)Pyrene	0.018	37	0.024 J-	0.3	4.6	2.3	3.6	0.33	0.047	1.7	1.6	2.4	9.4	2.3 J-	0.9	0.24
Benzo(B)Fluoranthene	0.18	47	0.033 J-	0.43	5.3	3.6	5.4	0.42	0.057	2.2	2.1	3.2	11	3.1 J-	1.2	0.32
Benzo(G,H,I)Perylene	--	35 J+	0.028 J-	0.25 J	4.5	2.2 J+	3.5 J+	0.3 J+	0.058 J	1.9 J+	1.8	2.5 J+	7.5	3.4 J-	1.1 J+	0.27 J+
Benzo(K)Fluoranthene	1.8	17	0.016 UJ	0.21	2.2	1.2	2	0.18	0.032 J	0.99	0.72	1.1	5.3	1.2 J-	0.48	0.12
Benzyl Butyl Phthalate	0.24	0.12 U	0.011 UJ	1.9	3.3	0.03 J	0.098 J	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.056 U	0.02 J-	0.017 J+	0.011 U
Biphenyl (Diphenyl)	0.00087	0.33 U	0.03 UJ	0.032 U	0.034 J	0.03 U	0.03 U	0.03 U	0.032 U	0.03 U	0.03 U	0.03 U	0.15 U	0.03 UJ	0.03 U	0.031 U
Bis(2-Chloroethoxy) Methane	0.0013	0.12 U	0.011 UJ	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.056 U	0.011 UJ	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.09 U	0.0084 UJ	0.0088 U	0.0087 U	0.0083 U	0.0083 U	0.0082 U	0.0089 U	0.0084 U	0.0084 U	0.0083 U	0.043 U	0.0083 UJ	0.0084 U	0.0086 U
Bis(2-Chloroisopropyl) Ether	0.026	0.16 U	0.015 UJ	0.016 U	0.015 U	0.015 U	0.015 U	0.014 U	0.016 U	0.015 U	0.015 U	0.014 U	0.074 U	0.015 UJ	0.015 U	0.015 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.15 U	0.014 UJ	0.015 U	0.014 U	0.087 J	0.096 J	0.014 U	0.015 U	0.052 J+	0.049 J	0.065 J+	0.07 U	0.014 UJ	0.14 J+	0.014 U
Caprolactam	0.25	0.27 U	0.026 UJ	0.027 U	0.026 U	0.025 UJ	0.025 UJ	0.025 UJ	0.027 U	0.026 U	0.026 U	0.026 U	0.13 U	0.025 UJ	0.026 U	0.026 U
Carbazole	--	3.2 J	0.0088 UJ	0.036 J	0.65	0.3 J	0.4	0.064 J	0.0094 U	0.21 J	0.19 J	0.35	1.2 J	0.28 J-	0.18 J	0.027 J
Chrysene	9	34	0.045 J-	0.33 J	3.8	3	4.4	0.42	0.046 J	1.7	1.5	2.5	9.7	2.3 J-	1	0.26 J
Dibenz(A,H)Anthracene	0.096	8.6 J+	0.019 UJ	0.07	1.2	0.57 J+	0.95 J+	0.071 J+	0.02 U	0.45 J+	0.46	0.61 J+	1.9	0.67 J-	0.25 J+	0.061 J+
Dibenzofuran	0.015	0.48 J	0.011 UJ	0.011 U	0.3 J	0.067 J	0.085 J	0.016 J	0.011 U	0.029 J	0.032 J	0.081 J	0.2 J	0.032 J-	0.016 J	0.011 U
Diethyl Phthalate	0.61	0.11 U	0.01 UJ	0.011 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.011 U	0.01 U	0.01 U	0.01 U	0.051 U	0.01 UJ	0.01 U	0.01 U
Dimethyl Phthalate	--	0.11 U	0.01 UJ	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.052 U	0.01 UJ	0.01 U	0.011 U
Di-N-Butyl Phthalate	0.23	0.11 U	0.011 UJ	0.19 J	0.08 J	0.011 U	0.014 J	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.054 U	0.019 J-	0.011 U	0.011 U
Di-N-Octylphthalate	5.7	0.19 U	0.018 UJ	0.019 U	0.019 U	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.092 U	0.018 UJ	0.018 U	0.018 U
Fluoranthene	8.9	36	0.025 J-	0.43	5.5	4	5.4	1.2	0.094 J	2.1	1.9	3.2	13	2.6 J-	1.3	0.32 J
Fluorene	0.54	0.88 J	0.0078 UJ	0.017 J	0.46	0.12 J	0.14 J	0.009 J	0.009 J	0.054 J	0.051 J	0.14 J	0.41 J	0.054 J-	0.03 J	0.0092 J
Hexachlorobenzene	0.00012	0.15 U	0.014 UJ	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.073 UJ	0.014 UJ	0.014 U	0.015 U
Hexachlorobutadiene	0.00027	0.11 U	0.01 UJ	0.011 U	0.011 U	0.0099 U	0.0099 U	0.0097 U	0.011 U	0.01 U	0.01 U	0.0099 U	0.051 U	0.0099 UJ	0.01 U	0.01 U
Hexachlorocyclopentadiene	0.00013	0.24 U	0.022 UJ	0.023 U	0.023 U	0.022 U	0.022 U	0.022 U	0.024 UJ	0.022 UJ	0.022 U	0.022 UJ	0.11 UJ	0.022 UJ	0.022 UJ	0.023 UJ
Hexachloroethane	0.0002	0.14 U	0.013 UJ	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.066 U	0.013 UJ	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	35 J+	0.029 J	0.25	4.4	2.2 J+	3.6 J+	0.3 J+	0.053	1.7	1.7	2.3	7.2	3.2 J	0.93	0.26
Isophorone	0.026	0.082 U	0.0076 UJ	0.027 J	0.035 J	0.0076 U	0.0076 U	3.3	0.0081 U	0.0077 U	0.0076 U	0.0076 U	0.039 U	0.0076 UJ	0.0077 U	0.0078 U
Naphthalene	0.00054	0.74 J	0.009 UJ	0.013 J	0.68	0.077 J	0.068 J	0.0098 U	0.0096 U	0.02 J	0.023 J	0.055 J	0.14 J	0.027 J-	0.015 J	0.0092 U
Nitrobenzene	0.000092	0.12 U	0.011 UJ	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.057 U	0.011 UJ	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.13 U	0.012 UJ	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.061 U	0.012 UJ	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.35 U	0.032 UJ	0.034 U	0.033 U	0.032 U	0.032 U	0.031 U	0.034 U	0.032 U	0.032 U	0.032 U	0.16 U	0.032 UJ	0.032 U	0.033 U
Pentachlorophenol	0.000057	0.46 U	0.043 UJ	0.045 U	0.044 U	0.043 U	0.043 U	0.042 UR	0.046 U	0.043 U	0.043 U	0.043 U	0.22 U	0.17 J-	0.3 J	0.044 U
Phenanthrene	--	18	0.014 J-	0.2 J	4	1.5	2.2	1.1	0.076 J	1	0.97	1.8	6.3	1.2 J-	0.52	0.15 J
Phenol	0.33	0.12 U	0.012 UJ	0.012 U	0.012 U	0.012 U	0.012 U	0.011 UR	0.012 U	0.012 U	0.012 U	0.012 U	0.059 U	0.012 UJ	0.012 U	0.012 U
Pyrene	1.3	45	0.04 J-	0.45	5.1	3.9	5.2	1.1	0.096 J	2.5	2.1 J+	3.6	15	3.2 J-	1.3	0.3 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	--	0.00082 U	0.00077 U	--	0.00042 U	--	0.00041 U	0.00034 U	0.00035 U	--	0.00031 U	--	0.00035 U	--	0.00038 U
1,1,2,2-Tetrachloroethane	0.00003	--	0.00014 U	0.00035 U	--	0.00019 U	--	0.00019 U	0.00015 U	0.00016 U	--	0.00014 U	--	0.00015 U	--	0.00016 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	--	0.00087 U	0.00089 U	--	0.00049 U	--	0.00048 U	0.00039 U	0.00041 U	--	0.00036 U	--	0.0004 U	--	0.00038 U
1,1,2-Trichloroethane	0.000013	--	0.00024 U	0.00057 U	--	0.00031 U	--	0.00031 U	0.00025 U	0.00026 U	--	0.00023 U	--	0.00025 U	--	0.00024 U
1,1-Dichloroethane	0.00078	--	0.00029 U	0.00069 U	--	0.00038 U	--	0.00037 U	0.0003 U	0.00031 U	--	0.00028 U	--	0.00031 U	--	0.00029 U
1,1-Dichloroethene	0.01	--	0.00034 U	0.00083 U	--	0.00045 U	--	0.00045 U	0.00036 U	0.00038 U	--	0.00034 U	--	0.00037 U	--	0.00035 U
1,2,3-Trichlorobenzene	0.0021	--	0.000092 U	0.00022 U	--	0.00012 U	--	0.00012 U	0.000098 U	0.0001 U	--	0.00009 U	--	0.0001 U	--	0.000094 U
1,2,4-Trichlorobenzene	0.0012	--	0.00027 U	0.00065 U	--	0.00035 U	--	0.00035 U	0.00028 U	0.0003 U	--	0.00026 U	--	0.00029 U	--	0.00027 U
1,2-Dibromo-3-Chloropropane	0.00000014	--	0.0004 U	0.00095 U	--	0.00052 U	--	0.00051 U	0.00042 U	0.00044 U	--	0.00038 U	--	0.00043 U	--	0.0004 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-048	CFSB-049	CFSB-050	CFSB-050	CFSB-051	CFSB-051	CFSB-052	CFSB-053	CFSB-054	CFSB-054	CFSB-055	CFSB-055	CFSB-057	CFSB-057	CFSB-059
Sample Depth		0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/20/2016	5/28/2016	5/21/2016	5/21/2016	5/21/2016	5/21/2016	5/20/2016	5/31/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/28/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.0001 U	0.00024 U	...	0.00013 U	...	0.00013 U	0.00011 U	0.00011 U	...	0.000098 U	...	0.00011 U	...	0.0001 U
1,2-Dichlorobenzene	0.03	...	0.00012 U	0.00028 U	...	0.00015 U	...	0.00015 U	0.00012 U	0.00013 U	...	0.00011 U	...	0.00013 U	...	0.00012 U
1,2-Dichloroethane	0.000048	...	0.000092 U	0.00022 U	...	0.00012 U	...	0.00012 U	0.000098 U	0.0001 U	...	0.00009 U	...	0.0001 U	...	0.000094 U
1,2-Dichloropropane	0.000047	...	0.00014 U	0.00035 U	...	0.00019 U	...	0.00019 U	0.00015 U	0.00016 U	...	0.00014 U	...	0.00015 U	...	0.00015 U
1,3-Dichlorobenzene	--	...	0.0001 U	0.00024 U	...	0.00013 U	...	0.00013 U	0.00011 U	0.00011 U	...	0.000098 U	...	0.00011 U	...	0.0001 U
1,4-Dichlorobenzene	0.00046	...	0.00011 U	0.00026 U	...	0.00014 U	...	0.00014 U	0.00012 U	0.00012 U	...	0.00011 U	...	0.00012 U	...	0.00011 U
2-Hexanone	0.00088	...	0.00079 U	0.0019 U	...	0.001 U	...	0.001 U	0.00084 U	0.00087 U	...	0.00077 U	...	0.00085 U	...	0.00081 U
Acetone	0.29	...	0.019	0.078	...	0.025	...	0.032	0.012	0.042	...	0.037	...	0.031	...	0.027
Benzene	0.00023	...	0.00081 J	0.00066 J	...	0.00028 J	...	0.00022 U	0.00045 J	0.00052 J	...	0.00036 J	...	0.00024 J	...	0.00017 U
Bromochloromethane	0.0021	...	0.00014 U	0.00035 U	...	0.00019 U	...	0.00019 U	0.00015 U	0.00016 U	...	0.00014 U	...	0.00015 U	...	0.00015 U
Bromodichloromethane	0.000036	...	0.00082 U	0.00077 U	...	0.00042 U	...	0.00041 U	0.00034 U	0.00035 U	...	0.00031 U	...	0.00035 U	...	0.00033 U
Bromoform	0.00087	...	0.00011 U	0.00026 U	...	0.00014 U	...	0.00014 U	0.00012 U	0.00012 U	...	0.00011 U	...	0.00012 U	...	0.00011 U
Bromomethane	0.00019	...	0.00027 U	0.00065 U	...	0.00035 U	...	0.00035 U	0.00028 U	0.0003 U	...	0.0011	...	0.00029 U	...	0.00027 U
Carbon Disulfide	0.024	...	0.00054 J	0.0014 J	...	0.0028	...	0.0011	0.0024	0.0024	...	0.0011	...	0.00047 J	...	0.0025
Carbon Tetrachloride	0.00018	...	0.00086 U	0.00087 U	...	0.00048 U	...	0.00048 U	0.00038 U	0.0004 U	...	0.00035 U	...	0.00039 U	...	0.00037 U
Chlorobenzene	0.0053	...	0.00012 U	0.00028 U	...	0.00015 U	...	0.00015 U	0.00012 U	0.00013 U	...	0.00011 U	...	0.00013 U	...	0.00012 U
Chloroethane	0.59	...	0.00029 U	0.00071 U	...	0.00039 U	...	0.00038 U	0.00031 U	0.00032 U	...	0.00029 U	...	0.00032 U	...	0.0003 U
Chloroform	0.000061	...	0.00018 U	0.00043 U	...	0.00023 U	...	0.00023 U	0.00019 U	0.00019 U	...	0.00017 U	...	0.00019 U	...	0.00018 U
Chloromethane	0.0049	...	0.00082 U	0.00077 U	...	0.00042 U	...	0.00041 UJ	0.00034 U	0.00035 U	...	0.00031 U	...	0.00035 U	...	0.00033 U
Cis-1,2-Dichloroethylene	0.0011	...	0.00018 U	0.00045 U	...	0.00024 U	...	0.00024 U	0.0002 U	0.0002 U	...	0.00018 U	...	0.0002 U	...	0.00019 U
Cis-1,3-Dichloropropene	--	...	0.00013 U	0.0003 U	...	0.00017 U	...	0.00016 U	0.00013 U	0.00014 U	...	0.00012 U	...	0.00014 U	...	0.00013 U
Cyclohexane	1.3	...	0.00063 J+	0.00093 U	...	0.00051 U	...	0.0005 U	0.0013	0.00065 J+	...	0.00061 J+	...	0.00042 U	...	0.00039 U
Dibromochloromethane	0.00023	...	0.00013 U	0.0003 U	...	0.00017 U	...	0.00016 U	0.00013 U	0.00014 U	...	0.00012 U	...	0.00014 U	...	0.00013 U
Dichlorodifluoromethane	0.03	...	0.00027 U	0.00065 U	...	0.00035 U	...	0.00035 U	0.00028 U	0.0003 U	...	0.00026 U	...	0.00029 U	...	0.00027 U
Ethylbenzene	0.0017	...	0.0004 J	0.00048 J	...	0.0001 U	...	0.0002 U	0.00034 J	0.00025 J	...	0.00025 J	...	0.00016 U	...	0.00015 U
Isopropylbenzene (Cumene)	0.074	...	0.00014 U	0.00035 U	...	0.00019 U	...	0.00019 U	0.00015 U	0.00016 U	...	0.00014 U	...	0.00015 U	...	0.00015 U
M,P-Xylene	--	...	0.0012	0.0012 J	...	0.00034 J	...	0.00026 J	0.00087 J	0.00064 J	...	0.0008 J	...	0.0001 U	...	0.000094 U
Methyl Acetate	0.41	...	0.00076 U	0.32	...	0.001 U	...	0.0043 J	0.0008 U	0.00083 U	...	0.00074 U	...	0.00082 U	...	0.00077 U
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.0032 J	0.0016 U	...	0.00085 U	...	0.00084 U	0.00069 U	0.0043 J	...	0.0034 J	...	0.0007 U	...	0.0015 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.0019 U	0.0045 U	...	0.0025 U	...	0.0024 U	0.002 U	0.0021 U	...	0.0018 U	...	0.002 U	...	0.0019 U
Methylcyclohexane	--	...	0.00064 J	0.001 U	...	0.00062 J	...	0.00055 U	0.0022	0.00084 J	...	0.0009	...	0.00045 U	...	0.00043 U
Methylene Chloride	0.0027	...	0.00027 U	0.0027	...	0.00035 U	...	0.00068 J	0.00028 U	0.0003 U	...	0.00026 U	...	0.00029 U	...	0.00027 U
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00058 J	0.0005 J	...	0.00018 U	...	0.00017 U	0.00032 J	0.00022 J	...	0.0003 J	...	0.00015 U	...	0.00014 U
Styrene	0.13	...	0.00013 U	0.0003 U	...	0.00017 U	...	0.00016 U	0.00013 U	0.00014 U	...	0.00012 U	...	0.00014 U	...	0.00013 U
Tert-Butyl Methyl Ether	0.0032	...	0.00014 U	0.00035 U	...	0.00019 U	...	0.00019 U	0.00015 U	0.00016 U	...	0.00014 U	...	0.00015 U	...	0.00015 U
Tetrachloroethylene (PCE)	0.0018	...	0.00024 U	0.00057 U	...	0.00031 U	...	0.00031 U	0.00025 U	0.00026 U	...	0.00023 U	...	0.00025 U	...	0.00024 U
Toluene	0.076	...	0.002	0.0017 J	...	0.00068 J	...	0.00026 J	0.0017	0.00092 J	...	0.0011	...	0.00027 J	...	0.00016 J
Trans-1,2-Dichloroethene	0.011	...	0.00033 U	0.00077 U	...	0.00043 U	...	0.00043 U	0.00035 U	0.00036 U	...	0.00032 U	...	0.00035 U	...	0.00033 U
Trans-1,3-Dichloropropene	--	...	0.000084 U	0.00019 U	...	0.00011 U	...	0.00011 U	0.000089 U	0.000093 U	...	0.000082 U	...	0.000091 U	...	0.000086 U
Trichloroethylene (TCE)	0.0001	...	0.00022 U	0.00053 U	...	0.00029 U	...	0.00028 U	0.00023 U	0.00024 U	...	0.00021 U	...	0.00024 U	...	0.00022 U
Trichlorofluoromethane	0.33	...	0.00029 U	0.00069 U	...	0.00038 U	...	0.00037 U	0.0003 U	0.00031 U	...	0.00028 U	...	0.00031 U	...	0.00029 U
Vinyl Chloride	0.0000065	...	0.00033 U	0.00079 U	...	0.00043 U	...	0.00043 U	0.00035 U	0.00036 U	...	0.00032 U	...	0.00035 U	...	0.00033 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-059	CFSB-059-DUP	CFSB-060	CFSB-060	CFSB-062	CFSB-062	CFSB-064	CFSB-064	CFSB-065	CFSB-065	CFSB-066	CFSB-066	CFSB-068	CFSB-069	CFSB-069
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft
Chemical Name		5/28/2016	5/28/2016	5/27/2016	5/27/2016	6/2/2016	6/2/2016	6/3/2016	6/3/2016	6/2/2016	6/2/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	51.2 J-	52.1 J-	11.3 J	16.4 J	27.5 J	25.9 J	71.2 J	33.3 J	57.1 J	46.8 J	367 J	571 J	19 J	39.8 J	36.3 J
Cyanide	0.0015	0.048 J-	0.058 J-	0.055 J	0.046 J	0.07 J	0.075 J	0.13	0.084 J	0.62	0.29	0.14	0.19	0.02 J	0.018 U	0.034 J
METALS																
Aluminum	3000	10900	8130	6390	6800	13000 J	14600 J	17100	14500	22800 J	16600 J	14600	22700	10500	10100	13800
Antimony	0.035	0.32 UJ	0.36 UJ	0.34 U	0.31 U	0.44 UJ	0.44 UJ	0.39 UJ	0.38 UJ	0.46 UJ	0.47 UJ	0.4 J	0.48 J	0.42 UJ	0.34 U	0.43 UJ
Arsenic	0.0015	2.8	2.1	3 J	2.9 J	4.8 J	6.8 J	4.3	3.6	7.9 J	5.5 J	5.9 J	6.8 J	4.1	4.2 J	4.5
Barium	16	68.2	52.6	55.2 J	92.9 J	123 J	149 J	221	134	204 J	208 J	68.4 J	67.7 J	50.8	49.9 J	75.8
Beryllium	1.9	0.29 J	0.26 J	0.32 J	0.29 J	0.67	0.63	0.66	0.54	0.86	0.66	0.52	0.75	0.38 J	0.35	0.39 J
Cadmium	0.069	0.24 U	0.27 U	0.26 U	0.28 U	0.34 U	0.34 U	0.3 U	0.29 U	0.9 J	0.35 U	0.6 J	1.7	0.32 U	0.25 U	0.33 U
Calcium	--	7500	7010	36600 J	26200 J	11200	4730	6040	4270	2400	1940	45400 J	25400 J	26900	38200 J	17200
Chromium, Total	--	9.7	6.4	6.7	7.3 J	11.5 J	11 J	9.7	9.6	18 J	12.4 J	31.5 J	46.5 J	10.5	9.8 J	11.2
Cobalt	0.027	4.5	4.2	4.5	4.1	6.6	6.4	6.3	5.2	8.7	7	6.6	7.8	6.1	6.1	5.2
Copper	2.8	9.9 J	5.7 J	8.7	19.3	23.2	24.4	13.7 J	12.5 J	52.6	22.6	20.5	26.5	13.7 J	12.8	15.8
Iron	35	12300	7910	10600	9790	19600 J	16400 J	15700	13100	16800 J	17500 J	16300	19600	17300	14400	15500
Lead	400	6.8	4.3	4.2	4.9	9.6 J	14.6 J	10.6 J	10.5 J	26 J	14.5 J	22.5	18.4	8.6 J	9.9	12.4
Magnesium	--	7510	5640	9690 J	13900 J	12500	8100	7290	6980	8140	7960	13800 J	11300 J	11700	12600 J	9690
Manganese	2.8	261	173	209 J	364 J	538 J	507 J	656	360	371 J	429 J	395 J	405 J	372	379 J	361
Mercury	0.0033	0.017	0.012 J	0.014 J	0.013 J	0.014 J	0.02	0.016 J	0.015 J	0.27	0.069	0.017	0.02 J+	0.016 J+	0.018 J+	0.015 J+
Nickel	2.6	15.7	15.3	10.3 J	10.5 J	16.5	17.1	13	14.1	98.1	29.2	76.9 J	140 J	16.6 J	12.2 J	15.3
Potassium	--	616	543	566 J	585 J	582	781	1080 J+	1150 J+	773	705	1130 J	1320 J	683	653 J	664
Selenium	0.052	0.3 U	0.34 U	0.32 U	0.32 U	0.41 U	0.41 U	0.37 U	0.35 U	0.44 J	0.44 U	0.33 J	0.44 J	0.39 U	0.31 U	0.4 U
Silver	0.08	0.59 U	0.66 U	0.63 U	0.63 U	0.81 U	0.81 U	0.72 U	0.69 U	0.99 J	0.85 U	0.64 U	0.6 U	0.76 U	0.61 U	0.79 U
Sodium	--	31.3 J	33.8 U	459	32 U	51 J	57.1 J	61.5 J	51.2 J	112 J	89.4 J	847	1590	63.8 J	31.4 U	55.8 J
Thallium	0.0014	0.12 U	0.14 U	0.13 U	0.13 U	0.17 U	0.17 U	0.15 U	0.14 U	0.17 U	0.18 U	0.13 U	0.12 U	0.16 U	0.13 U	0.16 U
Vanadium	8.6	8.8	6.3	5.2 J	6 J	13.2 J	15.8 J	16.1	14.1	31.8 J	19.7 J	12.5 J	17.7 J	9.3	8.1 J	10.7
Zinc	37	35.6	28	30.6	27.7	53 J	60.5 J	78.2	43.3	244 J	85.3 J	53.5	59.6	41.9	41	46.2

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-059	CFSB-059-DUP	CFSB-060	CFSB-060	CFSB-062	CFSB-062	CFSB-064	CFSB-064	CFSB-065	CFSB-065	CFSB-066	CFSB-066	CFSB-068	CFSB-069	CFSB-069
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft
Chemical Name		5/28/2016	5/28/2016	5/27/2016	5/27/2016	6/2/2016	6/2/2016	6/3/2016	6/3/2016	6/2/2016	6/2/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016
PESTICIDES																
Aldrin	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
cis-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dieldrin	0.000071	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endosulfan Sulfate	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin	0.0092	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Aldehyde	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Ketone	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gamma Bhc (Lindane)	0.00024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor	0.00012	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor Epoxide	0.000028	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methoxychlor	0.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDD	0.0075	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDE	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDT	0.077	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toxaphene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
trans-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0096 U	0.0096 U	0.0093 U	0.0095 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0096 U	0.0094 U	0.0094 U	0.0096 U
PCB-1221 (Aroclor 1221)	0.00008	0.0096 U	0.0096 U	0.0093 U	0.0095 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0096 U	0.0094 U	0.0094 U	0.0096 U
PCB-1232 (Aroclor 1232)	0.00008	0.0096 U	0.0096 U	0.0093 U	0.0095 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0096 U	0.0094 U	0.0094 U	0.0096 U
PCB-1242 (Aroclor 1242)	0.0012	0.0096 U	0.0096 U	0.0093 U	0.0095 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0096 U	0.0094 U	0.0094 U	0.0096 U
PCB-1248 (Aroclor 1248)	0.0012	0.0096 U	0.0096 U	0.0093 U	0.0095 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0096 U	0.0094 U	0.0094 U	0.0096 U
PCB-1254 (Aroclor 1254)	0.002	0.0099 U	0.0099 U	0.0096 U	0.0098 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U	0.0099 U
PCB-1260 (Aroclor 1260)	0.0055	0.0099 U	0.0099 U	0.0096 U	0.0098 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U	0.0099 U
PCB-1262 (Aroclor 1262)	--	0.0099 U	0.0099 U	0.0096 U	0.0098 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U	0.0099 U
PCB-1268 (Aroclor 1268)	--	0.0099 U	0.0099 U	0.0096 U	0.0098 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U	0.0099 U
Polychlorinated Biphenyl (PCBs)	--	0.0099 U	0.0099 U	0.0096 U	0.0098 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U	0.0099 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.027 U	0.026 U	0.026 U	0.028 U	0.029 U	0.03 U	0.028 U	0.15 U	0.029 U	0.026 U	0.13 U	0.026 U	0.026 U	0.027 U
1,4-Dioxane (P-Dioxane)	0.000094	0.096 U	0.095 U	0.092 U	0.094 U	0.1 U	0.1 U	0.11 U	0.1 U	0.56 U	0.1 U	0.093 U	0.47 U	0.093 U	0.093 U	0.095 U
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.034 U	0.032 U	0.033 U	0.035 U	0.036 U	0.038 U	0.036 U	0.2 U	0.037 U	0.033 U	0.17 U	0.033 U	0.033 U	0.034 U
2,4,5-Trichlorophenol	0.4	0.036 U	0.036 U	0.034 U	0.035 U	0.037 U	0.038 U	0.04 U	0.038 U	0.21 U	0.039 U	0.034 U	0.18 U	0.035 U	0.035 U	0.036 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.059 U	0.011 U	0.0098 U	0.05 U	0.0098 U	0.0099 U	0.01 U
2,4-Dichlorophenol	0.0023	0.0084 U	0.0084 U	0.0081 U	0.0083 U	0.0088 U	0.0091 U	0.0096 U	0.0089 U	0.049 U	0.0092 U	0.0082 U	0.042 U	0.0082 U	0.0082 U	0.0084 U
2,4-Dimethylphenol	0.042	0.079 U	0.079 U	0.075 U	0.077 U	0.082 U	0.085 U	0.089 U	0.083 U	0.46 U	0.086 U	0.076 U	0.39 U	0.077 U	0.076 U	0.078 U
2,4-Dinitrophenol	0.0044	0.27 U	0.27 U	0.26 U	0.27 U	0.28 U	0.29 U	0.31 U	0.29 U	1.6 U	0.3 U	0.26 U	1.3 U	0.26 U	0.26 U	0.27 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.016 U	0.015 U	0.082 U	0.015 U	0.014 U	0.07 U	0.014 U	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.019 U	0.018 U	0.019 U	0.02 U	0.021 U	0.022 U	0.02 U	0.11 U	0.021 U	0.018 U	0.094 U	0.019 U	0.018 U	0.019 U
2-Chloronaphthalene	0.39	0.0081 U	0.0081 U	0.0078 U	0.008 U	0.0085 U	0.0088 U	0.0092 U	0.0086 U	0.047 U	0.0089 U	0.0079 U	0.04 U	0.0079 U	0.0079 U	0.0081 U
2-Chlorophenol	0.0089	0.0091 U	0.0091 U	0.0087 U	0.009 U	0.0095 U	0.0098 U	0.01 U	0.0096 U	0.053 U	0.0099 U	0.0088 U	0.045 U	0.0089 U	0.0088 U	0.0091 U
2-Methylnaphthalene	0.019	0.023 J	0.015 J	0.0076 U	0.0078 U	0.0086 J	0.009 J	0.018 J	0.025 J	0.046 U	0.0086 U	0.022 J	0.078 J	0.0077 U	0.0077 U	0.0085 J
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.016 U	0.015 U	0.015 U	0.016 U	0.017 U	0.018 U	0.016 U	0.091 U	0.017 U	0.015 U	0.077 U	0.015 U	0.015 U	0.016 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U	0.069 U	0.013 U	0.011 U	0.058 U	0.012 U	0.011 U	0.012 U
2-Nitrophenol	--	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.07 U	0.013 U	0.012 U	0.059 U	0.012 U	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.0095 U	0.0095 U	0.0091 U	0.0094 U	0.0099 U	0.01 U	0.011 U	0.01 U	0.055 U	0.01 U	0.0092 U	0.047 U	0.0093 U	0.0092 U	0.0095 U
3,3'-Dichlorobenzidine	0.00082	0.04 U	0.04 U	0.038 U	0.039 U	0.042 U	0.043 U	0.045 U	0.042 U	0.23 U	0.044 U	0.039 U	0.2 U	0.039 U	0.039 U	0.04 U
3-Nitroaniline	--	0.011 U	0.011 U	0.01 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.062 U	0.012 U	0.01 U	0.052 U	0.01 U	0.01 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	0.095 U	0.095 U	0.092 U	0.094 U	0.1 U	0.1 U	0.11 U	0.1 U	0.55 U	0.1 U	0.092 U	0.47 U	0.093 U	0.093 U	0.095 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.065 U	0.012 U	0.011 U	0.056 U	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.017 U	0.017 U	0.016 U	0.089 U	0.017 U	0.015 U	0.076 U	0.015 U	0.015 U	0.015 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-059	CFSB-059-DUP	CFSB-060	CFSB-060	CFSB-062	CFSB-062	CFSB-064	CFSB-064	CFSB-065	CFSB-065	CFSB-066	CFSB-066	CFSB-068	CFSB-069	CFSB-069
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft
Chemical Name		5/28/2016	5/28/2016	5/27/2016	5/27/2016	6/2/2016	6/2/2016	6/3/2016	6/3/2016	6/2/2016	6/2/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016
4-Chloroaniline	0.00016	0.0092 U	0.0092 U	0.0088 U	0.0091 U	0.0096 U	0.0099 U	0.01 U	0.0097 U	0.053 U	0.01 U	0.0089 U	0.046 U	0.009 U	0.0089 U	0.0092 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.062 U	0.012 U	0.01 U	0.053 U	0.01 U	0.01 U	0.011 U
4-Nitroaniline	0.0016	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U	0.015 U	0.015 U	0.014 U	0.079 U	0.015 U	0.013 U	0.067 U	0.013 U	0.013 U	0.013 U
4-Nitrophenol	--	0.17 U	0.17 U	0.17 U	0.17 U	0.18 U	0.19 U	0.2 U	0.18 U	1 U	0.19 U	0.17 U	0.85 U	0.17 U	0.17 U	0.17 U
Acenaphthene	0.55	0.22 J	0.12 J	0.011 J	0.15 J	0.041 J	0.048 J	0.061 J	0.049 J	0.23 J	0.04 J	0.11 J	0.41 J	0.03 J	0.02 J	0.061 J
Acenaphthylene	--	0.0092 U	0.0092 U	0.0088 U	0.0091 U	0.0096 U	0.0099 U	0.01 U	0.0097 U	0.053 U	0.01 U	0.0089 U	0.046 U	0.009 U	0.0089 U	0.01 J
Acetophenone	0.058	0.0078 U	0.0078 U	0.0075 U	0.0077 U	0.0081 U	0.0084 U	0.0088 U	0.0082 U	0.045 U	0.0085 U	0.017 J	0.046 J	0.0076 U	0.0076 U	0.0078 U
Anthracene	5.8	0.48 J	0.28 J	0.033 U	0.42	0.047 J	0.094 J	0.1 J	0.089 J	0.51 J	0.085 J	0.28 J	0.93 J	0.063 J	0.051 J	0.12 J
Atrazine	0.0002	0.016 U	0.016 U	0.015 U	0.016 U	0.017 U	0.017 U	0.018 U	0.017 U	0.092 U	0.017 U	0.015 U	0.079 U	0.016 U	0.015 U	0.016 U
Benzaldehyde	0.0041	0.027 U	0.027 U	0.026 U	0.027 U	0.028 U	0.029 U	0.031 U	0.031 J	0.16 U	0.03 U	0.026 U	0.13 U	0.027 U	0.026 U	0.027 U
Benzo(A)Anthracene	0.011	2.5 J	1.5 J	0.28	3.8	0.21	0.45	0.34	0.43	4.1	0.68	2.2	8	0.48	0.27	0.64
Benzo(A)Pyrene	0.018	2.9	2 J	0.34	4.5	0.22	0.58	0.36	0.54	5.4	0.91	2.2	9	0.61	0.33	0.81
Benzo(B)Fluoranthene	0.18	3.7	2.4 J	0.44	5.7	0.54	1.1	0.58	0.87	12	1.8	3.4	15	0.82	0.48	1.1
Benzo(G,H,I)Perylene	--	2.9 J+	2.3 J	0.25 J	3.6	0.25 J	0.53	0.26 J	0.55	9.7 J+	1.4	1.9	6.8	0.43	0.4	0.71
Benzo(K)Fluoranthene	1.8	1.4	1.1 J	0.16	2.1	0.18	0.45	0.24	0.3	3.8	0.65	1.4	5.2	0.3	0.14	0.39
Benzyl Butyl Phthalate	0.24	0.011 UJ	0.019 J	0.011 U	0.011 U	0.012 U	0.012 U	0.017 J	0.012 U	0.064 U	0.012 U	0.011 U	0.055 U	0.011 U	0.013 J+	0.011 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.03 U	0.029 U	0.03 U	0.032 U	0.033 U	0.035 U	0.032 U	0.18 U	0.033 U	0.03 U	0.15 U	0.03 U	0.03 U	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.065 U	0.012 U	0.011 U	0.055 U	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0084 U	0.0084 U	0.0081 U	0.0083 U	0.0088 U	0.0091 U	0.0096 U	0.0089 U	0.049 U	0.0092 U	0.0082 U	0.042 U	0.0082 U	0.0082 U	0.0084 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.015 U	0.014 U	0.014 U	0.015 U	0.015 U	0.017 U	0.016 U	0.086 U	0.016 U	0.014 U	0.073 U	0.014 U	0.014 U	0.015 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.064 J	0.17 J	0.013 U	0.014 U	0.015 U	0.031 J	0.31 J+	0.015 U	0.52 J	0.015 U	0.044 J	0.069 U	0.054 J	0.014 U	0.028 J
Caprolactam	0.25	0.026 U	0.026 U	0.025 U	0.025 U	0.027 U	0.028 U	0.029 U	0.027 U	0.15 U	0.028 U	0.025 U	0.13 U	0.025 U	0.025 U	0.026 U
Carbazole	--	0.4	0.26 J	0.028 J	0.4	0.049 J	0.11 J	0.035 J	0.088 J	1.1 J	0.16 J	0.45	1.7 J	0.081 J	0.05 J	0.13 J
Chrysene	9	3	2.1 J	0.32 J	4.2	0.39	0.84	0.41	0.61	10	1.3	3.6	13	0.66	0.35	0.83
Dibenz(A,H)Anthracene	0.096	0.8 J+	0.59 J	0.067	0.97	0.046	0.1	0.077	0.12	1.6 J+	0.25	0.53	1.9	0.12	0.094	0.16
Dibenzofuran	0.015	0.097 J	0.048 J	0.01 U	0.022 J	0.017 J	0.023 J	0.041 J	0.022 J	0.094 J	0.019 J	0.031 J	0.12 J	0.011 U	0.011 U	0.023 J
Diethyl Phthalate	0.61	0.01 U	0.01 U	0.0098 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.059 U	0.011 U	0.0098 U	0.05 U	0.0099 U	0.0099 U	0.01 U
Dimethyl Phthalate	--	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.06 U	0.011 U	0.01 U	0.051 U	0.01 U	0.01 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.062 U	0.012 U	0.01 U	0.053 U	0.01 U	0.01 U	0.011 U
Di-N-Octylphthalate	5.7	0.018 U	0.018 U	0.017 U	0.018 U	0.019 U	0.02 U	0.021 U	0.019 U	0.11 U	0.02 U	0.018 U	0.09 U	0.018 U	0.018 U	0.018 U
Fluoranthene	8.9	3.7	2.5 J	0.37	5.3	0.5	1	0.76	0.89	9.2	1.4	3.7	15	0.82	0.41	1.1
Fluorene	0.54	0.15 J	0.084 J	0.0075 U	0.053 J	0.034 J	0.044 J	0.051 J	0.044 J	0.17 J	0.029 J	0.06 J	0.24 J	0.019 J	0.015 J	0.038 J
Hexachlorobenzene	0.00012	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.016 U	0.016 U	0.015 U	0.084 U	0.016 U	0.014 U	0.072 UJ	0.014 U	0.014 U	0.014 U
Hexachlorobutadiene	0.00027	0.01 U	0.01 U	0.0097 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.058 U	0.011 U	0.0097 U	0.05 U	0.0098 U	0.0098 U	0.01 U
Hexachlorocyclopentadiene	0.00013	0.022 UJ	0.022 UJ	0.021 U	0.022 UJ	0.023 U	0.024 U	0.025 U	0.024 U	0.13 U	0.024 U	0.022 U	0.11 UJ	0.022 U	0.022 U	0.022 U
Hexachloroethane	0.0002	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.014 U	0.015 U	0.014 U	0.076 U	0.014 U	0.013 U	0.065 U	0.013 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	2.9	2.3 J	0.26	3.7	0.22	0.57	0.33	0.6 J+	9.6 J+	1.4	1.9	6.8	0.47	0.35	0.69
Isophorone	0.026	0.0077 U	0.0077 U	0.0075 U	0.0076 U	0.008 U	0.0083 U	0.0087 U	0.0081 U	0.045 U	0.0084 U	0.0099 J	0.059 J	0.0075 U	0.0075 U	0.0077 U
Naphthalene	0.00054	0.095 J	0.064 J	0.01 U	0.025 J	0.022 J	0.017 J	0.02 J	0.024 J	0.09 J	0.014 J	0.033 J	0.11 J	0.0099 U	0.0098 U	0.022 J
Nitrobenzene	0.000092	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.065 U	0.012 U	0.011 U	0.056 U	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.07 U	0.013 U	0.012 U	0.059 U	0.012 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.032 U	0.031 U	0.032 U	0.034 U	0.035 U	0.037 U	0.034 U	0.19 U	0.035 U	0.031 U	0.16 U	0.032 U	0.032 U	0.032 U
Pentachlorophenol	0.000057	0.53	0.46 J	0.042 U	0.043 U	0.045 U	0.047 U	0.049 U	0.046 U	0.25 U	0.047 U	0.042 U	0.21 U	0.042 U	0.28	0.043 U
Phenanthrene	--	2.1 J	1.2 J	0.12 J	1.6	0.27 J	0.49	0.36 J	0.51	3.2	0.52	1.7	5.8	0.39	0.26 J	0.58
Phenol	0.33	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U	0.068 U	0.013 U	0.011 U	0.058 U	0.011 U	0.011 U	0.012 U
Pyrene	1.3	3.8	2.4 J	0.51 J+	6.1	0.45	0.92	0.69	0.81	9.8	1.3	4.9 J+	16	0.76	0.44 J+	0.91
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	--	--	0.00034 U	--	0.00031 U	--	0.00038 U	--	0.00033 U	--	0.00035 U	--	0.00038 U	0.00037 U	--
1,1,2,2-Tetrachloroethane	0.00003	--	--	0.00015 U	--	0.00014 U	--	0.00017 U	--	0.00015 U	--	0.00016 U	--	0.00017 U	0.00017 U	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	--	--	0.0004 U	--	0.00036 U	--	0.00044 U	--	0.00039 U	--	0.0004 U	--	0.00043 U	0.00043 U	--
1,1,2-Trichloroethane	0.000013	--	--	0.00025 U	--	0.00023 U	--	0.00028 U	--	0.00025 U	--	0.00026 U	--	0.00028 U	0.00027 U	--
1,1-Dichloroethane	0.00078	--	--	0.00031 U	--	0.00028 U	--	0.00034 U	--	0.0003 U	--	0.00031 U	--	0.00034 U	0.00033 U	--
1,1-Dichloroethene	0.01	--	--	0.00037 U	--	0.00033 U	--	0.00041 U	--	0.00036 U	--	0.00038 U	--	0.00041 U	0.0004 U	--
1,2,3-Trichlorobenzene	0.0021	--	--	0.000059 U	--	0.000089 U	--	0.00011 U	--	0.000096 U	--	0.0001 U	--	0.00011 U	0.00011 U	--
1,2,4-Trichlorobenzene	0.0012	--	--	0.00029 U	--	0.00026 U	--	0.00032 U	--	0.00028 U	--	0.00029 U	--	0.00032 U	0.00031 U	--
1,2-Dibromo-3-Chloropropane	0.00000014	--	--	0.00042 U	--	0.00038 U	--	0.00047 U	--	0.00041 U	--	0.00043 U	--	0.00048 U	0.00046 U	--

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-059	CFSB-059-DUP	CFSB-060	CFSB-060	CFSB-062	CFSB-062	CFSB-064	CFSB-064	CFSB-065	CFSB-065	CFSB-066	CFSB-066	CFSB-068	CFSB-069	CFSB-069
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft
Chemical Name		5/28/2016	5/28/2016	5/27/2016	5/27/2016	6/2/2016	6/2/2016	6/3/2016	6/3/2016	6/2/2016	6/2/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	...	0.00011 U	...	0.000087 U	...	0.00012 U	...	0.00011 U	...	0.00011 U	...	0.00012 U	0.00012 U	...
1,2-Dichlorobenzene	0.03	...	...	0.00013 U	...	0.00011 U	...	0.00014 U	...	0.00012 U	...	0.00013 U	...	0.00014 U	0.00014 U	...
1,2-Dichloroethane	0.000048	...	...	0.000059 U	...	0.000089 U	...	0.00011 U	...	0.000096 U	...	0.0001 U	...	0.00011 U	0.00011 U	...
1,2-Dichloropropane	0.000047	...	...	0.00015 U	...	0.00014 U	...	0.00017 U	...	0.00015 U	...	0.00016 U	...	0.00017 U	0.00017 U	...
1,3-Dichlorobenzene	--	...	...	0.00011 U	...	0.000087 U	...	0.00012 U	...	0.00011 U	...	0.00011 U	...	0.00012 U	0.00012 U	...
1,4-Dichlorobenzene	0.00046	...	...	0.00012 U	...	0.00011 U	...	0.00013 U	...	0.00011 U	...	0.00012 U	...	0.00013 U	0.00013 U	...
2-Hexanone	0.00088	...	...	0.00065 U	...	0.00076 U	...	0.00094 U	...	0.00082 U	...	0.0012 J	...	0.00095 U	0.00092 U	...
Acetone	0.29	...	...	0.01	...	0.092	...	0.012	...	0.076	...	0.065	...	0.011	0.0097	...
Benzene	0.00023	...	...	0.00033 J	...	0.00039 J	...	0.0002 J	...	0.00027 J	...	0.0011	...	0.00038 J	0.0002 U	...
Bromochloromethane	0.0021	...	...	0.00015 U	...	0.00014 U	...	0.00017 U	...	0.00015 U	...	0.00016 U	...	0.00017 U	0.00017 U	...
Bromodichloromethane	0.000036	...	...	0.00034 U	...	0.00031 U	...	0.00038 U	...	0.00033 U	...	0.00035 U	...	0.00038 U	0.00037 U	...
Bromoform	0.00087	...	...	0.00012 U	...	0.00011 U	...	0.00013 U	...	0.00011 U	...	0.00012 U	...	0.00013 U	0.00013 U	...
Bromomethane	0.00019	...	...	0.00029 U	...	0.00026 U	...	0.00032 U	...	0.00029 U	...	0.00029 U	...	0.00032 U	0.00031 U	...
Carbon Disulfide	0.024	...	...	0.00058 J	...	0.00035 U	...	0.00043 U	...	0.00063 J	...	0.0021	...	0.0017	0.00042 U	...
Carbon Tetrachloride	0.00018	...	...	0.00039 U	...	0.00035 U	...	0.00043 U	...	0.00038 U	...	0.0004 U	...	0.00043 U	0.00042 U	...
Chlorobenzene	0.0053	...	...	0.00013 U	...	0.00011 U	...	0.00014 U	...	0.00012 U	...	0.00013 U	...	0.00014 U	0.00014 U	...
Chloroethane	0.59	...	...	0.00032 U	...	0.00028 U	...	0.00035 U	...	0.00031 U	...	0.00032 U	...	0.00035 U	0.00034 U	...
Chloroform	0.000061	...	...	0.00019 U	...	0.00017 U	...	0.00021 U	...	0.00018 U	...	0.00019 U	...	0.00021 U	0.00021 U	...
Chloromethane	0.0049	...	...	0.00034 U	...	0.00031 U	...	0.00038 U	...	0.00033 U	...	0.00035 U	...	0.00038 U	0.00037 U	...
Cis-1,2-Dichloroethylene	0.0011	...	...	0.0002 U	...	0.00018 U	...	0.00022 U	...	0.00019 U	...	0.0002 U	...	0.00022 U	0.00022 U	...
Cis-1,3-Dichloropropene	--	...	...	0.00014 U	...	0.00012 U	...	0.00015 U	...	0.00013 U	...	0.00014 U	...	0.00015 U	0.00015 U	...
Cyclohexane	1.3	...	...	0.00041 U	...	0.00037 U	...	0.00046 U	...	0.0004 U	...	0.00042 U	...	0.00093 J+	0.00045 U	...
Dibromochloromethane	0.00023	...	...	0.00014 U	...	0.00012 U	...	0.00015 U	...	0.00013 U	...	0.00014 U	...	0.00015 U	0.00015 U	...
Dichlorodifluoromethane	0.03	...	...	0.00029 U	...	0.00026 U	...	0.00032 U	...	0.00028 U	...	0.00029 U	...	0.00032 U	0.00031 U	...
Ethylbenzene	0.0017	...	...	0.00016 U	...	0.00015 U	...	0.00018 U	...	0.00016 U	...	0.0011	...	0.00037 J	0.00018 U	...
Isopropylbenzene (Cumene)	0.074	...	...	0.00015 U	...	0.00013 U	...	0.00017 U	...	0.00015 U	...	0.0003 J	...	0.00017 U	0.00017 U	...
M,P-Xylene	--	...	...	0.00036 J	...	0.00012 J	...	0.00011 U	...	0.000096 U	...	0.0042	...	0.0013	0.00029 J	...
Methyl Acetate	0.41	...	...	0.00081 U	...	0.0035 J	...	0.0009 U	...	0.014	...	0.00083 U	...	0.00091 U	0.00088 U	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	...	0.00069 U	...	0.0057	...	0.00077 U	...	0.0033 J	...	0.008	...	0.00078 U	0.00075 U	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	...	0.002 U	...	0.0018 U	...	0.0022 U	...	0.0019 U	...	0.0043 J	...	0.0022 U	0.0022 U	...
Methylcyclohexane	--	...	...	0.00057 J	...	0.00045 J	...	0.0005 U	...	0.00044 U	...	0.00046 U	...	0.0015	0.00049 U	...
Methylene Chloride	0.0027	...	...	0.00029 U	...	0.00026 U	...	0.00032 U	...	0.00028 U	...	0.00029 U	...	0.00032 U	0.00031 U	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	...	0.00014 U	...	0.00013 U	...	0.00016 U	...	0.00014 U	...	0.0051	...	0.00037 J	0.00016 U	...
Styrene	0.13	...	...	0.00014 U	...	0.00012 U	...	0.00015 U	...	0.00013 U	...	0.0003 J	...	0.00015 U	0.00015 U	...
Tert-Butyl Methyl Ether	0.0032	...	...	0.00015 U	...	0.00014 U	...	0.00017 U	...	0.00015 U	...	0.00016 U	...	0.00017 U	0.00017 U	...
Tetrachloroethylene (PCE)	0.0018	...	...	0.00025 U	...	0.00023 U	...	0.00028 U	...	0.00025 U	...	0.00026 U	...	0.00028 U	0.00027 U	...
Toluene	0.076	...	...	0.001	...	0.00041 J	...	0.00019 U	...	0.00019 J	...	0.012	...	0.0015	0.00045 J	...
Trans-1,2-Dichloroethene	0.011	...	...	0.00033 U	...	0.00032 U	...	0.00039 U	...	0.00034 U	...	0.00036 U	...	0.00039 U	0.00038 U	...
Trans-1,3-Dichloropropene	--	...	...	0.000088 U	...	0.000081 U	...	0.0001 U	...	0.000089 U	...	0.000092 U	...	0.0001 U	0.000098 U	...
Trichloroethylene (TCE)	0.0001	...	...	0.00023 U	...	0.00021 U	...	0.00026 U	...	0.00023 U	...	0.00024 U	...	0.00026 U	0.00025 U	...
Trichlorofluoromethane	0.33	...	...	0.00031 U	...	0.00028 U	...	0.00034 U	...	0.0003 U	...	0.00031 U	...	0.00034 U	0.00033 U	...
Vinyl Chloride	0.0000065	...	...	0.00035 U	...	0.00032 U	...	0.00039 U	...	0.00034 U	...	0.00036 U	...	0.00039 U	0.00038 U	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-071	CFSB-071	CFSB-073	CFSB-073	CFSB-074	CFSB-074	CFSB-075	CFSB-075	CFSB-079	CFSB-079	CFSB-080	CFSB-080	CFSB-082	CFSB-082	CFSB-084
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/27/2016	5/27/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	5/27/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	2.8E-08 U	0.0000155 J	2E-08 U	0.0000127	7.2E-07 J	6.16E-06 J	2.1E-08 U	3E-08 U	0.0000664	2.7E-08 U	2.7E-08 U	0.0000217 J	1.85E-06 J
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	5.8E-07 J	0.0000509	1.72E-06 J	0.0000471	2.91E-06 J	0.0000162 J	1.9E-08 U	2.9E-08 U	0.000312	2.3E-08 U	2.3E-08 U	0.000111	5.06E-06 J
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	3.3E-08 U	1.89E-08 U	2.4E-08 U	1.77E-06 J	1.6E-08 UJ	1.14E-06 U	1.9E-08 U	3.9E-08 U	1.67E-06 U	3.4E-08 U	3.5E-08 U	1.29E-06 U	5.9E-08 U
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	4.6E-08 U	1.77E-06 J	8.8E-08 J	2.04E-06 J	1.1E-07 J	5.8E-07 J	2.9E-08 U	3.7E-08 U	9.63E-06 J	2.3E-08 U	1.4E-07 J	3.07E-06 J	3.3E-07 J
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	3.2E-08 U	1.52E-06 J	3.4E-08 U	9.1E-08 UJ	3.7E-08 J	6.7E-07 J	2.3E-08 U	3E-08 U	2.34E-06 J	3.1E-08 U	2.4E-08 U	8.6E-07 J	4.1E-08 U
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	4.2E-08 U	1.05E-06 J	4E-08 U	9.6E-07 J	6.2E-08 J	4.5E-07 J	2.6E-08 U	6.7E-08 J	2.86E-06 J	4.4E-08 J	1.1E-07 J	9.8E-07 J	6.5E-08 U
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	3E-08 U	2.72E-06 J	1.5E-07 J	3.13E-06 J	1.3E-07 J	1.15E-06 J	2.2E-08 U	2.9E-08 U	0.0000108 J	3E-08 U	1.1E-07 J	3.13E-06 J	4.5E-07 J
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	4.4E-08 U	4.7E-07 U	4.2E-08 U	1.8E-07 UJ	1.6E-08 UJ	3.7E-07 U	2.9E-08 U	3.7E-08 U	1.22E-06 U	2.4E-08 U	7.7E-08 J	3.8E-07 U	6.9E-08 U
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	6.1E-08 J	2.47E-06 J	9.9E-08 J	1.71E-06 J	8.7E-08 J	1.42E-06 J	1.9E-08 U	2.6E-08 U	5.14E-06 J	2.9E-08 U	2E-08 U	2.08E-06 J	3.1E-07 J
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	3.8E-08 U	0.0000003 U	3.7E-08 U	0.0000009 J	1.5E-08 UJ	2.9E-07 U	3.6E-08 U	4.2E-08 U	0.0000021 J	3.1E-08 U	1.1E-07 J	6.6E-07 J	1.7E-07 J
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	5.2E-08 U	5.8E-07 U	4.7E-08 U	4.4E-07 J	2.8E-08 J	3.4E-07 U	3.9E-08 U	5E-08 U	6.9E-07 U	3.5E-08 U	3.5E-08 U	0.0000003 U	9.4E-08 J
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	4.5E-08 U	1.47E-06 J	4.3E-08 U	1.7E-07 UJ	4E-08 J	3.5E-07 U	2.8E-08 U	3.6E-08 U	4.58E-06 J	2.3E-08 U	3.7E-08 U	0.0000017 J	1.3E-07 J
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	4E-08 U	3.1E-07 U	3.8E-08 U	8.7E-07 J	6.5E-08 J	2.1E-07 U	3.6E-08 U	4.2E-08 U	1.88E-06 J	3.1E-08 U	4.1E-08 U	0.0000006 J	5.1E-08 U
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	2.8E-08 U	1.16E-06 J	0.0000001 J	0.0000016 UJ	2.4E-07 J	1.22E-06 J	3.8E-08 U	2.4E-08 U	2.02E-06 J	1.9E-08 U	0.0000001 J	7.9E-07 J	3.9E-07 J
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	4.9E-08 U	3.3E-07 U	3.4E-08 U	4.4E-07 J	[illegible]E-08 UJ	2.3E-07 U	4.4E-08 U	2.9E-08 U	5.8E-07 U	2.2E-08 U	4.2E-08 U	2.3E-07 U	4.8E-08 U
Heptachlorodibenzofurans	--	--	--	0.0000011 J	0.0000531	1.13E-06 J	0.0000336	0.0000023 J	0.0000156 J	2.5E-07 J	3.7E-07 J	0.000239	2.6E-07 J	1.13E-06 J	0.0000767	4.72E-06 J
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	9.9E-07 J	0.0000857	3.36E-06 J	0.000097	5.45E-06 J	0.0000281	4.6E-07 J	5.3E-07 J	0.000558	8.7E-07 J	1.89E-06 J	0.0002	9.21E-06
Hexachlorodibenzofuran	--	--	--	4.6E-08 U	0.0000205 J	4.1E-07 J	0.0000142 J	9.8E-07 J	5.19E-06 J	2.9E-08 U	6.7E-08 J	0.000178	4.4E-08 J	0.0000006 J	0.0000518	2.13E-06 J
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	9.3E-08 J	0.0000128 J	0.0000006 J	0.000016 J	9.1E-07 J	6.69E-06 J	2.3E-08 U	6.2E-08 J	0.0000377 J	6.7E-08 J	4.3E-07 J	0.0000127 J	2.13E-06 J
Octachlorodibenzofuran	--	--	--	4.1E-08 U	0.0000368 J	3.1E-08 U	0.0000414	1.95E-06 J	0.0000119 J	2.5E-08 U	2.9E-08 U	0.0000796 J	2.1E-08 U	2.7E-08 U	0.000031 J	4.06E-06 J
Octachlorodibenzo-P-Dioxin	--	--	--	4.12E-06 J	0.000369	0.0000133	0.0004	0.0000249 J	0.000108	2.4E-08 U	2.9E-08 U	0.00435	2.2E-08 U	9.36E-06 J	0.00173	0.0000341
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	5.2E-08 U	5.8E-07 U	4.7E-08 U	1.47E-06 J	6.5E-08 J	3.4E-07 U	3.9E-08 U	5E-08 U	6.9E-07 U	3.5E-08 U	3.5E-08 U	0.0000003 U	9.4E-08 J
Pentachloro Dibenzofuran	--	--	--	4E-08 U	2.48E-06 J	2.4E-07 J	6.26E-06 J	4.6E-07 J	0.0000016 J	3.6E-08 U	4.2E-08 U	0.0000227 J	3.1E-08 U	2.7E-07 J	6.97E-06 J	6.6E-07 J
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	2.8E-08 U	3.69E-06 J	0.0000001 J	0.0000113 J	7.5E-07 J	4.24E-06 J	3.8E-08 U	4.7E-08 J	2.02E-06 J	1.9E-08 U	0.0000001 J	2.34E-06 J	1.15E-06
Tetrachlorodibenzo-P-Dioxin	--	--	--	4.9E-08 U	3.3E-07 U	4.9E-08 J	2.09E-06 J	7.1E-08 J	3.3E-07 J	4.4E-08 U	2.9E-08 U	5.8E-07 U	2.2E-08 U	4.2E-08 U	2.3E-07 U	4.8E-08 U
GENERAL CHEMISTRY																
Fluoride	12	54 J	47.3 J	24.3 J	28.2 J	8.98 J	143 J	33.7 J	43 J	20.3 J	55.4 J	8.79 J	35.7 J	18.2 J	30.4 J	24.1 J
Cyanide	0.0015	0.029 J	0.072 J	0.017 U	0.019 J	0.018 U	0.018 U	0.02 J	0.031 J	0.021 J	0.03 J	0.023 J	0.05 J	0.019 U	0.018 J	0.02 U
METALS																
Aluminum	3000	12600	10100	10600	15200	7420	14200	12200	11500	7990	13700	9690	11000	9810	10100	5540
Antimony	0.035	0.34 U	0.32 U	0.36 UJ	0.37 UJ	0.34 UJ	0.41 UJ	0.35 UJ	0.42 UJ	0.44 UJ	0.44 UJ	0.42 UJ	0.42 UJ	0.46 UJ	0.43 UJ	0.38 U
Arsenic	0.0015	4.7 J	5.7 J	4.4	4.9	2.5	3.7	3.9	3.6	4.4	4.6	3.8	4.5	4.7	3.2	3.3 J
Barium	16	51.4 J	40.3 J	60.6	121	52.9	70.5	105	125	108	118	74.3	95.1	64.6	118	45.3 J
Beryllium	1.9	0.34	0.32	0.44	0.59	0.29 J	0.41	0.5	0.42	0.29 J	0.55	0.37 J	0.4 J	0.35 J	0.45	0.25 J
Cadmium	0.069	0.26 U	0.24 U	0.27 U	0.28 U	0.26 U	0.31 U	0.3 J	0.32 U	0.33 U	0.34 U	0.32 U	0.32 U	0.35 U	0.32 U	0.29 U
Calcium	--	42500 J	51700 J	11200	17300	40100	26400	37000	17800	22800	21800	1700	32000	42100	19300	32000 J
Chromium, Total	--	9.7 J	6.4 J	10.2	11.1	7.9	9.4	9.5	9	10.1	8.9	9.7	8.8	8.5	11.6	15.4 J
Cobalt	0.027	4.6	3.5	5.5	6.1	4.6	4.8	5.1	5	5	4.7	5.5	4.3	5.2	3.9	3.3
Copper	2.8	12.5	9.4	7.9	12.6	10.2	12.6	10.6	13	13.4	7.6	16.2	14	12.8	9	9.5
Iron	35	14000	13300	16000	14400	11700	10700	12500	13300	12000	10300	14500	12400	14200	9140	9320
Lead	400	12.1	9.3	8.1	9.7	4.6	7.8	11.7	9	5.7	8.5	7.6	8.4	8.3	8.3	5.5
Magnesium	--	17600 J	27500 J	10200	12800	12200	11000	15700	8820	8100	13900	8060	10200	10400	9400	13500 J
Manganese	2.8	444 J	460 J	316	506	393	360	504	513	333	453	454	325	359	316	396 J
Mercury	0.0033	0.018	0.025	0.022	0.014 J	0.012 U	0.016	0.014 J	0.017 J	0.026	0.013 U	0.032	0.021	0.018	0.028	0.013 U
Nickel	2.6	13.6 J	11.2 J	11.7	28.2	9.2	30	19.6	14.1	10.7	20.6	10.4	10.9	9.8	15.4	11.3 J
Potassium	--	848 J	766 J	936 J+	916 J+	675 J+	639	1050 J+	616	452	586	582	614	615	616	694 J
Selenium	0.052	0.32 U	0.3 U	0.33 U	0.34 U	0.32 U	0.38 U	0.33 U	0.4 U	0.41 U	0.42 U	0.4 U	0.4 U	0.43 U	0.4 U	0.36 U
Silver	0.08	0.63 U	0.59 U	0.65 U	0.67 U	0.62 U	0.74 U	0.64 U	0.77 U	0.81 U	0.81 U	0.78 U	0.78 U	0.84 U	0.78 U	0.7 U
Sodium	--	40.1 J	38.5 J	33.4 U	40.3 J	31.6 U	38.2 J	65.2 J	62.3 J	41.2 U	41.4 U	39.6 U	39.6 U	42.8 U	40 U	35.5 U
Thallium	0.0014	0.13 U	0.12 U	0.13 U	0.14 U	0.13 U	0.15 U	0.13 U	0.16 U	0.17 U	0.17 U	0.16 U	0.16 U	0.17 U	0.16 U	0.14 U
Vanadium	8.6	7.9 J	6.6 J	11.8	14.8	6.9	13.8	14.4	11.8	7.1	13.6	8.9	9.1	9.5	9.7	5.4 J
Zinc	37	39.4	32.9	36.5	46.3	32.6	36.2	58.2	46.6	29.3	34.6	32.2	38.1	39.6	33	32.6

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-071	CFSB-071	CFSB-073	CFSB-073	CFSB-074	CFSB-074	CFSB-075	CFSB-075	CFSB-079	CFSB-079	CFSB-080	CFSB-080	CFSB-082	CFSB-082	CFSB-084
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/27/2016	5/27/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	5/27/2016
PESTICIDES																
Aldrin	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
cis-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dieldrin	0.000071	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endosulfan Sulfate	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin	0.0092	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Aldehyde	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Ketone	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gamma Bhc (Lindane)	0.00024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor	0.00012	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor Epoxide	0.000028	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methoxychlor	0.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDD	0.0075	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDE	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDT	0.077	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toxaphene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
trans-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0095 U	0.0096 U	0.0098 U	0.0094 U	0.0092 U	0.0094 U	0.0097 U	0.0098 U	0.0095 U	0.0099 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.01 U
PCB-1221 (Aroclor 1221)	0.00008	0.0095 U	0.0096 U	0.0098 U	0.0094 U	0.0092 U	0.0094 U	0.0097 U	0.0098 U	0.0095 U	0.0099 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.01 U
PCB-1232 (Aroclor 1232)	0.00008	0.0095 U	0.0096 U	0.0098 U	0.0094 U	0.0092 U	0.0094 U	0.0097 U	0.0098 U	0.0095 U	0.0099 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.01 U
PCB-1242 (Aroclor 1242)	0.0012	0.0095 U	0.0096 U	0.0098 U	0.0094 U	0.0092 U	0.0094 U	0.0097 U	0.0098 U	0.0095 U	0.0099 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.01 U
PCB-1248 (Aroclor 1248)	0.0012	0.0095 U	0.0096 U	0.0098 U	0.0094 U	0.0092 U	0.0094 U	0.0097 U	0.0098 U	0.0095 U	0.0099 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.01 U
PCB-1254 (Aroclor 1254)	0.002	0.0098 U	0.01 U	0.01 U	0.0098 U	0.0095 U	0.0097 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.011 U
PCB-1260 (Aroclor 1260)	0.0055	0.0098 U	0.01 U	0.01 U	0.0098 U	0.0095 U	0.0097 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.011 U
PCB-1262 (Aroclor 1262)	--	0.0098 U	0.01 U	0.01 U	0.0098 U	0.0095 U	0.0097 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.011 U
PCB-1268 (Aroclor 1268)	--	0.0098 U	0.01 U	0.01 U	0.0098 U	0.0095 U	0.0097 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.011 U
Polychlorinated Biphenyl (PCBs)	--	0.0098 U	0.01 U	0.01 U	0.0098 U	0.0095 U	0.0097 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.011 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.026 U	0.027 U	0.027 U	0.026 U	0.025 U	0.026 U	0.027 U	0.027 U	0.026 U	0.027 U	0.028 U	0.027 U	0.027 U	0.026 U	0.028 U
1,4-Dioxane (P-Dioxane)	0.000094	0.094 U	0.096 U	0.098 U	0.094 U	0.092 U	0.093 U	0.096 U	0.097 U	0.095 U	0.098 U	0.099 U	0.096 U	0.098 U	0.094 U	0.1 U
2,3,4,6-Tetrachlorophenol	0.018	0.033 U	0.034 U	0.034 U	0.033 U	0.032 U	0.033 U	0.034 U	0.034 U	0.033 U	0.034 U	0.035 U	0.034 U	0.035 U	0.033 U	0.036 U
2,4,5-Trichlorophenol	0.4	0.035 U	0.036 U	0.036 U	0.035 U	0.034 U	0.035 U	0.036 U	0.036 U	0.035 U	0.036 U	0.037 U	0.036 U	0.037 U	0.035 U	0.038 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.01 U	0.01 U	0.01 U	0.0097 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
2,4-Dichlorophenol	0.0023	0.0083 U	0.0084 U	0.0086 U	0.0083 U	0.0081 U	0.0082 U	0.0085 U	0.0086 U	0.0084 U	0.0087 U	0.0088 U	0.0084 U	0.0087 U	0.0083 U	0.009 U
2,4-Dimethylphenol	0.042	0.077 U	0.079 U	0.08 U	0.077 U	0.075 U	0.077 U	0.078 U	0.08 U	0.078 U	0.081 U	0.082 U	0.079 U	0.081 U	0.077 U	0.084 U
2,4-Dinitrophenol	0.0044	0.26 U	0.27 U	0.28 U	0.26 U	0.26 U	0.26 U	0.27 U	0.27 U	0.27 U	0.28 U	0.28 U	0.27 U	0.28 U	0.27 U	0.29 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.019 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.02 U	0.019 U	0.02 U	0.019 U	0.02 U
2-Chloronaphthalene	0.39	0.0079 U	0.0081 U	0.0083 U	0.0079 U	0.0078 U	0.0079 U	0.0081 U	0.0082 U	0.008 U	0.0083 U	0.0084 U	0.0081 U	0.0084 U	0.008 U	0.0086 U
2-Chlorophenol	0.0089	0.0089 U	0.0091 U	0.0093 U	0.0089 U	0.0087 U	0.0089 U	0.0091 U	0.0092 U	0.009 U	0.0093 U	0.0094 U	0.0091 U	0.0094 U	0.0089 U	0.0097 U
2-Methylnaphthalene	0.019	0.0077 U	0.011 J	0.0081 U	0.0077 U	0.0076 U	0.0099 J	0.0079 U	0.008 U	0.0078 U	0.0081 U	0.0082 U	0.0079 U	0.0081 U	0.0077 U	0.0084 U
2-Methylphenol (O-Cresol)	0.075	0.015 U	0.016 U	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U	0.016 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U	0.015 U	0.017 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U
2-Nitrophenol	--	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U
3- And 4- Methylphenol (Total)	--	0.0093 U	0.0095 U	0.0097 U	0.0093 U	0.0091 U	0.0093 U	0.0095 U	0.0097 U	0.0094 U	0.0098 U	0.0099 U	0.0095 U	0.0098 U	0.0093 U	0.01 U
3,3'-Dichlorobenzidine	0.00082	0.039 U	0.04 U	0.041 U	0.039 U	0.038 U	0.039 U	0.04 U	0.041 U	0.04 U	0.041 U	0.041 U	0.04 U	0.041 U	0.039 U	0.042 U
3-Nitroaniline	--	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	0.093 U	0.095 U	0.097 U	0.093 U	0.091 U	0.093 U	0.096 U	0.097 U	0.094 U	0.098 U	0.099 U	0.095 U	0.098 U	0.094 U	0.1 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.016 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-071	CFSB-071	CFSB-073	CFSB-073	CFSB-074	CFSB-074	CFSB-075	CFSB-075	CFSB-079	CFSB-079	CFSB-080	CFSB-080	CFSB-082	CFSB-082	CFSB-084
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/27/2016	5/27/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	5/27/2016
4-Chloroaniline	0.00016	0.009 U	0.0092 U	0.0094 U	0.009 U	0.0088 U	0.009 U	0.0092 U	0.0093 U	0.0091 U	0.0094 U	0.0095 U	0.0092 U	0.0095 U	0.009 U	0.0098 U
4-Chlorophenyl Phenyl Ether	--	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
4-Nitroaniline	0.0016	0.013 U	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.014 U	0.013 U	0.014 U
4-Nitrophenol	--	0.17 U	0.17 U	0.18 U	0.17 U	0.16 U	0.17 U	0.17 U	0.17 U	0.17 U	0.18 U	0.18 U	0.17 U	0.18 U	0.17 U	0.18 U
Acenaphthene	0.55	0.019 J	0.037 J	0.0088 U	0.015 J	0.0083 U	0.072 J	0.019 J	0.035 J	0.0086 U	0.015 J	0.009 U	0.0087 U	0.0089 U	0.014 J	0.0092 U
Acenaphthylene	--	0.009 U	0.0092 U	0.0094 U	0.009 U	0.0088 U	0.009 U	0.0092 U	0.0093 U	0.0091 U	0.0094 U	0.0095 U	0.0092 U	0.0095 U	0.009 U	0.0098 U
Acetophenone	0.058	0.0076 U	0.0078 U	0.0079 U	0.0076 U	0.0075 U	0.0076 U	0.0078 U	0.0079 U	0.0077 U	0.009 U	0.0081 U	0.0078 U	0.008 U	0.0076 U	0.0083 U
Anthracene	5.8	0.033 J	0.077 J	0.035 U	0.04 J	0.033 U	0.19 J	0.044 J	0.1 J	0.034 U	0.038 J	0.035 U	0.034 U	0.035 U	0.045 J	0.036 U
Atrazine	0.0002	0.016 U	0.016 U	0.016 U	0.016 U	0.015 U	0.016 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U
Benzaldehyde	0.0041	0.027 U	0.027 U	0.028 U	0.027 U	0.026 U	0.027 U	0.027 U	0.028 U	0.027 U	0.028 U	0.028 U	0.027 U	0.028 U	0.027 U	0.029 U
Benzo(A)Anthracene	0.011	0.26	0.51	0.03 U	0.37	0.03 J	1.6	0.37	0.43	0.03 U	0.26	0.031 U	0.13	0.031 U	0.3	0.063
Benzo(A)Pyrene	0.018	0.34	0.59	0.011 U	0.52	0.021 J	2.1	0.48	0.51	0.011 U	0.37	0.011 U	0.17	0.011 U	0.38	0.072
Benzo(B)Fluoranthene	0.18	0.46	0.84	0.014 U	1	0.038	3.4	0.81	0.87	0.014 U	0.73	0.014 U	0.39	0.017 J	0.9	0.15
Benzo(G,H,I)Perylene	--	0.34 J	0.67	0.021 U	0.77	0.02 U	2.5	0.48	0.54	0.02 U	2.5	0.021 U	0.47	0.021 U	0.83	0.13 J
Benzo(K)Fluoranthene	1.8	0.19	0.37	0.016 U	0.33	0.015 U	1.2	0.33	0.33	0.015 U	0.3	0.016 U	0.14	0.016 U	0.33	0.063
Benzyl Butyl Phthalate	0.24	0.068 J+	0.3 J+	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.052 J	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.031 J	0.012 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.03 U	0.031 U	0.03 U	0.029 U	0.03 U	0.031 U	0.031 U	0.03 U	0.031 U	0.032 U	0.031 U	0.031 U	0.03 U	0.032 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0083 U	0.0084 U	0.0086 U	0.0083 U	0.0081 U	0.0082 U	0.0085 U	0.0086 U	0.0084 U	0.0087 U	0.0088 U	0.0084 U	0.0087 U	0.0083 U	0.009 U
Bis(2-Chloroisopropyl) Ether	0.026	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.014 U	0.016 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.024 J	0.038 J	0.014 U	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U
Caprolactam	0.25	0.025 U	0.026 U	0.026 U	0.025 U	0.025 U	0.025 U	0.026 U	0.026 U	0.025 U	0.026 U	0.027 U	0.026 U	0.027 U	0.025 U	0.027 U
Carbazole	--	0.044 J	0.088 J	0.009 U	0.088 J	0.0085 U	0.28 J	0.071 J	0.096 J	0.0088 U	0.096 J	0.0092 U	0.05 J	0.0091 U	0.085 J	0.014 J
Chrysene	9	0.38	0.68	0.0099 U	0.61	0.025 J	2.3	0.56	0.62	0.0096 U	0.42	0.01 U	0.22 J	0.014 J	0.5	0.096 J
Dibenz(A,H)Anthracene	0.096	0.078	0.16	0.019 U	0.14	0.018 U	0.5	0.074	0.13	0.018 U	0.28	0.019 U	0.065	0.019 U	0.1	0.02 U
Dibenzofuran	0.015	0.011 U	0.013 J	0.011 U	0.011 U	0.01 U	0.025 J	0.011 U	0.023 J	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U
Diethyl Phthalate	0.61	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
Dimethyl Phthalate	--	0.01 U	0.01 U	0.011 U	0.01 U	0.009 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U
Di-N-Butyl Phthalate	0.23	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Di-N-Octylphthalate	5.7	0.018 U	0.018 U	0.019 U	0.018 U	0.017 U	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U
Fluoranthene	8.9	0.37	0.74	0.011 U	0.63	0.038 J	2.7	0.62	0.9	0.01 U	0.46	0.011 U	0.22 J	0.016 J	0.49	0.083 J
Fluorene	0.54	0.01 J	0.023 J	0.0079 U	0.0075 U	0.0075 U	0.046 J	0.0078 U	0.035 J	0.0077 U	0.0085 J	0.0081 U	0.0078 U	0.008 U	0.011 J	0.0083 U
Hexachlorobenzene	0.00012	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.014 U	0.015 U	0.015 U	0.015 U	0.091	0.014 U	0.015 U
Hexachlorobutadiene	0.00027	0.0098 U	0.01 U	0.01 U	0.0098 U	0.0096 U	0.0098 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.011 U
Hexachlorocyclopentadiene	0.00013	0.022 U	0.022 U	0.023 U	0.022 U	0.021 U	0.022 U	0.022 U	0.023 U	0.022 U	0.023 U	0.023 U	0.022 U	0.023 U	0.022 U	0.024 U
Hexachloroethane	0.0002	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.32	0.59	0.024 U	0.53	0.023 U	1.9	0.4	0.45	0.024 U	1.3	0.025 U	0.23	0.025 U	0.48	0.094
Isophorone	0.026	0.0075 U	0.0077 U	0.0078 U	0.0075 U	0.0073 U	0.0075 U	0.0077 U	0.0078 U	0.0076 U	0.0079 U	0.008 U	0.0077 U	0.0079 U	0.0075 U	0.0082 U
Naphthalene	0.00054	0.0098 J	0.017 J	0.011 U	0.0089 U	0.0087 U	0.022 J	0.0091 U	0.0092 U	0.009 U	0.0093 U	0.0094 U	0.0091 U	0.0094 U	0.0089 U	0.0097 U
Nitrobenzene	0.000092	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.032 U	0.033 U	0.032 U	0.031 U	0.032 U	0.033 U	0.033 U	0.032 U	0.033 U	0.034 U	0.032 U	0.033 U	0.032 U	0.035 U
Pentachlorophenol	0.000057	0.042 U	0.043 U	0.044 U	0.042 U	0.041 U	0.042 U	0.043 U	0.044 U	0.043 U	0.044 U	0.045 U	0.043 U	0.045 U	0.042 U	0.046 U
Phenanthrene	--	0.18 J	0.41	0.0097 U	0.24 J	0.025 J	1	0.26 J	0.46	0.0094 U	0.16 J	0.0099 U	0.082 J	0.012 J	0.19 J	0.038 J
Phenol	0.33	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U
Pyrene	1.3	0.48 J+	1 J+	0.017 U	0.66	0.036 J	2.8	0.64	0.85	0.016 U	0.45	0.017 U	0.23 J	0.018 J	0.56	0.11 J+
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00035 U	--	0.0004 U	--	0.00038 U	--	0.00037 U	--	0.00034 U	--	0.0004 U	--	0.00035 U	--	0.00038 U
1,1,2,2-Tetrachloroethane	0.00003	0.00016 U	--	0.00018 U	--	0.00017 U	--	0.00017 U	--	0.00015 U	--	0.00018 U	--	0.00016 U	--	0.00017 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00041 U	--	0.00046 U	--	0.00044 U	--	0.00043 U	--	0.0004 U	--	0.00046 U	--	0.00041 U	--	0.00043 U
1,1,2-Trichloroethane	0.000013	0.00026 U	--	0.0003 U	--	0.00028 U	--	0.00027 U	--	0.00025 U	--	0.00029 U	--	0.00026 U	--	0.00028 U
1,1-Dichloroethane	0.00078	0.00032 U	--	0.00036 U	--	0.00034 U	--	0.00033 U	--	0.00031 U	--	0.00036 U	--	0.00031 U	--	0.00034 U
1,1-Dichloroethene	0.01	0.00038 U	--	0.00043 U	--	0.00041 U	--	0.0004 U	--	0.00037 U	--	0.00043 U	--	0.00038 U	--	0.00041 U
1,2,3-Trichlorobenzene	0.0021	0.0001 U	--	0.00012 U	--	0.00011 U	--	0.00011 U	--	0.000099 U	--	0.00012 U	--	0.0001 U	--	0.00011 U
1,2,4-Trichlorobenzene	0.0012	0.0003 U	--	0.00034 U	--	0.00032 U	--	0.00031 U	--	0.00029 U	--	0.00034 U	--	0.0003 U	--	0.00032 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00044 U	--	0.0005 U	--	0.00047 U	--	0.00046 U	--	0.00042 U	--	0.00049 U	--	0.00043 U	--	0.00046 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-071	CFSB-071	CFSB-073	CFSB-073	CFSB-074	CFSB-074	CFSB-075	CFSB-075	CFSB-079	CFSB-079	CFSB-080	CFSB-080	CFSB-082	CFSB-082	CFSB-084
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/27/2016	5/27/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	5/27/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00011 U	---	0.00013 U	---	0.00012 U	---	0.00012 U	---	0.00011 U	---	0.00013 U	---	0.00011 U	---	0.00012 U
1,2-Dichlorobenzene	0.03	0.00013 U	---	0.00015 U	---	0.00014 U	---	0.00014 U	---	0.00013 U	---	0.00015 U	---	0.00013 U	---	0.00014 U
1,2-Dichloroethane	0.000048	0.0001 U	---	0.00012 U	---	0.00011 U	---	0.00011 U	---	0.000099 U	---	0.00012 U	---	0.0001 U	---	0.00011 U
1,2-Dichloropropane	0.000047	0.00016 U	---	0.00018 U	---	0.00017 U	---	0.00017 U	---	0.00015 U	---	0.00018 U	---	0.00016 U	---	0.00017 U
1,3-Dichlorobenzene	--	0.00011 U	---	0.00013 U	---	0.00012 U	---	0.00012 U	---	0.00011 U	---	0.00013 U	---	0.00011 U	---	0.00012 U
1,4-Dichlorobenzene	0.00046	0.00012 U	---	0.00014 U	---	0.00013 U	---	0.00013 U	---	0.00012 U	---	0.00014 U	---	0.00012 U	---	0.00013 U
2-Hexanone	0.00088	0.00087 U	---	0.00099 U	---	0.00094 U	---	0.00092 U	---	0.00085 U	---	0.00099 U	---	0.00087 U	---	0.00093 U
Acetone	0.29	0.0063	---	0.024	---	0.0011 U	---	0.017	---	0.04	---	0.033	---	0.015	---	0.019
Benzene	0.00023	0.00019 U	---	0.00021 U	---	0.0002 U	---	0.00056 J	---	0.00018 U	---	0.00021 U	---	0.00043 J	---	0.00042 J
Bromochloromethane	0.0021	0.00016 U	---	0.00018 U	---	0.00017 U	---	0.00017 U	---	0.00015 U	---	0.00018 U	---	0.00016 U	---	0.00017 U
Bromodichloromethane	0.000036	0.00035 U	---	0.0004 U	---	0.00038 U	---	0.00037 U	---	0.00034 U	---	0.0004 U	---	0.00035 U	---	0.00038 U
Bromoform	0.00087	0.00012 U	---	0.00014 U	---	0.00013 U	---	0.00013 U	---	0.00012 U	---	0.00014 U	---	0.00012 U	---	0.00013 U
Bromomethane	0.00019	0.0003 U	---	0.00034 U	---	0.00032 U	---	0.00031 U	---	0.00029 U	---	0.00034 U	---	0.0003 U	---	0.00032 U
Carbon Disulfide	0.024	0.0004 U	---	0.00046 U	---	0.00043 U	---	0.00087 J	---	0.00039 U	---	0.0005 J	---	0.0014	---	0.0012
Carbon Tetrachloride	0.00018	0.0004 U	---	0.00046 U	---	0.00043 U	---	0.00039 U	---	0.00039 U	---	0.00046 U	---	0.0004 U	---	0.00043 U
Chlorobenzene	0.0053	0.00013 U	---	0.00015 U	---	0.00014 U	---	0.00014 U	---	0.00013 U	---	0.00015 U	---	0.00013 U	---	0.00014 U
Chloroethane	0.59	0.00032 U	---	0.00037 UJ	---	0.00035 U	---	0.00034 UJ	---	0.00032 UJ	---	0.00037 UJ	---	0.00032 UJ	---	0.00035 U
Chloroform	0.000061	0.00019 U	---	0.00022 U	---	0.00021 U	---	0.00021 U	---	0.00019 U	---	0.00022 U	---	0.00019 U	---	0.00021 U
Chloromethane	0.0049	0.00035 U	---	0.0004 U	---	0.00038 U	---	0.00037 U	---	0.00034 U	---	0.0004 U	---	0.00035 U	---	0.00038 U
Cis-1,2-Dichloroethylene	0.0011	0.0002 U	---	0.00023 U	---	0.00022 U	---	0.00021 U	---	0.0002 U	---	0.00023 U	---	0.0002 U	---	0.00022 U
Cis-1,3-Dichloropropene	--	0.00014 U	---	0.00016 U	---	0.00015 U	---	0.00015 U	---	0.00014 U	---	0.00016 U	---	0.00014 U	---	0.00015 U
Cyclohexane	1.3	0.00043 U	---	0.00049 U	---	0.00046 U	---	0.00084 J	---	0.00042 U	---	0.00048 U	---	0.00061 J	---	0.0011 J+
Dibromochloromethane	0.00023	0.00014 U	---	0.00016 U	---	0.00015 U	---	0.00015 U	---	0.00014 U	---	0.00016 U	---	0.00014 U	---	0.00015 U
Dichlorodifluoromethane	0.03	0.0003 U	---	0.00034 U	---	0.00032 U	---	0.00031 U	---	0.00029 U	---	0.00034 U	---	0.0003 U	---	0.00032 U
Ethylbenzene	0.0017	0.00017 U	---	0.00019 U	---	0.00018 U	---	0.0002 J	---	0.00016 U	---	0.00019 U	---	0.00017 U	---	0.00026 J
Isopropylbenzene (Cumene)	0.074	0.00016 U	---	0.00018 U	---	0.00017 U	---	0.00017 U	---	0.00015 U	---	0.00018 U	---	0.00016 U	---	0.00017 U
M,P-Xylene	--	0.00032 J	---	0.00012 U	---	0.00056 J	---	0.00056 J	---	0.000099 U	---	0.00012 U	---	0.00048 J	---	0.00091 J
Methyl Acetate	0.41	0.00083 U	---	0.00095 U	---	0.00089 U	---	0.00088 U	---	0.00081 U	---	0.00095 U	---	0.00083 U	---	0.00089 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.00071 U	---	0.00081 U	---	0.00077 U	---	0.00075 U	---	0.0049	---	0.00081 U	---	0.00071 U	---	0.0021 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0021 U	---	0.0023 U	---	0.0022 U	---	0.0022 U	---	0.002 U	---	0.0023 U	---	0.002 U	---	0.0022 U
Methylcyclohexane	--	0.00046 U	---	0.00053 U	---	0.00073 J	---	0.0016	---	0.00045 U	---	0.00053 U	---	0.0012	---	0.0015
Methylene Chloride	0.0027	0.0003 U	---	0.00034 U	---	0.00032 U	---	0.00031 U	---	0.00029 U	---	0.00034 U	---	0.0003 U	---	0.00032 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00015 U	---	0.00017 U	---	0.00021 J	---	0.00018 J	---	0.00014 U	---	0.00017 U	---	0.00015 U	---	0.00032 J
Styrene	0.13	0.00014 U	---	0.00016 U	---	0.00015 U	---	0.00015 U	---	0.00014 U	---	0.00016 U	---	0.00014 U	---	0.00015 U
Tert-Butyl Methyl Ether	0.0032	0.00016 U	---	0.00018 U	---	0.00017 U	---	0.00017 U	---	0.00015 U	---	0.00018 U	---	0.00016 U	---	0.00017 U
Tetrachloroethylene (PCE)	0.0018	0.00026 U	---	0.0003 U	---	0.00028 U	---	0.00027 U	---	0.00025 U	---	0.00029 U	---	0.00033 J	---	0.00028 U
Toluene	0.076	0.00046 J	---	0.0002 U	---	0.00079 J	---	0.0013	---	0.00017 U	---	0.0002 U	---	0.00086 J	---	0.0015
Trans-1,2-Dichloroethene	0.011	0.00036 U	---	0.00041 U	---	0.00039 U	---	0.00038 U	---	0.00035 U	---	0.00041 U	---	0.00036 U	---	0.00039 U
Trans-1,3-Dichloropropene	--	0.000093 U	---	0.00011 U	---	0.0001 U	---	0.000098 U	---	0.00009 U	---	0.00011 U	---	0.000092 U	---	0.000099 U
Trichloroethylene (TCE)	0.0001	0.00024 U	---	0.00027 U	---	0.00026 U	---	0.00025 U	---	0.00023 U	---	0.00027 U	---	0.00024 U	---	0.00026 U
Trichlorofluoromethane	0.33	0.00032 U	---	0.00036 U	---	0.00034 U	---	0.00033 U	---	0.00031 U	---	0.00036 U	---	0.00031 U	---	0.00034 U
Vinyl Chloride	0.0000065	0.00036 U	---	0.00041 U	---	0.00039 U	---	0.00038 U	---	0.00035 U	---	0.00041 U	---	0.00036 U	---	0.00039 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-084	CFSB-086	CFSB-086	CFSB-087	CFSB-087	CFSB-088	CFSB-088	CFSB-092	CFSB-092	CFSB-094	CFSB-094	CFSB-095	CFSB-095	CFSB-097	CFSB-097
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		5/27/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	9.64E-06 J	2E-08 U	4.94E-06 J	1.29E-06 J	0.0000031 J	5.63E-06	7.18E-06 J	2.43E-06 J	4.18E-06 J	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	0.0000248 J	2.46E-06 J	0.0000234 J	5.19E-06 J	0.0000164 J	0.0000196	0.0000213 J	9.04E-06	0.0000147	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	8.6E-07 J	2.4E-08 U	6.5E-07 J	4.8E-08 U	1.9E-07 U	2.2E-07 U	1.7E-07 U	4.6E-08 U	4.9E-07 J	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	1.35E-06 J	1.5E-07 J	0.0000004 U	0.0000004 J	2.8E-07 U	5.2E-07 J	9.2E-07 J	3.1E-07 J	3.9E-08 U	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	6.1E-07 J	6.4E-08 J	2.5E-07 U	4E-08 U	1.7E-07 U	5.6E-07 J	3.3E-07 J	2.5E-07 J	3.8E-07 J	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	7.8E-07 J	9.1E-08 J	3.6E-07 U	1.4E-07 J	2.9E-07 U	0.0000003 U	2.1E-07 U	1.9E-07 J	4.2E-07 J	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	1.44E-06 J	1.5E-07 J	1.57E-06 J	3.7E-07 J	1.19E-06 J	9.6E-07 J	1.25E-06 J	5.3E-07 J	9.7E-07 J	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	0.0000003 U	3.3E-08 U	3.9E-07 U	5.2E-08 J	2.7E-07 U	3.2E-07 U	2.2E-07 U	5E-07 U	8.6E-08 U	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	0.0000008 J	8.4E-08 J	0.0000009 J	1.9E-07 J	9.8E-07 J	9.7E-07 J	7.8E-07 J	4.6E-07 J	6.7E-07 J	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	6.1E-07 J	3.4E-08 U	2.2E-07 U	2.3E-07 J	4.7E-07 J	3.8E-07 U	1.6E-07 U	2.9E-08 U	2.9E-07 J	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	3.1E-07 U	6.1E-08 U	3.9E-07 U	6.6E-08 U	2.6E-07 U	4.7E-07 U	2.1E-07 U	2.2E-07 J	2.6E-07 J	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	0.0000005 J	4E-08 J	3.9E-07 U	1.4E-07 J	2.7E-07 U	3.2E-07 U	2.8E-07 J	1.2E-07 J	3.1E-07 J	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	4.5E-07 J	3.5E-08 U	2.3E-07 U	2.4E-07 J	5.2E-07 J	0.0000004 U	1.7E-07 U	1.6E-07 J	2.9E-07 J	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	2.14E-06 J	2.2E-07 J	1.41E-06 J	9.4E-07 J	2.16E-06 J	1.09E-06	1.31E-06 J	0.0000006 J	1.06E-06 J	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	2.9E-07 U	3.4E-08 U	3.3E-07 U	3.9E-08 U	0.0000002 U	4.2E-07 U	[illegible]	1.1E-07 J	1.4E-07 J	--	--	--	--	--	--
Heptachlorodibenzofurans	--	0.0000249 J	1.62E-06 J	0.0000147 J	3.41E-06 J	0.0000083 J	0.0000177	0.000022 J	7.21E-06	0.0000118	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	0.0000444	4.54E-06 J	0.0000403	9.93E-06	0.0000304	0.0000341	0.0000357	0.0000161	0.0000267	--	--	--	--	--	--
Hexachlorodibenzofuran	--	0.0000111 J	7.9E-07 J	4.86E-06 J	1.46E-06 J	3.01E-06 J	5.64E-06	7.03E-06 J	0.0000032 J	5.03E-06 J	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	8.43E-06 J	8.2E-07 J	5.76E-06 J	1.81E-06 J	5.34E-06 J	5.68E-06	5.78E-06 J	2.94E-06 J	4.06E-06 J	--	--	--	--	--	--
Octachlorodibenzofuran	--	0.0000222 J	2.2E-08 U	0.0000111 J	3.09E-06 J	0.0000079 J	0.0000173	0.0000232 J	6.02E-06 J	0.0000101 J	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	0.000179	0.0000174	0.000156	0.0000374	0.000108	0.000111	0.000145	0.0000681	0.000104	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	3.1E-07 U	6.1E-08 U	3.9E-07 U	3.7E-07 J	2.6E-07 U	[illegible]	2.1E-07 U	4.8E-07 J	7.9E-07 J	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	3.55E-06 J	0.0000002 J	1.95E-06 J	0.0000018 J	2.43E-06 J	1.47E-06 J	4.7E-07 J	1.06E-06 J	1.96E-06 J	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	7.12E-06	7.4E-07 J	0.0000033 J	3.81E-06	6.76E-06	3.89E-06	2.82E-06 J	2.24E-06	0.0000036	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	7.4E-07 J	1.5E-07 J	3.3E-07 U	6.5E-07 J	0.0000012 J	4.2E-07 U	0.0000003 J	4.6E-07 J	7.3E-07 J	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	59.6 J	12.9 J+	21.1 J+	29.3 J+	34.9 J+	25.8 J+	23.5 J+	29.9 J	14.1 J	63.2 J-	86.9 J-	16.9 J-	19.5 J-	47.6 J-	80.1 J-
Cyanide	0.0015	0.026 J	0.019 U	0.024 J	0.045 J	0.041 J	0.017 U	0.022 J	0.017 J	0.02 J	0.042 J	0.04 J	0.047 J	0.053 J	0.054 J	0.089 J
METALS																
Aluminum	3000	7170	10600	10400	11900	15200	9860	8680	11400	11500	9660	8670	8470	12100	13800	15900
Antimony	0.035	0.34 U	0.34 UJ	0.35 UJ	0.31 UJ	0.36 UJ	0.33 UJ	0.34 UJ	0.33 UJ	0.36 UJ	0.34 UJ	0.35 J-	0.32 UJ	0.34 UJ	0.34 UJ	0.39 UJ
Arsenic	0.0015	3.2 J	4.2 J	2.8 J	4.3 J	4 J	3.9 J	3.3 J	4.5 J	4.6 J	3.2	3	3.7	4.4	4.6	3.7
Barium	16	65.4 J	91.3	89.4	109	99.5	85.6	57.5	78	100	67.6	88.4	129	123	161	199
Beryllium	1.9	0.32 J	0.45	0.48	0.45	0.57	0.46	0.45	0.53	0.48	0.4	0.44	0.31	0.42	0.5	0.57
Cadmium	0.069	0.26 U	0.25 U	0.3 J	0.28 U	0.29 J	0.25 U	0.26 U	0.25 U	0.28 U	0.29 J	0.52 J	0.24 U	0.25 U	0.26 U	0.3 U
Calcium	--	36700 J	26600	20400	37200	18500	21900	14300	11900	15700	10600	65300	16800	12900	7450	4750
Chromium, Total	--	8.4 J	11.1	9.9	10.7	10.9	9.9	8.5	10.5	11.2	7.9	10.5	7.2	8.8	8.7	7.7
Cobalt	0.027	4.2	5.6 J-	5 J-	4.8 J-	5.2 J-	4.3 J-	4.6 J-	6 J-	5.3 J-	4.1	4.9	4.4	5.4	5.4	5.5
Copper	2.8	9.2	16 J+	16.6 J+	12.6 J+	19.5 J+	9.9 J+	7.4 J+	13.5 J+	14.7 J+	13.2 J	21 J	10.8 J+	15.2 J+	12.5 J+	11.5 J+
Iron	35	8880	14200	10900	12600	12600	11000	9860	14600	14700	11300	12600	9980	12700	13100	13600
Lead	400	6.2	10.2 J	8.1 J	8.6 J	12.9 J	8 J	8 J	13.7 J	12.2 J	18.6 J	48.2 J	8.4	11	11.4	9.2
Magnesium	--	10700 J	11700	10700	11700	9920	10900	10000	10900	10400	8720	8700	7120	8530	6660	7980
Manganese	2.8	357 J	385	359	443	333	373	361	394	454	265	285	438	411	460	597
Mercury	0.0033	0.018	0.017 J+	0.013 J+	0.016 J+	0.021 J+	0.022 J+	0.018 J+	0.012 U	0.022 J+	0.022	0.027	0.018	0.015 J	0.016 J	0.013 U
Nickel	2.6	12.2 J	14.2	16.9	13.7	22.1	14.5	13.5	13.5	12.8	10.2	22.3	8.9	10.6	9.9	10.3
Potassium	--	633 J	965 J+	856 J+	1070 J+	1100 J+	752 J+	685 J+	1070 J+	1230 J+	671	727	641 J+	953 J+	857 J+	916 J+
Selenium	0.052	0.31 U	0.31 U	0.33 U	0.32 U	0.34 U	0.31 U	0.32 U	0.31 U	0.34 U	0.32 U	0.33 U	0.3 U	0.31 U	0.32 U	0.37 U
Silver	0.08	0.62 U	0.61 U	0.64 U	0.63 U	0.66 U	0.6 U	0.63 U	0.6 U	0.67 U	0.62 U	0.64 U	0.58 U	0.61 U	0.63 U	0.72 U
Sodium	--	50.1 J	45.8 J	45.7 J	63.3 J	62.6 J	30.8 U	32.2 U	37.3 J	35.1 J	115	172	29.8 U	31.3 U	44 J	58.1 J
Thallium	0.0014	0.13 U	0.13 U	0.13 U	0.13 U	0.14 U	0.12 U	0.13 U	0.12 U	0.14 U	0.13 U	0.13 U	0.12 U	0.13 U	0.13 U	0.15 U
Vanadium	8.6	7.9 J	11.6	10.1	13	14.8	8.3	8.4	12.9	12.6	7.6	8.4	8.4	11.7	13.3	12.2
Zinc	37	35.2	43.1	57.8	56.2	88.8	33.7	28.5	44.3	42.4	41.7	41.6	32	41.8	45.6	45.9

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-084	CFSB-086	CFSB-086	CFSB-087	CFSB-087	CFSB-088	CFSB-088	CFSB-092	CFSB-092	CFSB-094	CFSB-094	CFSB-095	CFSB-095	CFSB-097	CFSB-097
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		5/27/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016
PESTICIDES																
Aldrin	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
cis-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dieldrin	0.000071	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endosulfan Sulfate	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin	0.0092	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Aldehyde	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Ketone	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gamma Bhc (Lindane)	0.00024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor	0.00012	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor Epoxide	0.000028	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methoxychlor	0.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDD	0.0075	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDE	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDT	0.077	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toxaphene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
trans-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0095 U	0.0097 U	0.0094 U	0.0097 U	0.0098 U	0.0096 U	0.0097 U	0.0097 U	0.0096 U	0.0093 U	0.0096 U	0.0094 U	0.01 U	0.01 U	0.01 U
PCB-1221 (Aroclor 1221)	0.00008	0.0095 U	0.0097 U	0.0094 U	0.0097 U	0.0098 U	0.0096 U	0.0097 U	0.0097 U	0.0096 U	0.0093 U	0.0096 U	0.0094 U	0.01 U	0.01 U	0.01 U
PCB-1232 (Aroclor 1232)	0.00008	0.0095 U	0.0097 U	0.0094 U	0.0097 U	0.0098 U	0.0096 U	0.0097 U	0.0097 U	0.0096 U	0.0093 U	0.0096 U	0.0094 U	0.01 U	0.01 U	0.01 U
PCB-1242 (Aroclor 1242)	0.0012	0.0095 U	0.0097 U	0.0094 U	0.0097 U	0.0098 U	0.0096 U	0.0097 U	0.0097 U	0.0096 U	0.0093 U	0.0096 U	0.0094 U	0.01 U	0.01 U	0.01 U
PCB-1248 (Aroclor 1248)	0.0012	0.0095 U	0.0097 U	0.0094 U	0.0097 U	0.0098 U	0.0096 U	0.0097 U	0.0097 U	0.0096 U	0.0093 U	0.0096 U	0.0094 U	0.01 U	0.01 U	0.01 U
PCB-1254 (Aroclor 1254)	0.002	0.0099 U	0.01 U	0.0098 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0099 U	0.0096 U	0.0099 U	0.0098 U	0.01 U	0.01 U	0.011 U
PCB-1260 (Aroclor 1260)	0.0055	0.0099 U	0.01 U	0.0098 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0099 U	0.0096 U	0.0099 U	0.0098 U	0.01 U	0.01 U	0.011 U
PCB-1262 (Aroclor 1262)	--	0.0099 U	0.01 U	0.0098 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0099 U	0.0096 U	0.0099 U	0.0098 U	0.01 U	0.01 U	0.011 U
PCB-1268 (Aroclor 1268)	--	0.0099 U	0.01 U	0.0098 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0099 U	0.0096 U	0.0099 U	0.0098 U	0.01 U	0.01 U	0.011 U
Polychlorinated Biphenyl (PCBs)	--	0.0099 U	0.01 U	0.0098 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0099 U	0.0096 U	0.0099 U	0.0098 U	0.01 U	0.01 U	0.011 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.026 U	0.027 U	0.026 U	0.027 U	0.027 U	0.026 U	0.027 U	0.027 U	0.027 U	0.026 U	0.027 U	0.026 U	0.028 U	0.028 U	0.029 U
1,4-Dioxane (P-Dioxane)	0.000094	0.095 U	0.096 U	0.094 U	0.096 U	0.097 U	0.095 U	0.096 U	0.097 U	0.095 U	0.092 U	0.095 U	0.094 U	0.099 U	0.1 U	0.1 U
2,3,4,6-Tetrachlorophenol	0.018	0.033 UJ	0.034 U	0.033 U	0.034 U	0.034 U	0.033 U	0.034 U	0.034 U	0.034 U	0.032 U	0.034 U	0.033 U	0.035 U	0.035 U	0.036 U
2,4,5-Trichlorophenol	0.4	0.035 U	0.036 U	0.035 U	0.036 U	0.036 U	0.035 U	0.036 U	0.036 U	0.036 U	0.034 U	0.036 U	0.035 U	0.037 U	0.037 U	0.038 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0093 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U
2,4-Dichlorophenol	0.0023	0.0083 U	0.0085 U	0.0083 U	0.0085 U	0.0086 U	0.0084 U	0.0085 U	0.0085 U	0.0084 U	0.0081 U	0.0084 U	0.0083 U	0.0088 U	0.0088 U	0.0091 U
2,4-Dimethylphenol	0.042	0.078 U	0.079 U	0.077 U	0.079 U	0.08 U	0.078 U	0.079 U	0.079 U	0.079 U	0.076 U	0.078 U	0.077 U	0.082 U	0.082 U	0.084 U
2,4-Dinitrophenol	0.0044	0.27 UJ	0.27 U	0.26 U	0.27 U	0.28 U	0.27 U	0.27 U	0.27 U	0.27 U	0.26 U	0.27 U	0.27 U	0.28 U	0.28 U	0.29 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.015 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.02 U	0.02 U	0.02 U
2-Chloronaphthalene	0.39	0.008 U	0.0081 U	0.0079 U	0.0082 U	0.0083 U	0.008 U	0.0082 U	0.0082 U	0.0081 U	0.0078 U	0.0081 U	0.008 U	0.0084 U	0.0085 U	0.0087 U
2-Chlorophenol	0.0089	0.009 U	0.0091 U	0.0089 U	0.0091 U	0.0093 U	0.009 U	0.0091 U	0.0092 U	0.0091 U	0.0088 U	0.0091 U	0.0089 U	0.0094 U	0.0095 U	0.0098 U
2-Methylnaphthalene	0.019	0.0078 U	0.0079 U	0.0077 U	0.0079 U	0.008 U	0.0078 U	0.0079 U	0.008 U	0.0079 U	0.0076 U	0.0079 U	0.0077 U	0.0082 U	0.0083 U	0.0085 U
2-Methylphenol (O-Cresol)	0.075	0.015 U	0.016 U	0.015 U	0.016 U	0.016 U	0.015 U	0.016 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.016 U	0.016 U	0.017 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U
2-Nitrophenol	--	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U
3- And 4- Methylphenol (Total)	--	0.0094 U	0.0096 U	0.0093 U	0.0096 U	0.0097 U	0.0094 U	0.0096 U	0.0096 U	0.0095 U	0.0092 U	0.0095 U	0.0093 U	0.0098 U	0.013 J	0.01 U
3,3'-Dichlorobenzidine	0.00082	0.039 U	0.04 U	0.039 U	0.04 U	0.041 U	0.04 U	0.04 U	0.04 U	0.04 U	0.039 U	0.04 U	0.039 U	0.042 U	0.042 U	0.043 U
3-Nitroaniline	--	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	0.094 UJ	0.096 U	0.093 U	0.096 U	0.097 U	0.095 U	0.096 U	0.096 U	0.095 U	0.092 U	0.095 U	0.094 U	0.099 U	0.1 U	0.1 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.016 U	0.016 U

Preliminary - Under EPA and MDEQ Review

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Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-084	CFSB-086	CFSB-086	CFSB-087	CFSB-087	CFSB-088	CFSB-088	CFSB-092	CFSB-092	CFSB-094	CFSB-094	CFSB-095	CFSB-095	CFSB-097	CFSB-097
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		5/27/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016
4-Chloroaniline	0.00016	0.0091 U	0.0092 U	0.009 U	0.0093 U	0.0094 U	0.0091 U	0.0092 U	0.0093 U	0.0092 U	0.0089 U	0.0092 U	0.009 U	0.0096 U	0.0096 U	0.0099 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U
4-Nitroaniline	0.0016	0.013 U	0.014 U	0.013 U	0.014 U	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U	0.014 U	0.015 U
4-Nitrophenol	--	0.17 U	0.17 U	0.17 U	0.17 U	0.18 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.18 U	0.18 U	0.18 U
Acenaphthene	0.55	0.03 J	0.0087 U	0.04 J	0.024 J	0.028 J	0.032 J	0.021 J	0.0099 J	0.036 J	0.032 J	0.027 J	0.0085 U	0.029 J	0.013 J	0.0095 J
Acenaphthylene	--	0.0091 U	0.0092 U	0.009 U	0.0093 U	0.0094 U	0.0091 U	0.0092 U	0.0093 U	0.0092 U	0.0089 U	0.013 J	0.009 U	0.0096 U	0.0096 U	0.0099 U
Acetophenone	0.058	0.0077 U	0.0078 U	0.0076 U	0.0078 U	0.0079 U	0.0077 U	0.0078 U	0.0079 U	0.0078 U	0.0075 U	0.0079 J	0.0076 U	0.0081 U	0.0082 U	0.0084 U
Anthracene	5.8	0.06 J	0.034 U	0.078 J	0.046 J	0.068 J	0.06 J	0.043 J	0.034 U	0.059 J	0.046 J	0.065 J	0.033 U	0.052 J	0.036 U	0.036 U
Atrazine	0.0002	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.017 U	0.016 U	0.015 U	0.016 U	0.016 U	0.017 U	0.017 U	0.017 U
Benzaldehyde	0.0041	0.027 U	0.027 U	0.027 U	0.027 U	0.028 U	0.027 U	0.027 U	0.028 U	0.027 U	0.026 U	0.027 U	0.027 U	0.028 U	0.029 U	0.029 U
Benzo(A)Anthracene	0.011	0.48	0.094	0.4	0.23	0.44	0.45	0.3	0.15	0.23	0.17	0.21	0.038	0.3	0.13	0.032 U
Benzo(A)Pyrene	0.018	0.68	0.12	0.49	0.35	0.61	0.59	0.42	0.2	0.28	0.18	0.28	0.046	0.4	0.15	0.012 U
Benzo(B)Fluoranthene	0.18	1.3	0.2	0.89	0.7	1.4	1.4	0.97	0.4	0.47	0.27	0.41	0.076	0.78	0.22	0.028 J
Benzo(G,H,I)Perylene	--	0.95	0.14 J	0.69	0.7	1.2	0.79	0.61	0.28 J	0.31 J	0.27 J	0.92	0.043 J	0.59	0.28 J	0.032 J
Benzo(K)Fluoranthene	1.8	0.52	0.085	0.34	0.29	0.43	0.015 U	0.15	0.13	0.2	0.11	0.18	0.03 J	0.32	0.077	0.017 U
Benzyl Butyl Phthalate	0.24	0.036 J	0.46	1.4	0.015 J	0.016 J	0.015 J	0.011 U	0.011 U	0.011 U	0.011 U	0.05 J	0.011 U	0.011 U	0.012 U	0.012 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.031 U	0.03 U	0.031 U	0.031 U	0.03 U	0.031 U	0.031 U	0.03 U	0.029 U	0.03 U	0.03 U	0.032 U	0.032 U	0.033 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0083 U	0.0085 U	0.0083 U	0.0085 U	0.0086 U	0.0084 U	0.0085 U	0.0085 U	0.0084 U	0.0081 U	0.0084 U	0.0083 U	0.0088 U	0.0088 U	0.0091 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.015 U	0.014 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.015 UJ	0.016 UJ
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.014 U	0.022 J	0.019 J	0.023 J	0.014 U	0.014 U	0.014 U	0.014 U	0.064 J	0.12 J	0.014 U	0.046 J	0.015 U	0.015 U
Caprolactam	0.25	0.025 U	0.026 U	0.025 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.025 U	0.026 U	0.025 U	0.027 U	0.027 U	0.028 U
Carbazole	--	0.099 J	0.028 J	0.13 J	0.099 J	0.2 J	0.12 J	0.089 J	0.04 J	0.052 J	0.038 J	0.057 J	0.0087 U	0.069 J	0.03 J	0.0095 U
Chrysene	9	0.81	0.15 J	0.64	0.48	0.85	0.84	0.55	0.23 J	0.3 J	0.24 J	0.33 J	0.057 J	0.55	0.18 J	0.022 J
Dibenz(A,H)Anthracene	0.096	0.16	0.039	0.15	0.16	0.24	0.14	0.12	0.057	0.069	0.054 J+	0.12 J+	0.018 U	0.12 J+	0.032 J	0.02 U
Dibenzofuran	0.015	0.012 J	0.011 U	0.013 J	0.011 U	0.011 U	0.012 J	0.011 U	0.011 U	0.017 J	0.011 J	0.011 U	0.011 U	0.013 J	0.011 U	0.012 U
Diethyl Phthalate	0.61	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U
Dimethyl Phthalate	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.02 J	0.085 J	0.01 U	0.011 U	0.011 U	0.011 U
Di-N-Octylphthalate	5.7	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.019 U	0.02 U
Fluoranthene	8.9	0.92	0.19 J	0.76	0.43	0.76	0.78	0.52	0.25 J	0.4	0.35	0.42	0.071 J	0.57	0.26 J	0.051 J
Fluorene	0.54	0.02 J	0.0078 U	0.029 J	0.019 J	0.02 J	0.021 J	0.017 J	0.0079 U	0.028 J	0.021 J	0.02 J	0.0076 U	0.022 J	0.011 J	0.0085 J
Hexachlorobenzene	0.00012	0.014 U	0.015 U	0.014 U	0.015 U	0.015 U	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.016 U
Hexachlorobutadiene	0.00027	0.0099 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0097 U	0.01 U	0.0099 U	0.01 U	0.011 U	0.011 U
Hexachlorocyclopentadiene	0.00013	0.022 UJ	0.022 U	0.022 U	0.022 U	0.023 U	0.022 U	0.022 U	0.023 U	0.022 U	0.022 UJ	0.022 UJ	0.022 UJ	0.023 UJ	0.023 U	0.024 U
Hexachloroethane	0.0002	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.014 U	0.014 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.84	0.12	0.6	0.63	1.1	0.64	0.48	0.22	0.26	0.22 J+	0.56 J+	0.042 J+	0.55 J+	0.23	0.029 J
Isophorone	0.026	0.0076 U	0.0077 U	0.0075 U	0.0077 U	0.0078 U	0.0076 U	0.0077 U	0.0078 U	0.0077 U	0.0074 U	0.0077 U	0.0075 U	0.008 U	0.0081 U	0.0082 U
Naphthalene	0.00054	0.011 J	0.0091 U	0.009 J	0.011 J	0.01 J	0.011 J	0.0091 U	0.0092 U	0.022 J	0.0089 U	0.0091 U	0.0089 U	0.01 J	0.0095 U	0.0098 U
Nitrobenzene	0.000092	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.033 U	0.032 U	0.033 U	0.033 U	0.032 U	0.033 U	0.033 U	0.032 U	0.031 U	0.032 U	0.032 U	0.034 U	0.034 U	0.035 U
Pentachlorophenol	0.000057	0.043 UJ	0.043 U	0.042 U	0.044 U	0.044 U	0.043 U	0.044 U	0.044 U	0.043 U	0.042 U	0.043 U	0.042 U	0.045 U	0.045 U	0.046 U
Phenanthrene	--	0.34 J	0.075 J	0.35	0.21 J	0.29 J	0.34 J	0.25 J	0.11 J	0.26 J	0.25 J	0.24 J	0.051 J	0.31 J	0.16 J	0.047 J
Phenol	0.33	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U
Pyrene	1.3	0.92	0.15 J	0.6	0.4	0.61	1	0.67	0.25 J	0.42	0.35	0.4	0.07 J	0.62	0.23 J	0.043 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	--	0.00031 U	--	0.00031 U	--	0.00031 U	--	0.00031 U	--	0.00036 U	--	0.00035 U	--	0.00036 U	--
1,1,2,2-Tetrachloroethane	0.00003	--	0.00014 U	--	0.00014 U	--	0.00014 U	--	0.00014 U	--	0.00016 U	--	0.00016 U	--	0.00016 U	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	--	0.00036 UJ	--	0.00036 UJ	--	0.00036 U	--	0.00035 U	--	0.00041 U	--	0.00041 U	--	0.00042 U	--
1,1,2-Trichloroethane	0.000013	--	0.00023 U	--	0.00023 U	--	0.00023 U	--	0.00023 U	--	0.00026 U	--	0.00026 U	--	0.00026 U	--
1,1-Dichloroethane	0.00078	--	0.00028 U	--	0.00028 U	--	0.00028 U	--	0.00027 U	--	0.00032 U	--	0.00032 U	--	0.00032 U	--
1,1-Dichloroethene	0.01	--	0.00034 U	--	0.00034 U	--	0.00034 U	--	0.00033 U	--	0.00038 U	--	0.00038 U	--	0.00039 U	--
1,2,3-Trichlorobenzene	0.0021	--	0.000091 U	--	0.00009 U	--	0.000091 U	--	0.000089 U	--	0.0001 U	--	0.0001 U	--	0.0001 U	--
1,2,4-Trichlorobenzene	0.0012	--	0.00027 U	--	0.00026 U	--	0.00026 U	--	0.00026 U	--	0.0003 U	--	0.0003 U	--	0.0003 U	--
1,2-Dibromo-3-Chloropropane	0.00000014	--	0.00039 U	--	0.00038 U	--	0.00039 U	--	0.00038 U	--	0.00044 U	--	0.00044 U	--	0.00044 U	--

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-084	CFSB-086	CFSB-086	CFSB-087	CFSB-087	CFSB-088	CFSB-088	CFSB-092	CFSB-092	CFSB-094	CFSB-094	CFSB-095	CFSB-095	CFSB-097	CFSB-097
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		5/27/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.000099 U	...	0.000098 U	...	0.000099 U	...	0.000097 U	...	0.00011 U	...	0.00011 U	...	0.00011 U	...
1,2-Dichlorobenzene	0.03	...	0.00012 U	...	0.00011 U	...	0.00012 U	...	0.00011 U	...	0.00013 U	...	0.00013 U	...	0.00013 U	...
1,2-Dichloroethane	0.000048	...	0.000091 U	...	0.00009 U	...	0.000091 U	...	0.000089 U	...	0.0001 U	...	0.0001 U	...	0.0001 U	...
1,2-Dichloropropane	0.000047	...	0.00014 U	...	0.00014 U	...	0.00014 U	...	0.00014 U	...	0.00016 U	...	0.00016 U	...	0.00016 U	...
1,3-Dichlorobenzene	--	...	0.000099 U	...	0.000098 U	...	0.000099 U	...	0.000097 U	...	0.00011 U	...	0.00011 U	...	0.00011 U	...
1,4-Dichlorobenzene	0.00046	...	0.00011 U	...	0.00011 U	...	0.00011 U	...	0.0001 U	...	0.00012 U	...	0.00012 U	...	0.00012 U	...
2-Hexanone	0.00088	...	0.00078 U	...	0.00077 U	...	0.00078 U	...	0.00076 U	...	0.00089 U	...	0.00087 U	...	0.00089 U	...
Acetone	0.29	...	0.012	...	0.012	...	0.0099	...	0.017	...	0.022	...	0.017	...	0.11	...
Benzene	0.00023	...	0.00017 U	...	0.00052 J	...	0.00016 U	...	0.00015 U	...	0.00032 J	...	0.00025 J	...	0.00031 J	...
Bromochloromethane	0.0021	...	0.00014 U	...	0.00014 U	...	0.00014 U	...	0.00014 U	...	0.00016 U	...	0.00016 U	...	0.00016 U	...
Bromodichloromethane	0.000036	...	0.00031 U	...	0.00031 U	...	0.00031 U	...	0.00031 U	...	0.00036 U	...	0.00035 U	...	0.00036 U	...
Bromoform	0.00087	...	0.00011 U	...	0.00011 U	...	0.00011 U	...	0.0001 U	...	0.00012 U	...	0.00012 U	...	0.00012 U	...
Bromomethane	0.00019	...	0.00027 UJ	...	0.00026 UJ	...	0.00026 UJ	...	0.00026 UJ	...	0.0003 U	...	0.0003 U	...	0.0003 U	...
Carbon Disulfide	0.024	...	0.00076 J	...	0.00094	...	0.00038 J	...	0.00035 U	...	0.00083 J	...	0.00068 J	...	0.00041 U	...
Carbon Tetrachloride	0.00018	...	0.00086 U	...	0.00035 U	...	0.00035 U	...	0.00035 U	...	0.0004 U	...	0.0004 U	...	0.00041 U	...
Chlorobenzene	0.0053	...	0.00012 U	...	0.00011 U	...	0.00012 U	...	0.00011 U	...	0.00013 U	...	0.00013 U	...	0.00013 U	...
Chloroethane	0.59	...	0.00029 UJ	...	0.00029 UJ	...	0.00029 UJ	...	0.00028 UJ	...	0.00033 U	...	0.00033 U	...	0.00033 U	...
Chloroform	0.000061	...	0.00017 U	...	0.00017 U	...	0.00017 U	...	0.00017 U	...	0.0002 U	...	0.0002 U	...	0.0002 U	...
Chloromethane	0.0049	...	0.00031 U	...	0.00031 U	...	0.00031 U	...	0.00031 U	...	0.00036 U	...	0.00035 U	...	0.00036 U	...
Cis-1,2-Dichloroethylene	0.0011	...	0.00018 U	...	0.00018 U	...	0.00018 U	...	0.00018 U	...	0.00021 U	...	0.0002 U	...	0.00021 U	...
Cis-1,3-Dichloropropene	--	...	0.00012 U	...	0.00012 U	...	0.00012 U	...	0.00012 U	...	0.00014 U	...	0.00014 U	...	0.00014 U	...
Cyclohexane	1.3	...	0.00038 UJ	...	0.0012 J-	...	0.00038 U	...	0.00037 U	...	0.00043 U	...	0.00043 U	...	0.00043 U	...
Dibromochloromethane	0.00023	...	0.00012 U	...	0.00012 U	...	0.00012 U	...	0.00012 U	...	0.00014 U	...	0.00014 U	...	0.00014 U	...
Dichlorodifluoromethane	0.03	...	0.00027 UJ	...	0.00026 UJ	...	0.00026 U	...	0.00026 U	...	0.0003 U	...	0.0003 U	...	0.0003 U	...
Ethylbenzene	0.0017	...	0.00015 U	...	0.0003 J	...	0.00015 U	...	0.00015 U	...	0.00017 U	...	0.00017 U	...	0.00017 U	...
Isopropylbenzene (Cumene)	0.074	...	0.00014 U	...	0.00014 U	...	0.00014 U	...	0.00014 U	...	0.00016 U	...	0.00016 U	...	0.00016 U	...
M,P-Xylene	--	...	0.00022 J	...	0.00077 J	...	0.00015 J	...	0.000097 J	...	0.00028 J	...	0.0002 J	...	0.0001 U	...
Methyl Acetate	0.41	...	0.00075 U	...	0.00074 U	...	0.00074 U	...	0.00073 U	...	0.00084 U	...	0.00084 U	...	0.02	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.00064 U	...	0.00063 U	...	0.00063 U	...	0.00062 U	...	0.00072 U	...	0.00072 U	...	0.014	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.0018 U	...	0.0018 U	...	0.0018 U	...	0.0018 U	...	0.0021 U	...	0.0021 U	...	0.0021 U	...
Methylcyclohexane	--	...	0.00041 UJ	...	0.0021 J	...	0.00041 U	...	0.0004 U	...	0.00078 J	...	0.00078 J	...	0.00047 U	...
Methylene Chloride	0.0027	...	0.00027 U	...	0.00026 U	...	0.00026 U	...	0.00026 U	...	0.0003 U	...	0.0003 U	...	0.0021	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00013 U	...	0.0002 J	...	0.00013 U	...	0.00013 U	...	0.00015 U	...	0.00015 U	...	0.00015 U	...
Styrene	0.13	...	0.00012 U	...	0.00012 U	...	0.00012 U	...	0.00012 U	...	0.00014 U	...	0.00014 U	...	0.00014 U	...
Tert-Butyl Methyl Ether	0.0032	...	0.00014 U	...	0.00014 U	...	0.00014 U	...	0.00014 U	...	0.00016 U	...	0.00016 U	...	0.00016 U	...
Tetrachloroethylene (PCE)	0.0018	...	0.00023 U	...	0.00023 U	...	0.00023 U	...	0.00023 U	...	0.00026 U	...	0.00026 U	...	0.00026 U	...
Toluene	0.076	...	0.00036 J	...	0.0015	...	0.0003 J	...	0.00022 J	...	0.00064 J	...	0.00054 J	...	0.0002 J	...
Trans-1,2-Dichloroethene	0.011	...	0.00032 U	...	0.00032 U	...	0.00032 U	...	0.00031 U	...	0.00036 U	...	0.00036 U	...	0.00037 U	...
Trans-1,3-Dichloropropene	--	...	0.000083 U	...	0.000082 U	...	0.000082 U	...	0.000081 U	...	0.000094 U	...	0.000093 U	...	0.000094 U	...
Trichloroethylene (TCE)	0.0001	...	0.00022 U	...	0.00021 U	...	0.00021 U	...	0.00021 U	...	0.00024 U	...	0.00024 U	...	0.00025 U	...
Trichlorofluoromethane	0.33	...	0.00028 UJ	...	0.00028 UJ	...	0.00028 U	...	0.00027 U	...	0.00032 U	...	0.00032 U	...	0.00032 U	...
Vinyl Chloride	0.0000065	...	0.00032 U	...	0.00032 U	...	0.00032 U	...	0.00031 U	...	0.00036 U	...	0.00036 U	...	0.00037 U	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-098	CFSB-098	CFSB-099	CFSB-099	CFSB-100	CFSB-100	CFSB-121	CFSB-121	CFSB-121-DUP	CFSB-128	CFSB-128	CFSB-129	CFSB-129	CFSB-130	CFSB-131
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft
Chemical Name		5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/18/2016	5/18/2016	5/18/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	6/17/2016	6/17/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	79.9 J-	93.3 J-	3.18 J+	41.7 J+	90.9 J-	39.2 J+	10.1 J-	13.5 J-	9.05 J-	63.4 J-	46.7 J-	203 J-	214 J-	2.46	3.82
Cyanide	0.0015	0.037 J	0.077 J	0.055 J	0.29	0.018 U	0.023 J	0.074 J	0.1 J	0.091 J	0.052 J	0.04 J	0.042 J	0.065 J	0.74	2.4
METALS																
Aluminum	3000	9840	6560	5990	15100	6060	6420	16700	18100	15500 J	7530	14500	11900	11700	5880	10100
Antimony	0.035	0.33 UJ	0.37 UJ	0.31 UJ	0.4 UJ	0.33 UJ	0.34 UJ	0.36 UJ	0.37 UJ	0.37 UJ	0.34 UJ	0.34 UJ	0.34 UJ	0.37 UJ	0.43 UJ	0.38 U
Arsenic	0.0015	3.5	2.4	3.4	7.6	1.6	2.3	4.4	5	4.8 J	2.8	4.3	3.5	5	5	5.5
Barium	16	71	52.3	63.2	200	32.6	59.7	156	195	187	113	93.3	66.4	77.3	47	98.1
Beryllium	1.9	0.42	0.21 J	0.27 J	0.68	0.16 J	0.26 J	0.57	0.66	0.59	0.34	0.42	0.5	0.47	0.34 J	0.38
Cadmium	0.069	0.25 U	0.28 U	0.24 U	0.3 U	0.25 U	0.26 U	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U	0.26 U	0.28 U	0.32 U	0.29 U
Calcium	--	24100	31500	41400	36200 J	24400	28200	1830	2570	2700	34100	19000	17300	27400	40200 J	68700
Chromium, Total	--	9.5	6.5	7.4	14.5	5.5	5.3	10.1	10	9.3	5.5	8.8	10.1	8.9	6.1	9.5
Cobalt	0.027	4.1	3.5	3.8	6.6	3.3	2.8	6.3	6.4	5.9	4	4.6	4.9	4.8	2.8 J+	4.2
Copper	2.8	13 J+	8.9 J+	16.5 J+	19.9 J+	5.6 J+	8.6 J+	10.7	12.6	11.6 J	9.7 J	14.1 J+	12.2 J	13.2 J	23.2 J	8.7
Iron	35	11100	11200	8780	15600	9310	6170	16400	16500	15900	8110	12000	9670	12800	9640	13400
Lead	400	9	4.1	12.6	16.9	2.9	6.2	9.3	11.5	10.7	8.7 J	14.8	13.5 J	12.5 J	27.7	6.6
Magnesium	--	11600	10600	14300	16900	12200	7260	7240	7030	6400	6570	10300	7370	9530	6510	12000
Manganese	2.8	330	328	296	506	248	191	454	529	492 J	438	341	281	370	210	516
Mercury	0.0033	0.02	0.015 J	0.023	0.042	0.02	0.015 J	0.013 U	0.013 J	0.014 J	0.025	0.016 J	0.014 J	0.016 J	0.013 U	0.012 U
Nickel	2.6	10.1	6.3	7.4	11	6.5	10	12	13	13.2	8.4	16	15.4	13.2	6.6 J-	9.4
Potassium	--	872 J+	492 J+	571 J+	1090 J+	324 J+	433 J+	938	1080	1180	536	910 J+	892	866	627	990
Selenium	0.052	0.31 U	0.35 U	0.29 U	0.66 J	0.31 U	0.32 U	0.34 U	0.34 U	0.34 U	0.32 U	0.32 U	0.32 U	0.35 U	0.4 U	0.36 U
Silver	0.08	0.61 U	0.68 U	0.57 U	0.73 U	0.61 U	0.63 U	0.66 U	0.67 U	0.67 U	0.62 U	0.63 U	0.62 U	0.68 U	0.78 U	0.7 U
Sodium	--	112	102	29.2 U	52.4 J	51.6 J	57.4 J	54.9 J	39.6 J	38 J	40.7 J	77.5 J	162	123	363	978
Thallium	0.0014	0.13 U	0.14 U	0.12 U	0.15 U	0.13 U	0.13 U	0.14 U	0.14 U	0.14 U	0.13 U	0.13 U	0.13 U	0.14 U	0.16 U	0.14 U
Vanadium	8.6	9.7	7.4	5.3	10.8	5.6	6	15.1	15.9	15.6	7.7	12.4	9.4	9.6	4.4	6.8
Zinc	37	34.4	22.2	27.5	47.8	29.7	22.6	47.2	57.9	54	28.5	43.3	35.8	46.1	25.3	38.9

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-098	CFSB-098	CFSB-099	CFSB-099	CFSB-100	CFSB-100	CFSB-121	CFSB-121	CFSB-121-DUP	CFSB-128	CFSB-128	CFSB-129	CFSB-129	CFSB-130	CFSB-131
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft
Chemical Name		5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/18/2016	5/18/2016	5/18/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	6/17/2016	6/17/2016
PESTICIDES																
Aldrin	0.00015	...	...	...	...	...	...	...	0.00092 U	0.00093 U	...	...	...	...	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	...	...	...	...	...	...	0.00069 U	0.0007 U	...	...	...	...	...	...
Alpha Endosulfan	--	...	...	...	...	...	...	...	0.0011 U	0.0011 U	...	...	...	...	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	...	...	...	...	...	...	0.00074 U	0.00075 U	...	...	...	...	...	...
Beta Endosulfan	--	...	...	...	...	...	...	...	0.0012 U	0.0012 U	...	...	...	...	...	...
cis-Chlordane	--	...	...	...	...	...	...	...	0.0012 U	0.0013 U	...	...	...	...	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	...	...	...	...	...	...	0.00083 U	0.00084 U	...	...	...	...	...	...
Dieldrin	0.000071	...	...	...	...	...	...	...	0.0009 U	0.001 U	...	...	...	...	...	...
Endosulfan Sulfate	--	...	...	...	...	...	...	...	0.0089 U	0.0089 U	...	...	...	...	...	...
Endrin	0.0092	...	...	...	...	...	...	...	0.0097 U	0.00098 U	...	...	...	...	...	...
Endrin Aldehyde	--	...	...	...	...	...	...	...	0.00095 U	0.00095 U	...	...	...	...	...	...
Endrin Ketone	--	...	...	...	...	...	...	...	0.0011 U	0.0011 U	...	...	...	...	...	...
Gamma Bhc (Lindane)	0.00024	...	...	...	...	...	...	...	0.00068 U	0.00069 U	...	...	...	...	...	...
Heptachlor	0.00012	...	...	...	...	...	...	...	0.00098 U	0.00099 U	...	...	...	...	...	...
Heptachlor Epoxide	0.000028	...	...	...	...	...	...	...	0.0015 U	0.0015 U	...	...	...	...	...	...
Methoxychlor	0.2	...	...	...	...	...	...	...	0.0016 U	0.0016 U	...	...	...	...	...	...
P,P'-DDD	0.0075	...	...	...	...	...	...	...	0.001 U	0.001 U	...	...	...	...	...	...
P,P'-DDE	0.011	...	...	...	...	...	...	...	0.0011 U	0.0011 U	...	...	...	...	...	...
P,P'-DDT	0.077	...	...	...	...	...	...	...	0.00079 U	0.00079 U	...	...	...	...	...	...
Toxaphene	0.011	...	...	...	...	...	...	...	0.022 U	0.022 U	...	...	...	...	...	...
trans-Chlordane	--	...	...	...	...	...	...	...	0.0017 U	0.0017 U	...	...	...	...	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0094 U	0.01 U	0.0093 U	0.012 U	0.0094 U	0.0093 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0092 U	0.0096 U	0.0093 U	0.0094 U
PCB-1221 (Aroclor 1221)	0.00008	0.0094 U	0.01 U	0.0093 U	0.012 U	0.0094 U	0.0093 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0092 U	0.0096 U	0.0093 U	0.0094 U
PCB-1232 (Aroclor 1232)	0.00008	0.0094 U	0.01 U	0.0093 U	0.012 U	0.0094 U	0.0093 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0092 U	0.0096 U	0.0093 U	0.0094 U
PCB-1242 (Aroclor 1242)	0.0012	0.0094 U	0.01 U	0.0093 U	0.012 U	0.0094 U	0.0093 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0092 U	0.0096 U	0.0093 U	0.0094 U
PCB-1248 (Aroclor 1248)	0.0012	0.0094 U	0.01 U	0.0093 U	0.012 U	0.0094 U	0.0093 U	0.0097 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0092 U	0.0096 U	0.0093 U	0.0094 U
PCB-1254 (Aroclor 1254)	0.002	0.0097 U	0.01 U	0.0096 U	0.012 U	0.0097 U	0.0096 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U
PCB-1260 (Aroclor 1260)	0.0055	0.0097 U	0.01 U	0.0096 U	0.012 U	0.0097 U	0.0096 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U
PCB-1262 (Aroclor 1262)	--	0.0097 U	0.01 U	0.0096 U	0.012 U	0.0097 U	0.0096 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U
PCB-1268 (Aroclor 1268)	--	0.0097 U	0.01 U	0.0096 U	0.012 U	0.0097 U	0.0096 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U
Polychlorinated Biphenyl (PCBs)	--	0.0097 U	0.01 U	0.0096 U	0.012 U	0.0097 U	0.0096 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0097 U	0.0097 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.026 U	0.028 U	0.026 U	0.033 U	0.026 U	0.026 U	0.027 U	0.028 U	0.028 U	0.027 U	0.027 U	0.026 U	0.026 U	0.026 U	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	0.094 U	0.1 U	0.093 U	0.12 U	0.093 U	0.093 U	0.097 U	0.1 U	0.1 U	0.098 U	0.098 U	0.092 U	0.095 U	0.093 U	0.093 U
2,3,4,6-Tetrachlorophenol	0.018	0.033 U	0.035 U	0.033 U	0.041 U	0.033 U	0.033 U	0.034 U	0.035 U	0.036 U	0.034 U	0.034 U	0.032 U	0.033 U	0.033 UR	0.033 U
2,4,5-Trichlorophenol	0.4	0.035 U	0.037 U	0.035 U	0.044 U	0.035 U	0.034 U	0.036 UJ	0.037 U	0.039 U	0.036 U	0.036 U	0.034 U	0.035 U	0.035 UR	0.035 U
2,4,6-Trichlorophenol	0.0012	0.0099 U	0.011 U	0.0098 U	0.012 U	0.0099 U	0.0098 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.0099 UR	0.0099 U
2,4-Dichlorophenol	0.0023	0.0083 U	0.0088 U	0.0082 U	0.01 U	0.0082 U	0.0082 U	0.0085 U	0.0089 U	0.0089 U	0.0086 U	0.0086 U	0.0081 U	0.0084 U	0.0082 UR	0.0082 U
2,4-Dimethylphenol	0.042	0.077 U	0.082 U	0.076 U	0.096 U	0.076 U	0.076 U	0.079 UJ	0.083 U	0.083 U	0.08 U	0.08 U	0.076 U	0.078 U	0.076 UR	0.077 U
2,4-Dinitrophenol	0.0044	0.26 U	0.28 U	0.26 U	0.33 U	0.26 U	0.26 U	0.27 UJ	0.28 U	0.29 U	0.28 U	0.28 U	0.26 U	0.27 U	0.26 UR	0.26 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.015 U	0.014 U	0.017 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.02 U	0.018 U	0.023 U	0.019 U	0.018 U	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U
2-Chloronaphthalene	0.39	0.0078 U	0.0085 U	0.0079 U	0.0099 U	0.0079 U	0.0079 U	0.0082 UJ	0.0085 U	0.0086 U	0.0083 U	0.0083 U	0.0078 U	0.0081 U	0.0079 U	0.0079 U
2-Chlorophenol	0.0089	0.0089 U	0.0095 U	0.0088 U	0.011 U	0.0088 U	0.0088 U	0.0092 U	0.0096 U	0.0096 U	0.0093 U	0.0093 U	0.0087 U	0.009 U	0.0088 UR	0.0089 U
2-Methylnaphthalene	0.019	0.0077 U	0.013 J	0.0076 U	0.0097 U	0.0077 U	0.0076 U	0.008 U	0.0083 U	0.0084 U	0.0086 J	0.06 J	0.021 J	0.0087 J	0.0077 U	0.017 J
2-Methylphenol (O-Cresol)	0.075	0.015 U	0.016 U	0.015 U	0.019 U	0.015 U	0.015 U	0.016 U	0.016 U	0.017 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 UR	0.015 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.011 U	0.014 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U
2-Nitrophenol	--	0.012 U	0.013 U	0.012 U	0.015 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 UR	0.012 U
3- And 4- Methylphenol (Total)	--	0.0093 U	0.01 U	0.0092 U	0.012 U	0.0093 U	0.0092 U	0.0096 U	0.01 U	0.01 U	0.0097 U	0.0097 U	0.0091 U	0.0095 U	0.0092 UR	0.0093 U
3,3'-Dichlorobenzidine	0.00082	0.039 U	0.042 U	0.039 U	0.049 U	0.039 U	0.039 U	0.04 U	0.042 U	0.042 U	0.041 U	0.041 U	0.038 U	0.04 U	0.039 U	0.039 U
3-Nitroaniline	--	0.01 U	0.011 U	0.01 U	0.013 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.093 U	0.1 U	0.092 U	0.12 U	0.093 U	0.092 U	0.096 UJ	0.1 U	0.1 U	0.097 U	0.097 U	0.092 U	0.095 U	0.093 UR	0.093 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.012 U	0.011 U	0.014 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.016 U	0.015 U	0.019 U	0.015 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.015 U	0.015 U	0.015 UR	0.015 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-098	CFSB-098	CFSB-099	CFSB-099	CFSB-100	CFSB-100	CFSB-121	CFSB-121	CFSB-121-DUP	CFSB-128	CFSB-128	CFSB-129	CFSB-129	CFSB-130	CFSB-131
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft
Chemical Name		5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/18/2016	5/18/2016	5/18/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	6/17/2016	6/17/2016
4-Chloroaniline	0.00016	0.009 U	0.0096 U	0.0089 U	0.011 U	0.0089 U	0.0089 U	0.0093 U	0.0097 U	0.0097 U	0.0094 U	0.0094 U	0.0088 U	0.0092 U	0.0089 U	0.009 U
4-Chlorophenyl Phenyl Ether	--	0.01 U	0.011 U	0.01 U	0.013 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U
4-Nitroaniline	0.0016	0.013 U	0.014 U	0.013 U	0.017 U	0.013 U	0.013 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U
4-Nitrophenol	--	0.17 U	0.18 U	0.17 U	0.21 U	0.17 U	0.17 U	0.17 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.17 U	0.17 U	0.17 UR	0.17 U
Acenaphthene	0.55	0.0085 U	0.067 J	0.0084 U	0.011 U	0.0084 U	0.0084 U	0.0087 U	0.0091 U	0.0092 U	0.073 J	0.27 J	0.22 J	0.083 J	0.0084 U	0.0084 U
Acenaphthylene	--	0.009 U	0.0096 U	0.0089 U	0.011 U	0.0089 U	0.0089 U	0.0093 U	0.0097 U	0.0097 U	0.0094 U	0.012 J	0.0088 U	0.0092 U	0.0089 U	0.009 U
Acetophenone	0.058	0.0076 U	0.0082 U	0.0075 U	0.0095 U	0.0076 U	0.0075 U	0.0079 U	0.0082 U	0.0083 U	0.009 U	0.0079 U	0.0075 U	0.0078 U	0.0076 U	0.0076 U
Anthracene	5.8	0.033 U	0.17 J	0.033 U	0.042 U	0.033 U	0.033 U	0.034 U	0.036 U	0.036 U	0.15 J	0.57	0.43	0.16 J	0.033 U	0.033 U
Atrazine	0.0002	0.016 U	0.017 U	0.015 U	0.019 U	0.015 U	0.015 U	0.016 U	0.017 U	0.017 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.016 U
Benzaldehyde	0.0041	0.027 U	0.029 U	0.026 U	0.033 U	0.026 U	0.026 U	0.028 UJ	0.029 U	0.029 U	0.028 U	0.028 U	0.026 U	0.027 U	0.026 U	0.027 U
Benzo(A)Anthracene	0.011	0.14	1.5	0.029 J	0.045 J	0.094	0.14	0.03 U	0.091 J	0.043 J	0.76	2.6	2.7	1	0.029 U	0.039
Benzo(A)Pyrene	0.018	0.16	2	0.024 J	0.055 J	0.091	0.15	0.019 J	0.11 J	0.048 J	0.91	3	3.4	1.3	0.012 J	0.032 J
Benzo(B)Fluoranthene	0.18	0.27	2.9	0.039	0.12 J	0.19	0.28	0.032 J	0.24 J	0.1 J	1.2	4	3.8	1.6	0.032 J	0.049
Benzo(G,H,I)Perylene	--	0.28 J	2.8	0.033 J	0.058 J	0.14 J	0.27 J	0.027 J	0.11 J	0.043 J	1.1	3	3.7	1.4	0.02 U	0.022 J
Benzo(K)Fluoranthene	1.8	0.099	0.96	0.015 U	0.019 UJ	0.063	0.077	0.016 U	0.072 J	0.026 J	0.42	1.3	1.7	0.73	0.015 U	0.018 J
Benzyl Butyl Phthalate	0.24	0.011 U	0.012 U	0.011 U	0.014 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.094 J	0.26 J	0.011 U	0.011 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.032 U	0.03 U	0.037 U	0.03 U	0.03 U	0.031 UJ	0.032 U	0.032 U	0.031 U	0.031 U	0.029 U	0.03 U	0.03 U	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.012 U	0.011 U	0.014 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0083 U	0.0088 U	0.0082 U	0.01 U	0.0082 U	0.0082 U	0.0085 U	0.0089 U	0.0089 U	0.0086 U	0.0086 U	0.0081 U	0.0084 U	0.0082 U	0.0082 U
Bis(2-Chloroisopropyl) Ether	0.026	0.014 UJ	0.015 UJ	0.014 UJ	0.018 U	0.014 UJ	0.014 UJ	0.015 UJ	0.015 UJ	0.016 U	0.015 U	0.015 U	0.014 U	0.015 U	0.014 U	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.065 J	0.14 J	0.038 J	0.019 J	0.016 J	0.014 U	0.015 U	0.015 U	0.046 J	0.014 U	0.091 J	0.014 U	0.014 U	0.014 U
Caprolactam	0.25	0.025 U	0.027 U	0.025 U	0.032 U	0.025 U	0.025 U	0.026 UJ	0.027 U	0.027 U	0.026 U	0.026 U	0.025 U	0.026 U	0.025 UJ	0.025 UJ
Carbazole	--	0.028 J	0.2 J	0.0086 U	0.011 J	0.01 J	0.02 J	0.009 U	0.014 J	0.0094 U	0.16 J	0.63	0.47	0.17 J	0.0086 U	0.0087 U
Chrysene	9	0.19 J	2.2	0.03 J	0.089 J	0.14 J	0.18 J	0.023 J	0.15 J	0.07 J	1.1	3.6	3.6	1.5	0.021 J	0.056 J
Dibenz(A,H)Anthracene	0.096	0.049	0.53	0.018 U	0.023 UJ	0.024 J	0.053	0.019 U	0.02 U	0.02 U	0.27 J+	0.75 J+	0.88 J+	0.34 J+	0.018 U	0.018 U
Dibenzofuran	0.015	0.011 U	0.036 J	0.01 U	0.013 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.024 J	0.12 J	0.058 J	0.024 J	0.01 U	0.011 U
Diethyl Phthalate	0.61	0.0098 U	0.011 U	0.0098 U	0.012 U	0.01 U	0.0098 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.0099 U	0.0099 U
Dimethyl Phthalate	--	0.01 U	0.011 U	0.01 U	0.013 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.01 U	0.011 U	0.01 U	0.013 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.037 J	0.024 J
Di-N-Octylphthalate	5.7	0.018 U	0.019 U	0.018 U	0.022 U	0.018 U	0.018 U	0.018 U	0.019 U	0.019 U	0.019 U	0.019 U	0.017 U	0.018 U	0.018 U	0.018 U
Fluoranthene	8.9	0.23 J	2.5	0.042 J	0.079 J	0.13 J	0.21 J	0.029 J	0.17 J	0.07 J	1.4	5.5	4.8	1.8	0.029 J	0.073 J
Fluorene	0.54	0.009 J	0.049 J	0.0075 U	0.0095 U	0.0076 U	0.0075 U	0.0079 U	0.0082 U	0.0083 U	0.046 J	0.21 J	0.13 J	0.048 J	0.0076 U	0.0076 U
Hexachlorobenzene	0.00012	0.014 U	0.015 U	0.014 U	0.018 U	0.014 U	0.014 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U
Hexachlorobutadiene	0.00027	0.0098 U	0.011 U	0.0097 U	0.012 U	0.0098 U	0.0097 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.0097 U	0.01 U	0.0098 U	0.0098 U
Hexachlorocyclopentadiene	0.00013	0.022 U	0.023 U	0.022 U	0.027 UJ	0.022 U	0.022 U	0.023 U	0.023 U	0.024 U	0.023 UJ	0.023 UJ	0.021 UJ	0.022 UJ	0.022 U	0.022 U
Hexachloroethane	0.0002	0.013 U	0.014 U	0.013 U	0.016 U	0.013 U	0.013 U	0.013 UJ	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.3	2.9	0.036	0.06 J	0.15	0.27	0.024 U	0.11 J	0.043 J	1.1 J+	2.8 J+	3.5 J+	1.3 J+	0.023 U	0.023 U
Isophorone	0.026	0.0075 U	0.008 U	0.0074 U	0.0094 U	0.0075 U	0.0074 U	0.0078 U	0.0081 U	0.0081 U	0.0078 U	0.0078 U	0.0074 U	0.0076 U	3	0.81
Naphthalene	0.00054	0.0089 U	0.032 J	0.0088 U	0.011 U	0.0088 U	0.0088 U	0.0092 UJ	0.0096 U	0.0096 U	0.019 J	0.19 J	0.031 J	0.014 J	0.0088 U	0.0089 U
Nitrobenzene	0.000092	0.011 U	0.012 U	0.011 U	0.014 U	0.011 U	0.011 U	0.011 UJ	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.013 U	0.012 U	0.015 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.034 U	0.031 U	0.04 U	0.032 U	0.031 U	0.033 UJ	0.034 U	0.034 U	0.033 U	0.033 U	0.031 U	0.032 U	0.031 U	0.032 U
Pentachlorophenol	0.000057	0.042 U	0.045 U	0.042 U	0.053 U	0.042 U	0.042 U	0.044 U	0.045 U	0.046 U	0.044 U	0.044 U	0.042 U	0.043 U	--	0.042 U
Phenanthrene	--	0.13 J	1.2	0.032 J	0.056 J	0.076 J	0.093 J	0.016 J	0.083 J	0.037 J	0.86	3.2	2.8	1	0.016 J	0.07 J
Phenol	0.33	0.011 U	0.012 U	0.011 U	0.014 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 UR	0.011 U
Pyrene	1.3	0.25 J	2.4	0.035 J	0.078 J	0.14 J	0.21 J	0.029 J	0.17 J	0.069 J	1.3	3.9	4.6	1.9	0.027 J	0.083 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00033 U	--	0.00036 U	--	0.00036 U	--	0.00038 UJ	--	--	0.00031 U	--	0.00033 U	--	0.00034 U	0.00037 U
1,1,2,2-Tetrachloroethane	0.00003	0.00015 U	--	0.00016 U	--	0.00016 U	--	0.00017 UJ	--	--	0.00014 U	--	0.00015 U	--	0.00015 U	0.00017 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00038 U	--	0.00042 U	--	0.00041 U	--	0.00045 UJ	--	--	0.00036 U	--	0.00038 U	--	0.00039 U	0.00043 U
1,1,2-Trichloroethane	0.000013	0.00024 U	--	0.00026 U	--	0.00026 U	--	0.00028 UJ	--	--	0.00023 U	--	0.00024 U	--	0.00025 U	0.00028 U
1,1-Dichloroethane	0.00078	0.00029 U	--	0.00032 U	--	0.00032 U	--	0.00035 UJ	--	--	0.00028 U	--	0.00029 U	--	0.0003 U	0.00034 U
1,1-Dichloroethene	0.01	0.00035 U	--	0.00039 U	--	0.00038 U	--	0.00042 UJ	--	--	0.00033 U	--	0.00035 U	--	0.00037 U	0.0004 U
1,2,3-Trichlorobenzene	0.0021	0.000094 U	--	0.0001 U	--	0.0001 U	--	0.00011 UJ	--	--	0.00009 U	--	0.000094 U	--	0.000099 U	0.00011 U
1,2,4-Trichlorobenzene	0.0012	0.00027 U	--	0.0003 U	--	0.0003 U	--	0.00033 UJ	--	--	0.00026 U	--	0.00027 U	--	0.00029 U	0.00032 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.0004 U	--	0.00044 U	--	0.00044 U	--	0.00048 UJ	--	--	0.00038 U	--	0.0004 U	--	0.00042 U	0.00046 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-098	CFSB-098	CFSB-099	CFSB-099	CFSB-100	CFSB-100	CFSB-121	CFSB-121	CFSB-121-DUP	CFSB-128	CFSB-128	CFSB-129	CFSB-129	CFSB-130	CFSB-131
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft
Chemical Name		5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/18/2016	5/18/2016	5/18/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	6/17/2016	6/17/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.0001 U	---	0.00011 U	---	0.00011 U	---	0.00012 UJ	---	---	0.000098 U	---	0.0001 U	---	0.00011 U	0.00012 U
1,2-Dichlorobenzene	0.03	0.00012 U	---	0.00013 U	---	0.00013 U	---	0.00014 UJ	---	---	0.00011 U	---	0.00012 U	---	0.00013 U	0.00014 U
1,2-Dichloroethane	0.000048	0.000094 U	---	0.0001 U	---	0.0001 U	---	0.00011 UJ	---	---	0.00009 U	---	0.000094 U	---	0.000099 U	0.00011 U
1,2-Dichloropropane	0.000047	0.00015 U	---	0.00016 U	---	0.00016 U	---	0.00017 UJ	---	---	0.00014 U	---	0.00015 U	---	0.00015 U	0.00017 U
1,3-Dichlorobenzene	--	0.0001 U	---	0.00011 U	---	0.00011 U	---	0.00012 UJ	---	---	0.000098 U	---	0.0001 U	---	0.00011 U	0.00012 U
1,4-Dichlorobenzene	0.00046	0.00011 U	---	0.00012 U	---	0.00012 U	---	0.00013 UJ	---	---	0.00011 U	---	0.00011 U	---	0.00012 U	0.00013 U
2-Hexanone	0.00088	0.00081 U	---	0.00089 U	---	0.00088 U	---	0.00095 UJ	---	---	0.00077 U	---	0.0008 U	---	0.00084 U	0.00093 U
Acetone	0.29	0.0055	---	0.012	---	0.014	---	0.041	---	---	0.043	---	0.021	---	0.023 J+	0.023 J+
Benzene	0.00023	0.00033 J	---	0.00019 J	---	0.00019 U	---	0.0002 UJ	---	---	0.00041 J	---	0.00031 J	---	0.00078 J	0.00035 J
Bromochloromethane	0.0021	0.00015 U	---	0.00016 U	---	0.00016 U	---	0.00017 UJ	---	---	0.00014 U	---	0.00015 U	---	0.00015 U	0.00017 U
Bromodichloromethane	0.000036	0.00033 U	---	0.00036 U	---	0.00036 U	---	0.00038 UJ	---	---	0.00031 U	---	0.00033 U	---	0.00034 U	0.00037 U
Bromoform	0.00087	0.00011 U	---	0.00012 U	---	0.00012 U	---	0.00013 UJ	---	---	0.00011 U	---	0.00011 U	---	0.00012 U	0.00013 U
Bromomethane	0.00019	0.00027 U	---	0.0003 U	---	0.0003 U	---	0.00033 UJ	---	---	0.00026 U	---	0.00027 U	---	0.00029 U	0.00032 U
Carbon Disulfide	0.024	0.00037 U	---	0.00041 U	---	0.0004 U	---	0.00042 UJ	---	---	0.00075 J	---	0.0006 J	---	0.0017	0.0017
Carbon Tetrachloride	0.00018	0.00037 U	---	0.00041 U	---	0.0004 U	---	0.00042 UJ	---	---	0.00035 U	---	0.00037 U	---	0.00039 U	0.00042 U
Chlorobenzene	0.0053	0.00012 U	---	0.00013 U	---	0.00013 U	---	0.00014 UJ	---	---	0.00011 U	---	0.00012 U	---	0.00013 U	0.00014 U
Chloroethane	0.59	0.0003 U	---	0.00033 U	---	0.00033 U	---	0.00036 U	---	---	0.00029 U	---	0.0003 U	---	0.00031 U	0.00034 U
Chloroform	0.000061	0.00018 U	---	0.0002 U	---	0.0002 U	---	0.00021 UJ	---	---	0.00017 U	---	0.00018 U	---	0.00019 U	0.00021 U
Chloromethane	0.0049	0.00033 U	---	0.00036 U	---	0.00036 U	---	0.00038 U	---	---	0.00031 U	---	0.00033 U	---	0.00034 UJ	0.00037 UJ
Cis-1,2-Dichloroethylene	0.0011	0.00019 U	---	0.00021 U	---	0.00021 U	---	0.00022 UJ	---	---	0.00018 U	---	0.00019 U	---	0.0002 U	0.00022 U
Cis-1,3-Dichloropropene	--	0.00013 U	---	0.00014 U	---	0.00014 U	---	0.00015 UJ	---	---	0.00012 U	---	0.00013 U	---	0.00013 U	0.00015 U
Cyclohexane	1.3	0.00073 J	---	0.00043 U	---	0.00043 U	---	0.00047 UJ	---	---	0.00038 U	---	0.00067 J	---	0.00041 U	0.00045 U
Dibromochloromethane	0.00023	0.00013 U	---	0.00014 U	---	0.00014 U	---	0.00015 UJ	---	---	0.00012 U	---	0.00013 U	---	0.00013 U	0.00015 U
Dichlorodifluoromethane	0.03	0.00027 U	---	0.0003 U	---	0.0003 U	---	0.00033 UJ	---	---	0.00026 U	---	0.00027 U	---	0.00029 U	0.00032 U
Ethylbenzene	0.0017	0.00037 J	---	0.00017 U	---	0.00017 U	---	0.00018 UJ	---	---	0.00015 U	---	0.00017 J	---	0.00036 J	0.00018 U
Isopropylbenzene (Cumene)	0.074	0.00015 U	---	0.00016 U	---	0.00016 U	---	0.00017 UJ	---	---	0.00014 U	---	0.00015 U	---	0.00015 U	0.00017 U
M,P-Xylene	--	0.0013	---	0.00038 J	---	0.00038 J	---	0.00011 UJ	---	---	0.000091 J	---	0.0005 J	---	0.00033 J	0.00011 U
Methyl Acetate	0.41	0.00077 U	---	0.00085 U	---	0.00084 U	---	0.0024 J	---	---	0.00073 U	---	0.00077 U	---	0.00081 U	0.00089 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.00066 U	---	0.00073 U	---	0.00072 U	---	0.00078 U	---	---	0.0025 J	---	0.00066 U	---	0.0037 J	0.0025 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0019 U	---	0.0021 U	---	0.0021 U	---	0.0023 UJ	---	---	0.0018 U	---	0.0019 U	---	0.002 U	0.0022 U
Methylcyclohexane	--	0.0015	---	0.00047 J	---	0.00052 J	---	0.00051 UJ	---	---	0.00041 U	---	0.0013	---	0.00045 U	0.00049 U
Methylene Chloride	0.0027	0.00027 U	---	0.0003 U	---	0.0003 U	---	0.00033 UJ	---	---	0.00026 U	---	0.00027 U	---	0.00029 U	0.00032 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00038 J	---	0.00015 U	---	0.00015 U	---	0.00016 UJ	---	---	0.00013 U	---	0.00015 J	---	0.00018 J	0.00016 U
Styrene	0.13	0.00013 U	---	0.00014 U	---	0.00014 U	---	0.00015 UJ	---	---	0.00012 U	---	0.00013 U	---	0.00013 U	0.00015 U
Tert-Butyl Methyl Ether	0.0032	0.00015 U	---	0.00016 U	---	0.00016 U	---	0.00017 UJ	---	---	0.00014 U	---	0.00015 U	---	0.00015 U	0.00017 U
Tetrachloroethylene (PCE)	0.0018	0.00024 U	---	0.00026 U	---	0.00026 U	---	0.00028 UJ	---	---	0.00023 U	---	0.00024 U	---	0.00025 U	0.00028 U
Toluene	0.076	0.0017	---	0.0006 J	---	0.00069 J	---	0.00010 UJ	---	---	0.0004 J	---	0.0011	---	0.00094	0.00043 J
Trans-1,2-Dichloroethene	0.011	0.00033 U	---	0.00037 U	---	0.00037 U	---	0.0004 UJ	---	---	0.00032 U	---	0.00033 U	---	0.00035 U	0.00038 U
Trans-1,3-Dichloropropene	--	0.000086 U	---	0.000094 U	---	0.000094 U	---	0.0001 UJ	---	---	0.000082 U	---	0.000086 U	---	0.00009 U	0.000099 U
Trichloroethylene (TCE)	0.0001	0.00022 U	---	0.00025 U	---	0.00024 U	---	0.00026 UJ	---	---	0.00021 U	---	0.00022 U	---	0.00023 U	0.00026 U
Trichlorofluoromethane	0.33	0.00029 U	---	0.00032 U	---	0.00032 U	---	0.00035 U	---	---	0.00028 U	---	0.00029 U	---	0.0003 U	0.00034 U
Vinyl Chloride	0.0000065	0.00033 U	---	0.00037 U	---	0.00037 U	---	0.0004 U	---	---	0.00032 U	---	0.00033 U	---	0.00035 U	0.00038 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-027	CFMW-027	CFMW-027	CFSB-014	CFSB-014	CFSB-016	CFSB-016	CFSB-019	CFSB-019	CFSB-019-DUP	CFSB-025	CFSB-025	CFSB-026	CFSB-026	CFSB-027
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/30/2016	6/30/2016	6/30/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016	6/4/2016	6/4/2016	6/4/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	58.8 J+	149 J+	--	7.98 J	33.6 J	54.3 J	241 J	48.2 J	50 J	50.2 J	154 J-	138 J-	258 J+	167 J-	81.5 J-
Cyanide	0.0015	1.6	1.2	--	0.078 J	6.8	0.76	8.3	1.2 J	1.3	0.1 J	37.5 J	8.2 J	125 J	137 J	0.49 J
METALS																
Aluminum	3000	23000	17000	--	12500 J	14600 J	19000 J	36200	19300 J	27400	7930 J	121000	71300	90700	106000	12200
Antimony	0.035	0.45 UJ	0.47 UJ	--	0.46 UJ	0.48 UJ	0.56 UJ	0.7 UJ	0.37 UJ	0.39 UJ	0.38 UJ	0.68 J-	2.6 J-	0.8 UJ	1.1 J-	0.38 UJ
Arsenic	0.0015	9.3	3.7	--	6.8 J	8.5 J	13.3 J	14.1	7.4 J	9	3.8 J	14.8	13.2	22.5	22.7	4.8
Barium	16	111 J	48.9 J	--	140 J	256 J	166 J	228	93.8	138	85.6	302	166	461	461	78.3
Beryllium	1.9	0.85	0.59	--	1.1	0.75	1.2	3.4	0.98 J	1.2	0.39 J	7.9	3.4	10.6	17.2	0.41
Cadmium	0.069	1.1	1.1	--	0.69 J	0.68 J	1.1 J	2.5	1.1 J	1.8	0.29 UJ	5.9	3.6	4	8.3	0.29 J
Calcium	--	2500	1370	--	9380	19200	13200	9990	16900 J	2630	39300 J	23900 J	12600 J	75600 J	68600 J	23900 J
Chromium, Total	--	25.4	16.6	--	22.6 J	18.3 J	18.5 J	20.9	15.4	19.7	10.8	34.7	31.3	17.2	47.5	9.5
Cobalt	0.027	6.2	2.6	--	5.5	6	5.9	7.8	7.1	7.4	5.7	8.3	27.4	5.4	8.7	4.6
Copper	2.8	30.1 J	16.9 J	--	40.7	35	25.6	59.4	36.1 J	36.2 J	202 J	11.6	55.2	7 J	6.7 J	13.7
Iron	35	11400	2920	--	12000 J	13500 J	23600 J	15400	12600	12100	11900	7650	8050	4870	6400	9850
Lead	400	36	30.3	35.2	12.2 J	14.6 J	14.7 J	43.1	19 J	28.4 J	13.4 J	130 J+	221 J+	118 J+	238 J+	9.9 J+
Magnesium	--	5180	1090	--	8090	10200	21800	9260	9410	6660	10300	4740	1560	5280	6270	9990
Manganese	2.8	36.5	46	--	429 J	408 J	425 J	113	204 J	232	361 J	51 J	15.8 J	69.2 J	96.1 J	183 J
Mercury	0.0033	0.029 J+	0.031 J+	--	0.014 U	0.015 U	0.034	0.04	0.022	0.025	0.014 U	0.025 U	0.021 U	0.039 J	0.028 U	0.012 U
Nickel	2.6	151	84.5	--	67.9	73.4	63.1	171	99.9 J	153	12.5 J	358 J+	1250 J+	213 J+	377 J+	30.9 J+
Potassium	--	848 J+	266 J+	--	599	559	1040	790	976 J+	920 J+	833 J+	839	727	1570	844	1270
Selenium	0.052	0.94 J	1 J	--	0.43 U	0.45 U	0.52 U	0.75 J	0.66 J	1 J	0.35 U	1.9 J	3.3 J	1.2 J	1.6 J	0.36 U
Silver	0.08	0.82 U	0.85 U	--	0.83 U	0.88 U	1 U	1.3 U	0.68 U	0.72 U	0.69 U	1.2 U	1.1 U	1.5 U	1.4 U	0.69 U
Sodium	--	83.1 J	116	--	73.2 J	67.6 J	64.2 J	144 J	111 J	139	53 J	603	2140	588	831	38.1 J
Thallium	0.0014	0.65	0.31 J	--	0.17 J	0.18 U	0.28 J	0.38 J	0.14 J	0.27 J	0.14 U	2.8	4.2	3	4.6	0.38
Vanadium	8.6	85.9	34.5	--	25.4 J	26.1 J	29.6 J	54.2	40.7 J	60.3	11 J	109 J-	348 J-	71.7 J-	140 J-	16.6 J-
Zinc	37	196	130	--	128 J	148 J	104 J	265	159 J	248	34.3 J	177 J-	257 J-	281 J-	225 J-	82.4 J-

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-027	CFMW-027	CFMW-027	CFSB-014	CFSB-014	CFSB-016	CFSB-016	CFSB-019	CFSB-019	CFSB-019-DUP	CFSB-025	CFSB-025	CFSB-026	CFSB-026	CFSB-027
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/30/2016	6/30/2016	6/30/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016	6/4/2016	6/4/2016	6/4/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016
PESTICIDES																
Aldrin	0.00015	...	0.0012 U	...	...	0.00099 U	...	0.0015 U	...	...	...	...	0.0015 U	...	0.0021 U	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	0.00089 U	...	...	0.00075 U	...	0.0011 U	...	...	...	...	0.0011 U	...	0.0016 U	...
Alpha Endosulfan	--	...	0.0014 U	...	...	0.0011 U	...	0.0017 U	...	...	...	...	0.0017 U	...	0.0024 U	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	0.00095 U	...	...	0.00079 U	...	0.0012 U	...	...	...	...	0.0012 U	...	0.0017 U	...
Beta Endosulfan	--	...	0.0015 U	...	...	0.0013 U	...	0.0019 U	...	...	...	...	0.002 U	...	0.0027 U	...
cis-Chlordane	--	...	0.0016 U	...	...	0.0013 U	...	0.002 U	...	...	...	...	0.002 U	...	0.0028 U	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	0.0011 U	...	...	0.00089 U	...	0.0013 U	...	...	...	...	0.0014 U	...	0.0019 U	...
Dieldrin	0.000071	...	0.0013 U	...	...	0.0011 U	...	0.0016 U	...	...	...	...	0.0016 U	...	0.0022 U	...
Endosulfan Sulfate	--	...	0.0011 U	...	...	0.00095 U	...	0.0014 U	...	...	...	...	0.0015 U	...	0.002 U	...
Endrin	0.0092	...	0.0012 U	...	...	0.001 U	...	0.0015 U	...	...	...	...	0.0016 U	...	0.0022 U	...
Endrin Aldehyde	--	...	0.0012 U	...	...	0.001 U	...	0.0015 U	...	...	...	...	0.0016 U	...	0.0021 U	...
Endrin Ketone	--	...	0.0014 U	...	...	0.0011 U	...	0.0017 U	...	...	...	...	0.0017 U	...	0.0024 U	...
Gamma Bhc (Lindane)	0.00024	...	0.00088 U	...	...	0.00073 U	...	0.0011 U	...	...	...	...	0.0011 U	...	0.0015 U	...
Heptachlor	0.00012	...	0.0013 U	...	...	0.0011 U	...	0.0016 U	...	...	...	...	0.0016 U	...	0.0022 U	...
Heptachlor Epoxide	0.000028	...	0.0019 U	...	...	0.0016 U	...	0.0024 U	...	...	...	...	0.0025 U	...	0.0034 U	...
Methoxychlor	0.2	...	0.0021 U	...	...	0.0017 U	...	0.0026 U	...	...	...	...	0.0027 U	...	0.0036 U	...
P,P'-DDD	0.0075	...	0.0013 U	...	...	0.0011 U	...	0.0016 U	...	...	...	...	0.0017 U	...	0.0023 U	...
P,P'-DDE	0.011	...	0.0014 U	...	...	0.0012 U	...	0.0018 U	...	...	...	...	0.0018 U	...	0.0025 U	...
P,P'-DDT	0.077	...	0.001 U	...	...	0.00084 U	...	0.0013 U	...	...	...	...	0.0013 U	...	0.0018 U	...
Toxaphene	0.011	...	0.029 U	...	...	0.024 U	...	0.035 U	...	...	...	...	0.037 U	...	0.05 U	...
trans-Chlordane	--	...	0.0021 U	...	...	0.0018 U	...	0.0026 U	...	...	...	...	0.0027 U	...	0.0037 U	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.013 U	0.013 U	...	0.011 U	0.011 U	0.012 U	0.016 U	0.01 U	0.01 U	0.01 U	0.019 U	0.017 U	0.021 U	0.023 U	0.01 U
PCB-1221 (Aroclor 1221)	0.00008	0.013 U	0.013 U	...	0.011 U	0.011 U	0.012 U	0.016 U	0.01 U	0.01 U	0.01 U	0.019 U	0.017 U	0.021 U	0.023 U	0.01 U
PCB-1232 (Aroclor 1232)	0.00008	0.013 U	0.013 U	...	0.011 U	0.011 U	0.012 U	0.016 U	0.01 U	0.01 U	0.01 U	0.019 U	0.017 U	0.021 U	0.023 U	0.01 U
PCB-1242 (Aroclor 1242)	0.0012	0.013 U	0.013 U	...	0.011 U	0.011 U	0.012 U	0.016 U	0.01 U	0.01 U	0.01 U	0.019 U	0.017 U	0.021 U	0.023 U	0.01 U
PCB-1248 (Aroclor 1248)	0.0012	0.013 U	0.013 U	...	0.011 U	0.011 U	0.012 U	0.016 U	0.01 U	0.01 U	0.01 U	0.019 U	0.017 U	0.021 U	0.023 U	0.01 U
PCB-1254 (Aroclor 1254)	0.002	0.013 U	0.013 U	...	0.011 U	0.011 U	0.013 U	0.017 U	0.011 U	0.011 U	0.01 U	0.02 U	0.017 U	0.022 U	0.024 U	0.011 U
PCB-1260 (Aroclor 1260)	0.0055	0.013 U	0.013 U	...	0.011 U	0.011 U	0.013 U	0.017 U	0.011 U	0.011 U	0.01 U	0.02 U	0.017 U	0.022 U	0.024 U	0.011 U
PCB-1262 (Aroclor 1262)	--	0.013 U	0.013 U	...	0.011 U	0.011 U	0.013 U	0.017 U	0.011 U	0.011 U	0.01 U	0.02 U	0.017 U	0.022 U	0.024 U	0.011 U
PCB-1268 (Aroclor 1268)	--	0.013 U	0.013 U	...	0.011 U	0.011 U	0.013 U	0.017 U	0.011 U	0.011 U	0.01 U	0.02 U	0.017 U	0.022 U	0.024 U	0.011 U
Polychlorinated Biphenyl (PCBs)	--	0.013 U	0.013 U	...	0.011 U	0.011 U	0.013 U	0.017 U	0.011 U	0.011 U	0.01 U	0.02 U	0.017 U	0.022 U	0.024 U	0.011 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.35 U	3.6 U	...	0.03 U	0.03 U	0.17 U	0.22 U	0.58 U	0.029 U	0.55 U	5.3 U	2.3 U	1.5 U	1.3 U	0.71 U
1,4-Dioxane (P-Dioxane)	0.000094	1.3 U	13 U	...	0.11 U	0.11 U	0.61 U	0.8 U	2.1 U	0.1 U	2 U	19 U	8.3 U	5.2 U	4.5 U	2.6 U
2,3,4,6-Tetrachlorophenol	0.018	0.45 U	4.5 U	...	0.038 U	0.038 U	0.21 U	0.28 U	0.73 U	0.037 U	0.7 U	6.7 U	2.9 U	1.8 U	1.6 U	0.9 U
2,4,5-Trichlorophenol	0.4	0.47 U	4.8 U	...	0.04 U	0.04 U	0.23 U	0.3 U	0.77 U	0.039 U	0.74 U	7.1 U	3.1 U	1.9 U	1.7 U	0.95 U
2,4,6-Trichlorophenol	0.0012	0.13 U	1.3 U	...	0.011 U	0.011 U	0.065 U	0.085 U	0.22 U	0.011 U	0.21 U	2 U	0.88 U	0.56 U	0.48 U	0.27 U
2,4-Dichlorophenol	0.0023	0.11 U	1.1 U	...	0.0094 U	0.0095 U	0.054 U	0.071 U	0.18 U	0.0092 U	0.18 U	1.7 U	0.73 U	0.46 U	0.4 U	0.23 U
2,4-Dimethylphenol	0.042	1 U	11 U	...	0.088 U	0.089 U	0.5 U	0.66 U	1.7 U	0.085 U	1.6 U	16 U	6.8 U	4.3 U	3.7 U	2.1 U
2,4-Dinitrophenol	0.0044	3.6 U	37 U	...	0.3 U	0.31 U	1.7 U	2.3 U	5.9 U	0.29 U	5.6 U	54 U	23 U	15 U	13 U	7.3 U
2,4-Dinitrotoluene	0.00032	0.19 U	1.9 U	...	0.016 U	0.016 U	0.09 U	0.12 U	0.31 U	0.015 U	0.3 U	2.8 U	1.2 U	0.77 U	0.67 U	0.38 U
2,6-Dinitrotoluene	0.000067	0.25 U	2.6 U	...	0.021 U	0.021 U	0.12 U	0.16 U	0.41 U	0.021 U	0.4 U	3.8 U	1.7 U	1 U	0.9 U	0.51 U
2-Chloronaphthalene	0.39	0.11 U	1.1 U	...	0.0091 U	0.0092 U	0.052 U	0.068 U	0.18 U	0.0088 U	0.17 U	1.6 U	0.7 U	0.44 U	0.38 U	0.22 U
2-Chlorophenol	0.0089	0.12 U	1.2 U	...	0.01 U	0.01 U	0.058 U	0.076 U	0.2 U	0.0099 U	0.19 U	1.8 U	0.79 U	0.5 U	0.43 U	0.24 U
2-Methylnaphthalene	0.019	0.42 J	3.6 J	...	0.02 J	0.017 J	0.094 J	0.37 J	0.2 J	1	0.28 J	1.6 U	1.6 J	4.2 J	3.2 J	0.37 J
2-Methylphenol (O-Cresol)	0.075	0.21 U	2.1 U	...	0.017 U	0.018 U	0.099 U	0.13 U	0.34 U	0.017 U	0.32 U	3.1 U	1.4 U	0.85 U	0.74 U	0.42 U
2-Nitroaniline	0.008	0.16 U	1.6 U	...	0.013 U	0.013 U	0.075 U	0.098 U	0.26 U	0.013 U	0.25 U	2.3 U	1 UJ	0.64 U	0.56 U	0.32 UJ
2-Nitrophenol	--	0.16 U	1.6 U	...	0.013 U	0.014 U	0.077 U	0.1 U	0.26 U	0.013 U	0.25 U	2.4 U	1 U	0.66 U	0.57 U	0.32 U
3- And 4- Methylphenol (Total)	--	0.13 U	1.3 U	...	0.011 U	0.011 U	0.061 U	0.08 U	0.21 U	0.01 U	0.2 U	1.9 U	0.83 U	0.52 U	0.45 U	0.26 U
3,3'-Dichlorobenzidine	0.00082	0.53 U	5.4 U	...	0.045 U	0.045 U	0.25 U	0.33 U	0.87 U	0.043 U	0.83 U	7.9 U	3.5 U	2.2 U	1.9 U	1.1 U
3-Nitroaniline	--	0.14 U	1.4 U	...	0.012 U	0.012 U	0.068 U	0.089 U	0.23 U	0.012 U	0.22 U	2.1 U	0.92 U	0.58 U	0.5 U	0.28 U
4,6-Dinitro-2-Methylphenol	0.00026	1.3 U	13 U	...	0.11 U	0.11 U	0.61 U	0.8 U	2.1 U	0.1 U	2 U	19 U	8.3 U	5.2 U	4.5 U	2.6 U
4-Bromophenyl Phenyl Ether	--	0.15 U	1.5 U	...	0.013 U	0.013 U	0.072 U	0.094 U	0.24 U	0.012 U	0.23 U	2.2 U	0.98 U	0.61 U	0.53 U	0.3 U
4-Chloro-3-Methylphenol	0.17	0.2 U	2.1 U	...	0.017 U	0.017 U	0.098 U	0.13 U	0.33 U	0.017 U	0.32 U	3 U	1.3 U	0.84 U	0.73 U	0.41 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-027	CFMW-027	CFMW-027	CFSB-014	CFSB-014	CFSB-016	CFSB-016	CFSB-019	CFSB-019	CFSB-019-DUP	CFSB-025	CFSB-025	CFSB-026	CFSB-026	CFSB-027
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/30/2016	6/30/2016	6/30/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016	6/4/2016	6/4/2016	6/4/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016
4-Chloroaniline	0.00016	0.12 U	1.2 U	---	0.01 U	0.01 U	0.059 U	0.077 U	0.2 U	0.01 U	0.19 U	1.8 U	0.8 U	0.5 U	0.44 U	0.25 U
4-Chlorophenyl Phenyl Ether	--	0.14 U	1.4 U	---	0.012 U	0.012 U	0.068 U	0.09 U	0.23 U	0.012 U	0.22 U	2.1 U	0.93 U	0.58 U	0.51 U	0.29 U
4-Nitroaniline	0.0016	0.18 U	1.8 U	---	0.015 U	0.015 U	0.086 U	0.11 U	0.29 U	0.015 U	0.28 U	2.7 U	1.2 U	0.74 U	0.64 U	0.36 U
4-Nitrophenol	--	2.3 U	23 U	---	0.19 U	0.19 U	1.1 U	1.4 U	3.7 U	0.19 U	3.6 U	34 U	15 U	9.4 U	8.1 U	4.6 U
Acenaphthene	0.55	2.5 J	40 J	---	0.039 J	0.031 J	0.42 J	0.72 J	3.4 J	0.069 J	5.2 J	8.4 J	5.3 J	16 J	8.4 J-	5.2 J
Acenaphthylene	--	0.12 U	1.2 J	---	0.01 U	0.01 U	0.059 U	0.077 U	0.2 U	0.033 J	0.19 U	1.8 U	0.8 U	0.5 U	0.44 U	0.25 U
Acetophenone	0.058	0.1 U	1.1 U	---	0.0087 U	0.0088 U	0.05 U	0.065 U	0.17 U	0.011 J	0.16 U	1.5 U	0.68 U	0.43 U	0.37 U	0.21 U
Anthracene	5.8	8	41 J	---	0.18 J	0.13 J	1.2 J	1.9 J	5.4 J	0.049 J	8	110	38	23	21	9.3 J
Atrazine	0.0002	0.21 U	2.2 U	---	0.018 U	0.018 U	0.1 U	0.13 U	0.3 U	0.017 U	0.33 U	3.2 U	1.4 U	0.87 U	0.75 U	0.43 U
Benzaldehyde	0.0041	0.36 U	3.7 U	---	0.03 U	0.031 U	0.17 U	0.23 U	0.59 U	0.03 U	0.57 U	5.4 U	2.4 U	1.5 U	1.3 U	0.73 U
Benzo(A)Anthracene	0.011	39	280	---	2.4	1.7	8.2	11	46	0.032 U	70	260	190	96	89	60
Benzo(A)Pyrene	0.018	39	320	---	2.4	2	9.7	14	66	0.012 U	98	170	140	120	76	65
Benzo(B)Fluoranthene	0.18	67	460	---	8.3	6.8	26	30	87	0.015 U	140	330	210	230	190	83
Benzo(G,H,I)Perylene	--	36	250	---	2.8 J+	2.2	8.1	15 J	59	0.022 U	85	140	50	94	56	44
Benzo(K)Fluoranthene	1.8	23	150	---	3.2	2.4	9	12	37	0.017 U	41	110	78	67	57	27
Benzyl Butyl Phthalate	0.24	0.15 U	1.5 U	---	0.012 U	0.012 U	0.07 U	0.092 U	0.24 U	0.012 U	0.23 U	2.2 U	0.96 U	0.6 U	0.52 U	0.3 U
Biphenyl (Diphenyl)	0.00087	0.4 U	4.1 U	---	0.034 U	0.034 U	0.19 U	0.26 U	0.66 U	0.072 J	0.64 U	6.1 U	2.6 U	1.7 U	1.4 U	0.82 U
Bis(2-Chloroethoxy) Methane	0.0013	0.15 U	1.5 U	---	0.012 U	0.013 U	0.071 U	0.098 U	0.24 U	0.012 U	0.23 U	2.2 U	0.97 U	0.61 U	0.53 U	0.3 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.11 U	1.1 U	---	0.0094 U	0.0095 U	0.054 U	0.071 U	0.18 U	0.0092 U	0.18 U	1.7 U	0.73 U	0.46 U	0.4 U	0.23 U
Bis(2-Chloroisopropyl) Ether	0.026	0.19 U	2 U	---	0.016 U	0.017 U	0.09 U	0.12 U	0.32 U	0.016 U	0.31 U	2.9 U	1.3 U	0.8 U	0.7 U	0.39 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.18 U	1.9 U	---	0.016 U	0.016 U	0.25 J	0.12 U	0.3 U	0.015 U	0.29 U	5.9 J	1.2 U	0.76 U	0.66 U	0.37 U
Caprolactam	0.25	0.34 U	3.5 U	---	0.029 U	0.029 U	0.16 U	0.22 U	0.56 U	0.028 U	0.54 U	5.1 U	2.2 U	1.4 U	1.2 U	0.69 U
Carbazole	--	3.6 J	33 J	---	0.15 J	0.11 J	0.88 J	1.5 J	5.1 J	0.0096 U	7.3 J	6.4 J	8.2 J	12 J	4.5 J	6.8 J
Chrysene	9	56	350	---	4.1	2.3	11	16	57	0.011 U	82	500	270	200	220	70
Dibenz(A,H)Anthracene	0.096	9.3	70	---	0.99 J+	0.61	2.7	3.3 J+	12	0.02 U	20	42	20	25	17	14
Dibenzofuran	0.015	1.3 J	7.3 J	---	0.049 J	0.041 J	0.32 J	0.68 J	0.7 J	0.078 J	1 J	5.8 J	3.7 J	8.8 J	4.1 J	1.3 J
Diethyl Phthalate	0.61	0.13 U	1.4 U	---	0.011 U	0.011 U	0.065 U	0.085 U	2.3 J	0.011 U	2.3 J	2 U	0.88 U	0.56 U	0.48 U	0.27 U
Dimethyl Phthalate	--	0.14 U	1.4 U	---	0.012 U	0.012 U	0.066 U	0.087 U	0.23 U	0.011 U	0.22 U	2.1 U	0.9 U	0.57 U	0.49 U	0.28 U
Di-N-Butyl Phthalate	0.23	0.14 U	1.4 U	---	0.012 U	0.012 U	0.068 U	0.09 U	0.23 U	0.012 U	0.22 U	2.1 U	0.93 U	0.58 U	0.51 U	0.29 U
Di-N-Octylphthalate	5.7	0.24 U	2.5 U	---	0.02 U	0.021 U	0.12 U	0.15 U	0.39 U	0.02 U	0.38 U	3.6 U	1.6 U	0.99 U	0.86 U	0.49 U
Fluoranthene	8.9	75	430	---	2.7	2.3	15	19	73	0.029 J	110	1400	320	300	250	100
Fluorene	0.54	1.8 J	16 J	---	0.016 J	0.012 J	0.28 J	0.37 J	1.5 J	0.19 J	2.3 J	22 J	4.2 J	12 J	8.1 J	3.4 J
Hexachlorobenzene	0.00012	0.19 U	2 U	---	0.015 U	0.016 U	0.093 U	0.12 U	0.31 U	0.016 U	0.3 U	2.9 U	1.3 U	0.79 U	0.69 U	0.39 U
Hexachlorobutadiene	0.00027	0.13 U	1.4 U	---	0.011 U	0.011 U	0.064 U	0.084 U	0.22 U	0.011 U	0.21 U	2 U	0.87 U	0.55 U	0.48 U	0.27 U
Hexachlorocyclopentadiene	0.00013	0.3 U	3 U	---	0.025 U	0.025 U	0.14 U	0.19 U	0.48 U	0.024 U	0.46 U	4.4 U	1.9 U	1.2 U	1.1 U	0.6 U
Hexachloroethane	0.0002	0.17 U	1.8 U	---	0.015 U	0.015 U	0.084 U	0.11 U	0.28 U	0.014 U	0.27 U	2.6 U	1.1 U	0.71 U	0.62 U	0.35 U
Indeno(1,2,3-C,D)Pyrene	0.98	37	260	---	3.6 J+	2.7	10	17 J+	61	0.026 U	88	140	63	95	59	51
Isophorone	0.026	0.1 U	1 U	---	0.0086 U	0.0087 U	0.049 U	0.064 U	0.17 U	0.0083 U	0.16 U	1.5 U	0.67 U	0.42 U	0.36 U	0.21 U
Naphthalene	0.00054	1.2 J	6.5 J	---	0.047 J	0.042 J	0.27 J	0.72 J	0.32 J	0.083 J	0.6 J	2.5 J	3.8 J	3.3 J	2.1 J	0.81 J
Nitrobenzene	0.000092	0.15 U	1.5 U	---	0.013 U	0.013 U	0.072 U	0.094 U	0.24 U	0.012 U	0.23 U	2.2 U	0.98 U	0.61 U	0.53 U	0.3 U
N-Nitrosodi-N-Propylamine	0.0000081	0.16 U	1.6 U	---	0.013 U	0.014 U	0.077 U	0.1 U	0.26 U	0.013 U	0.25 U	2.4 U	1 U	0.66 U	0.57 U	0.32 U
N-Nitrosodiphenylamine	0.067	0.43 U	4.4 U	---	0.036 U	0.037 U	0.21 U	0.27 U	0.7 U	0.035 U	0.68 U	6.4 U	2.8 U	1.8 U	1.5 U	0.87 U
Pentachlorophenol	0.000057	0.57 U	5.9 U	---	0.048 U	0.049 U	0.28 U	0.36 U	0.94 U	0.047 U	0.9 U	8.6 U	3.8 U	2.4 U	2 U	1.2 U
Phenanthrene	--	27	200	---	0.78	0.65	6.2	9	25	0.51	38	440	56	68	86	43
Phenol	0.33	0.15 U	1.6 U	---	0.013 U	0.013 U	0.075 U	0.098 U	0.25 U	0.013 U	0.24 U	2.3 U	1 U	0.64 U	0.55 U	0.31 U
Pyrene	1.3	77	440	---	2.6	2.3	15	21	74	0.058 J	98	1200	240	170	300	87
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00047 U	---	---	0.00045 U	---	0.00064 U	---	0.00052 U	---	0.00067 U	0.001 U	---	0.00096 U	---	0.00042 U
1,1,2,2-Tetrachloroethane	0.00003	0.00021 U	---	---	0.0002 U	---	0.00028 U	---	0.00023 U	---	0.0003 U	0.00045 U	---	0.00043 U	---	0.00019 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00054 U	---	---	0.00053 U	---	0.00074 U	---	0.00061 U	---	0.00078 U	0.0012 U	---	0.0011 U	---	0.00048 U
1,1,2-Trichloroethane	0.000013	0.00035 U	---	---	0.00034 U	---	0.00047 U	---	0.00039 U	---	0.0005 U	0.00075 U	---	0.0007 U	---	0.00031 U
1,1-Dichloroethane	0.00078	0.00042 U	---	---	0.00041 U	---	0.00057 U	---	0.00047 U	---	0.0006 U	0.00091 U	---	0.00085 U	---	0.00037 U
1,1-Dichloroethene	0.01	0.00051 U	---	---	0.00049 U	---	0.00069 U	---	0.00057 U	---	0.00073 U	0.0011 U	---	0.001 U	---	0.00045 U
1,2,3-Trichlorobenzene	0.0021	0.00014 U	---	---	0.00013 U	---	0.00018 U	---	0.00015 U	---	0.00019 U	0.00029 U	---	0.00028 U	---	0.00012 U
1,2,4-Trichlorobenzene	0.0012	0.0004 U	---	---	0.00038 U	---	0.00053 U	---	0.00044 U	---	0.00057 U	0.00086 U	---	0.0008 U	---	0.00035 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00058 U	---	---	0.00056 U	---	0.00079 U	---	0.00065 U	---	0.00083 U	0.0013 U	---	0.0012 U	---	0.00052 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-027	CFMW-027	CFMW-027	CFSB-014	CFSB-014	CFSB-016	CFSB-016	CFSB-019	CFSB-019	CFSB-019-DUP	CFSB-025	CFSB-025	CFSB-026	CFSB-026	CFSB-027
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/30/2016	6/30/2016	6/30/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016	6/4/2016	6/4/2016	6/4/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00015 U	---	---	0.00014 U	---	0.0002 U	---	0.00017 U	---	0.00021 U	0.00032 U	---	0.0003 U	---	0.00013 U
1,2-Dichlorobenzene	0.03	0.00017 U	---	---	0.00017 U	---	0.00023 U	---	0.00019 U	---	0.00025 U	0.00037 U	---	0.00035 U	---	0.00015 U
1,2-Dichloroethane	0.000048	0.00014 U	---	---	0.00013 U	---	0.00018 U	---	0.00015 U	---	0.00019 U	0.00029 U	---	0.00028 U	---	0.00012 U
1,2-Dichloropropane	0.000047	0.00021 U	---	---	0.0002 U	---	0.00028 U	---	0.00023 U	---	0.0003 U	0.00045 U	---	0.00043 U	---	0.00019 U
1,3-Dichlorobenzene	--	0.00015 U	---	---	0.00014 U	---	0.0002 U	---	0.00017 U	---	0.00021 U	0.00032 U	---	0.0003 U	---	0.00013 U
1,4-Dichlorobenzene	0.00046	0.00016 U	---	---	0.00016 U	---	0.00022 U	---	0.00018 U	---	0.00023 U	0.00035 U	---	0.00033 U	---	0.00014 U
2-Hexanone	0.00088	0.0036 J	---	---	0.0013 U	---	0.0024 J	---	0.0013 U	---	0.0017 U	0.0025 U	---	0.0024 U	---	0.001 U
Acetone	0.29	0.15	---	---	0.09	---	0.19	---	0.0096	---	0.0088 J	0.25 J+	---	0.31 J+	---	0.036 J+
Benzene	0.00023	0.00025 U	---	---	0.00024 U	---	0.00033 U	---	0.0012 J	---	0.00095 J	0.00054 U	---	0.0005 U	---	0.0031
Bromochloromethane	0.0021	0.00021 U	---	---	0.0002 U	---	0.00028 U	---	0.00023 U	---	0.0003 U	0.00045 U	---	0.00043 U	---	0.00019 U
Bromodichloromethane	0.000036	0.00047 U	---	---	0.00045 U	---	0.00064 U	---	0.00052 U	---	0.00067 U	0.001 U	---	0.00096 U	---	0.00042 U
Bromoform	0.00087	0.00016 U	---	---	0.00016 U	---	0.00022 U	---	0.00018 U	---	0.00023 U	0.00035 U	---	0.00033 U	---	0.00014 U
Bromomethane	0.00019	0.0004 U	---	---	0.00038 U	---	0.00053 U	---	0.00044 U	---	0.00057 U	0.00086 U	---	0.0008 U	---	0.00035 U
Carbon Disulfide	0.024	0.00092 J	---	---	0.00051 U	---	0.0045	---	0.00059 U	---	0.00076 U	0.0033	---	0.0038	---	0.005
Carbon Tetrachloride	0.00018	0.00053 U	---	---	0.00051 U	---	0.00072 U	---	0.00059 U	---	0.00076 U	0.0012 U	---	0.0011 U	---	0.00047 U
Chlorobenzene	0.0053	0.00017 U	---	---	0.00017 U	---	0.00023 U	---	0.00019 U	---	0.00025 U	0.00037 U	---	0.00035 U	---	0.00015 U
Chloroethane	0.59	0.00043 U	---	---	0.00042 U	---	0.00059 U	---	0.00048 U	---	0.00062 U	0.00094 U	---	0.00088 U	---	0.00038 U
Chloroform	0.000061	0.00026 U	---	---	0.00025 U	---	0.00035 U	---	0.00029 U	---	0.00037 U	0.00056 U	---	0.00053 U	---	0.00023 U
Chloromethane	0.0049	0.00047 U	---	---	0.00045 U	---	0.00064 U	---	0.00052 U	---	0.00067 U	0.001 U	---	0.00096 U	---	0.00042 U
Cis-1,2-Dichloroethylene	0.0011	0.00027 U	---	---	0.00026 U	---	0.0003 U	---	0.0003 U	---	0.00039 U	0.00059 U	---	0.00055 U	---	0.00024 U
Cis-1,3-Dichloropropene	--	0.00019 U	---	---	0.00018 U	---	0.00025 U	---	0.00021 U	---	0.00027 U	0.0004 U	---	0.00038 U	---	0.00016 U
Cyclohexane	1.3	0.00057 U	---	---	0.00055 U	---	0.00077 U	---	0.0027	---	0.0026	0.0012 U	---	0.0012 U	---	0.0086 J+
Dibromochloromethane	0.00023	0.00019 U	---	---	0.00018 U	---	0.00025 U	---	0.00021 U	---	0.00027 U	0.0004 U	---	0.00038 U	---	0.00016 U
Dichlorodifluoromethane	0.03	0.0004 U	---	---	0.00038 U	---	0.00053 U	---	0.00044 U	---	0.00057 U	0.00086 U	---	0.0008 U	---	0.00035 U
Ethylbenzene	0.0017	0.00022 U	---	---	0.00022 U	---	0.0003 U	---	0.0015	---	0.0013 J	0.00048 U	---	0.00045 U	---	0.0038
Isopropylbenzene (Cumene)	0.074	0.00021 U	---	---	0.0002 U	---	0.00028 U	---	0.00023 U	---	0.0003 U	0.00045 U	---	0.00043 U	---	0.00052 J
M,P-Xylene	--	0.00016 J	---	---	0.00013 U	---	0.00018 U	---	0.0056	---	0.0051	0.00031 J	---	0.00028 U	---	0.0091
Methyl Acetate	0.41	0.0065	---	---	0.0022 J	---	0.0054 J	---	0.0012 U	---	0.0016 U	0.0036 J+	---	0.0043 J+	---	0.00099 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.034	---	---	0.0091	---	0.028	---	0.0011 U	---	0.0014 U	0.021	---	0.041	---	0.002 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0027 U	---	---	0.0027 U	---	0.0037 U	---	0.0031 U	---	0.0039 U	0.0059 U	---	0.0056 U	---	0.0024 U
Methylcyclohexane	--	0.00062 U	---	---	0.0006 U	---	0.00084 U	---	0.0055	---	0.0055	0.0013 U	---	0.0013 U	---	0.015 J+
Methylene Chloride	0.0027	0.0004 U	---	---	0.00038 U	---	0.00053 U	---	0.002 J	---	0.004 J	0.00086 U	---	0.0008 U	---	0.00035 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.0002 U	---	---	0.00019 U	---	0.00027 U	---	0.0017	---	0.0016 J	0.00043 U	---	0.0004 U	---	0.0032
Styrene	0.13	0.00019 U	---	---	0.00018 U	---	0.00025 U	---	0.00021 U	---	0.00027 U	0.0004 U	---	0.00038 U	---	0.00016 U
Tert-Butyl Methyl Ether	0.0032	0.00021 U	---	---	0.0002 U	---	0.00028 U	---	0.00023 U	---	0.0003 U	0.00045 U	---	0.00043 U	---	0.00019 U
Tetrachloroethylene (PCE)	0.0018	0.00035 U	---	---	0.00034 U	---	0.00047 U	---	0.00039 U	---	0.0005 U	0.00075 U	---	0.0007 U	---	0.00031 U
Toluene	0.076	0.00041 J	---	---	0.00023 U	---	0.00091 J	---	0.0063	---	0.0056	0.00081 J	---	0.00061 J	---	0.013
Trans-1,2-Dichloroethene	0.011	0.00048 U	---	---	0.00047 U	---	0.00065 U	---	0.00054 U	---	0.00069 U	0.001 U	---	0.00098 U	---	0.00043 U
Trans-1,3-Dichloropropene	--	0.00012 U	---	---	0.00012 U	---	0.00017 U	---	0.00014 U	---	0.00018 U	0.00027 U	---	0.00025 U	---	0.00011 U
Trichloroethylene (TCE)	0.0001	0.00032 U	---	---	0.00031 U	---	0.00043 U	---	0.00036 U	---	0.00046 U	0.0007 U	---	0.00065 U	---	0.00029 U
Trichlorofluoromethane	0.33	0.00042 U	---	---	0.00041 U	---	0.00057 U	---	0.00047 U	---	0.0006 U	0.00091 U	---	0.00085 U	---	0.00037 U
Vinyl Chloride	0.0000065	0.00048 U	---	---	0.00047 U	---	0.00065 U	---	0.00054 U	---	0.00069 U	0.001 U	---	0.00098 U	---	0.00043 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--										
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-027	CFSB-028	CFSB-028	CFSB-030	CFSB-030	CFMW-002	CFMW-002	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-010	CFMW-010	CFMW-010	CFMW-012A	CFMW-012A
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		6/13/2016	7/18/2016	7/18/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	5/18/2016	5/18/2016	5/18/2016	5/20/2016	5/20/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	52.8 J-	23.8 J+	94.8 J+	84 J-	221 J+	166 J+	56.7 J-	180 J+	84.9 J-	--	101 J-	114 J-	--	59.3 J-	91.9 J-
Cyanide	0.0015	0.19	0.094 J	1.5	2	4.7 J	0.59 J	0.48 J	0.016 UJ	0.088 J	--	0.32	1.4	--	0.46	0.6
METALS																
Aluminum	3000	10300	8860	18600	25600	47300	24900	14500	8610	21000	--	22100	25700	--	13400	16400
Antimony	0.035	0.36 UJ	0.41 UJ	0.43 UJ	0.37 UJ	0.42 UJ	0.35 UJ	0.35 UJ	0.32 UJ	0.36 UJ	--	0.35 UJ	0.37 UJ	--	0.45 UJ	0.44 UJ
Arsenic	0.0015	5.7	5.3	5.9	7.2	8.5	6.5	5.3	4	7.1	--	7.7	6.2	--	5.7 J	6.6 J
Barium	16	82.9	90.8	115	142	268	181	127	55.6	163	--	171	235	--	112	131
Beryllium	1.9	0.36	0.85	1.2	1.2	1.3	0.76	0.78	0.27 J	0.63	--	0.78	0.84	--	0.46	0.6
Cadmium	0.069	0.27 U	0.31 U	0.93 J	0.72 J	1.4	0.26 U	0.26 U	0.24 U	0.27 U	--	0.32 J	0.28 U	--	0.34 U	0.33 U
Calcium	--	20400 J	55600	49100	2390	6670 J	7360 J	68400 J	26100 J	56600 J	--	2370	4460	--	4310 J	2340 J
Chromium, Total	--	11.4	9.9 J+	11.7 J+	9.8	13.3	12.7	10.3	7	10	--	12.2	12.7	--	11.4	13.1
Cobalt	0.027	4.7	5.2	4.6	4.5	6.9	6.4	4.8	3.5	4.7	--	6.6	6.4	--	4.3	5.5
Copper	2.8	10.9	15.8 J+	12.5 J+	22.4 J+	27.2	14.5	12	8.4	15.2	--	12	13.7	--	18.6 J+	10.6 J+
Iron	35	12100	15900	11600	14700	13100	19600	13400	9950	10800	--	19700	20500	--	19800	20600
Lead	400	8.3 J+	7.5 J	15.9 J	26.8 J+	26.8 J+	12.2 J+	13.5 J+	11.2 J+	23.3 J+	21.9	15.3	13.5	45.8	8.7 J	15 J
Magnesium	--	10000	14500	11800	9050	6960	12100	11500	8110	8170	--	11500	10900	--	13200 J	13300 J
Manganese	2.8	323 J	762	375	233 J	479 J	728 J	616 J	247 J	388 J	--	577	529	--	694	533
Mercury	0.0033	0.016 J	0.012 U	0.018	0.019	0.021	0.013 U	0.014 J	0.016 J	0.023	--	0.024	0.019	--	0.019	0.012 U
Nickel	2.6	17.9 J+	16	56.4	79.4	81.3 J+	15.5 J+	28.5 J+	15.8 J+	32.4 J+	--	12.9	22.2	--	11.8 J+	14 J+
Potassium	--	892	894 J+	1380 J+	699	1900	1220	1280	585	1060	--	1250	1430	--	1080 J	927 J
Selenium	0.052	0.34 U	0.39 U	0.4 U	0.64 J	0.71 J	0.33 U	0.33 U	0.3 U	0.34 J	--	0.33 U	0.35 U	--	0.42 U	0.41 U
Silver	0.08	0.66 U	0.76 U	0.78 U	0.7 J	0.76 U	0.64 U	0.64 U	0.58 U	0.65 U	--	0.65 U	0.68 U	--	0.83 U	0.8 U
Sodium	--	33.8 U	40.6 J	101 J	98.5	247	279	104	89.5	302	--	119	176	--	49.9 J	74 J
Thallium	0.0014	0.29 J	0.24 J	0.25 J	0.27 J	0.64	0.13 J	0.13 U	0.12 U	0.13 U	--	0.15 J	0.14 J	--	0.17 U	0.17 U
Vanadium	8.6	13.3 J-	12.5 J	21.3 J	27.8	41.3 J-	23.1 J-	21.1 J-	9.5 J-	17.3 J-	--	19.3	23.7	--	11.9	17.7
Zinc	37	42.2 J-	40.9	141	77.9	148 J-	111 J-	114 J-	32.3 J-	57.1 J-	--	75.7	72.5	--	43.9 J	75.5 J

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--										
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-027	CFSB-028	CFSB-028	CFSB-030	CFSB-030	CFMW-002	CFMW-002	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-010	CFMW-010	CFMW-010	CFMW-012A	CFMW-012A
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		6/13/2016	7/18/2016	7/18/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	5/18/2016	5/18/2016	5/18/2016	5/20/2016	5/20/2016
PESTICIDES																
Aldrin	0.00015	...	...	0.00092 U	...	0.001 U	...	0.00086 U	...	0.00089 U	...	...	0.00091 U	...	...	0.00092 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	...	0.00069 U	...	0.00079 U	...	0.00065 U	...	0.00067 U	...	...	0.00069 U	...	...	0.0007 U
Alpha Endosulfan	--	...	...	0.0011 U	...	0.0012 U	...	0.00090 U	...	0.001 U	...	...	0.0011 U	...	...	0.0011 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	...	0.00074 U	...	0.00084 U	...	0.00068 U	...	0.00072 U	...	...	0.00073 U	...	...	0.00074 U
Beta Endosulfan	--	...	...	0.0012 U	...	0.0014 U	...	0.0011 U	...	0.0012 U	...	...	0.0012 U	...	...	0.0012 U
cis-Chlordane	--	...	...	0.0012 U	...	0.0014 U	...	0.0012 U	...	0.0012 U	...	...	0.0012 U	...	...	0.0012 U
Delta BHC (Delta Hexachlorocyclohexane)	--	...	...	0.00083 U	...	0.00094 U	...	0.00078 U	...	0.0008 U	...	...	0.00082 U	...	...	0.00083 U
Dieldrin	0.000071	...	...	0.00099 U	...	0.0011 U	...	0.00093 U	...	0.00096 U	...	...	0.00098 U	...	...	0.00099 U
Endosulfan Sulfate	--	...	...	0.00088 U	...	0.001 U	...	0.00083 U	...	0.00086 U	...	...	0.00088 U	...	...	0.00089 U
Endrin	0.0092	...	...	0.00096 U	...	0.0011 U	...	0.0009 U	...	0.00094 U	...	...	0.00096 U	...	...	0.00097 U
Endrin Aldehyde	--	...	...	0.00094 U	...	0.0011 U	...	0.00088 U	...	0.00091 U	...	...	0.00094 U	...	...	0.00095 U
Endrin Ketone	--	...	...	0.0011 U	...	0.0012 U	...	0.00098 U	...	0.001 U	...	...	0.0011 U	...	...	0.0011 U
Gamma Bhc (Lindane)	0.00024	...	...	0.00068 U	...	0.00078 U	...	0.00064 U	...	0.00066 U	...	...	0.00068 U	...	...	0.00069 U
Heptachlor	0.00012	...	...	0.00098 U	...	0.0011 U	...	0.00092 U	...	0.00095 U	...	...	0.00097 U	...	...	0.00098 U
Heptachlor Epoxide	0.000028	...	...	0.0015 U	...	0.0017 U	...	0.0014 U	...	0.0014 U	...	...	0.0015 U	...	...	0.0015 U
Methoxychlor	0.2	...	...	0.0016 U	...	0.0018 U	...	0.0015 U	...	0.0016 U	...	...	0.0016 U	...	...	0.0016 U
P,P'-DDD	0.0075	...	...	0.001 U	...	0.0011 U	...	0.00094 U	...	0.00097 U	...	...	0.00099 U	...	...	0.001 U
P,P'-DDE	0.011	...	...	0.0011 U	...	0.0013 U	...	0.001 U	...	0.0011 U	...	...	0.0011 U	...	...	0.0011 U
P,P'-DDT	0.077	...	...	0.00078 U	...	0.00089 U	...	0.00073 U	...	0.00076 U	...	...	0.00078 U	...	...	0.00079 U
Toxaphene	0.011	...	...	0.022 U	...	0.025 U	...	0.021 U	...	0.021 U	...	...	0.022 U	...	...	0.022 U
trans-Chlordane	--	...	...	0.0016 U	...	0.0019 U	...	0.0015 U	...	0.0016 U	...	...	0.0016 U	...	...	0.0017 U
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0095 U	0.0097 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0095 U	0.0094 U	0.0098 U	...	0.01 U	0.01 U	...	0.01 U	0.01 U
PCB-1221 (Aroclor 1221)	0.00008	0.0095 U	0.0097 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0095 U	0.0094 U	0.0098 U	...	0.01 U	0.01 U	...	0.01 U	0.01 U
PCB-1232 (Aroclor 1232)	0.00008	0.0095 U	0.0097 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0095 U	0.0094 U	0.0098 U	...	0.01 U	0.01 U	...	0.01 U	0.01 U
PCB-1242 (Aroclor 1242)	0.0012	0.0095 U	0.0097 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0095 U	0.0094 U	0.0098 U	...	0.01 U	0.01 U	...	0.01 U	0.01 U
PCB-1248 (Aroclor 1248)	0.0012	0.0095 U	0.0097 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0095 U	0.0094 U	0.0098 U	...	0.01 U	0.01 U	...	0.01 U	0.01 U
PCB-1254 (Aroclor 1254)	0.002	0.0099 U	0.01 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0098 U	0.0097 U	0.01 U	...	0.01 U	0.01 U	...	0.011 U	0.011 U
PCB-1260 (Aroclor 1260)	0.0055	0.0099 U	0.01 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0098 U	0.0097 U	0.01 U	...	0.01 U	0.01 U	...	0.011 U	0.011 U
PCB-1262 (Aroclor 1262)	--	0.0099 U	0.01 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0098 U	0.0097 U	0.01 U	...	0.01 U	0.01 U	...	0.011 U	0.011 U
PCB-1268 (Aroclor 1268)	--	0.0099 U	0.01 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0098 U	0.0097 U	0.01 U	...	0.01 U	0.01 U	...	0.011 U	0.011 U
Polychlorinated Biphenyl (PCBs)	--	0.0099 U	0.01 U	0.01 U	0.01 U	0.012 U	0.01 U	0.0098 U	0.0097 U	0.01 U	...	0.01 U	0.01 U	...	0.011 U	0.011 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.13 U	0.027 U	0.056 U	0.14 U	0.064 U	0.028 U	0.026 U	0.26 U	0.14 U	...	0.028 U	0.028 U	...	0.029 U	0.028 U
1,4-Dioxane (P-Dioxane)	0.000094	0.47 U	0.096 U	0.2 U	0.5 U	0.23 U	0.1 U	0.094 U	0.93 U	0.49 U	...	0.1 U	0.1 U	...	0.1 U	0.1 U
2,3,4,6-Tetrachlorophenol	0.018	0.17 U	0.034 U	0.07 U	0.18 U	0.08 U	0.035 U	0.033 UJ	0.33 U	0.17 U	...	0.035 U	0.035 U	...	0.036 U	0.036 U
2,4,5-Trichlorophenol	0.4	0.18 U	0.036 U	0.07 U	0.19 U	0.085 U	0.037 U	0.035 U	0.35 U	0.18 U	...	0.037 U	0.037 U	...	0.038 U	0.038 U
2,4,6-Trichlorophenol	0.0012	0.05 U	0.01 U	0.02 U	0.054 U	0.024 U	0.011 U	0.01 U	0.099 U	0.052 U	...	0.011 U	0.011 U	...	0.011 U	0.011 U
2,4-Dichlorophenol	0.0023	0.042 U	0.0084 U	0.018 U	0.044 U	0.02 U	0.0088 U	0.0083 U	0.082 U	0.043 U	...	0.0089 U	0.0088 U	...	0.0091 U	0.0089 U
2,4-Dimethylphenol	0.042	0.38 U	0.079 U	0.16 U	0.41 U	0.19 U	0.082 U	0.077 UJ	0.77 U	0.4 U	...	0.083 U	0.082 U	...	0.085 U	0.083 U
2,4-Dinitrophenol	0.0044	1.3 U	0.27 U	0.57 U	1.4 U	0.65 U	0.28 U	0.27 UJ	2.6 U	1.4 U	...	0.28 U	0.28 U	...	0.29 U	0.29 U
2,4-Dinitrotoluene	0.00032	0.07 U	0.014 U	0.03 U	0.075 U	0.034 U	0.015 U	0.014 U	0.14 U	0.072 U	...	0.015 U	0.015 U	...	0.015 U	0.015 U
2,6-Dinitrotoluene	0.000067	0.094 U	0.019 U	0.04 U	0.1 U	0.045 U	0.02 U	0.019 U	0.19 U	0.097 U	...	0.02 U	0.02 U	...	0.02 U	0.02 U
2-Chloronaphthalene	0.39	0.04 U	0.0081 U	0.017 U	0.043 U	0.019 U	0.0085 U	0.008 U	0.079 U	0.041 U	...	0.0085 U	0.0085 U	...	0.0087 U	0.0086 U
2-Chlorophenol	0.0089	0.045 U	0.0091 U	0.019 U	0.048 U	0.022 U	0.0095 U	0.0089 UJ	0.088 U	0.046 U	...	0.0095 U	0.0095 U	...	0.0098 U	0.0096 U
2-Methylnaphthalene	0.019	0.095 J	0.0079 U	0.037 J	0.09 J	0.063 J	0.01 J	0.083 J	0.092 J	0.21 J	...	0.0083 U	0.024 J	...	0.0085 U	0.0083 U
2-Methylphenol (O-Cresol)	0.075	0.077 U	0.016 U	0.033 U	0.082 U	0.037 U	0.016 U	0.015 U	0.15 U	0.079 U	...	0.016 U	0.016 U	...	0.017 U	0.016 U
2-Nitroaniline	0.008	0.058 U	0.012 U	0.025 U	0.062 U	0.028 U	0.012 U	0.012 U	0.11 U	0.06 U	...	0.012 U	0.012 U	...	0.013 U	0.012 U
2-Nitrophenol	--	0.059 U	0.012 U	0.025 U	0.063 U	0.029 U	0.013 U	0.012 UJ	0.12 U	0.061 U	...	0.013 U	0.013 U	...	0.013 U	0.013 U
3- And 4- Methylphenol (Total)	--	0.047 U	0.0095 U	0.02 U	0.05 U	0.023 U	0.01 U	0.0094 U	0.093 U	0.048 U	...	0.01 U	0.0099 U	...	0.01 U	0.01 U
3,3'-Dichlorobenzidine	0.00082	0.2 U	0.04 U	0.084 U	0.21 U	0.095 U	0.042 U	0.039 U	0.39 U	0.2 U	...	0.042 U	0.042 U	...	0.043 U	0.042 U
3-Nitroaniline	--	0.052 U	0.011 U	0.022 U	0.056 U	0.025 U	0.011 U	0.01 U	0.1 U	0.054 U	...	0.011 U	0.011 U	...	0.011 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	0.47 U	0.096 U	0.2 U	0.5 U	0.23 U	0.1 U	0.094 UJ	0.93 U	0.49 U	...	0.1 U	0.099 U	...	0.1 U	0.1 U
4-Bromophenyl Phenyl Ether	--	0.056 U	0.011 U	0.024 U	0.059 U	0.027 U	0.012 U	0.011 U	0.11 U	0.057 U	...	0.012 U	0.012 U	...	0.012 U	0.012 U
4-Chloro-3-Methylphenol	0.17	0.076 U	0.015 U	0.032 U	0.081 U	0.037 U	0.016 U	0.015 U	0.15 U	0.078 U	...	0.016 U	0.016 U	...	0.017 U	0.016 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--										
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-027	CFSB-028	CFSB-028	CFSB-030	CFSB-030	CFMW-002	CFMW-002	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-010	CFMW-010	CFMW-010	CFMW-012A	CFMW-012A
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		6/13/2016	7/18/2016	7/18/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	5/18/2016	5/18/2016	5/18/2016	5/20/2016	5/20/2016
4-Chloroaniline	0.00016	0.046 U	0.0092 U	0.019 U	0.048 U	0.022 U	0.0096 U	0.009 U	0.089 U	0.047 U	...	0.0097 U	0.0096 U	...	0.0099 U	0.0097 U
4-Chlorophenyl Phenyl Ether	--	0.053 U	0.011 U	0.022 U	0.056 U	0.026 U	0.011 U	0.011 U	0.1 U	0.054 U	...	0.011 U	0.011 U	...	0.012 U	0.011 U
4-Nitroaniline	0.0016	0.067 U	0.014 U	0.028 U	0.071 U	0.032 U	0.014 U	0.013 U	0.13 U	0.069 U	...	0.014 U	0.014 U	...	0.015 U	0.014 U
4-Nitrophenol	--	0.85 U	0.17 U	0.36 U	0.91 U	0.41 U	0.18 U	0.17 U	1.7 U	0.87 U	...	0.18 UJ	0.18 U	...	0.19 U	0.18 U
Acenaphthene	0.55	0.91 J	0.0087 U	0.31 J	0.49 J	0.36 J	0.009 U	0.032 J	0.35 J	1.1 J	...	0.0091 U	0.19 J	...	0.0093 U	0.018 J
Acenaphthylene	--	0.046 U	0.0092 U	0.019 U	0.048 U	0.022 U	0.0096 U	0.009 U	0.089 U	0.047 U	...	0.0097 U	0.0096 U	...	0.0099 U	0.0097 U
Acetophenone	0.058	0.039 U	0.0078 U	0.016 U	0.041 U	0.019 U	0.0081 U	0.0077 U	0.076 U	0.04 U	...	0.0082 U	0.0081 U	...	0.0084 U	0.0082 U
Anthracene	5.8	2	0.034 U	0.89	1.7 J	0.85	0.036 U	0.044 J	0.65 J	1.8	...	0.036 U	0.4	...	0.037 U	0.036 U
Atrazine	0.0002	0.079 U	0.016 U	0.033 U	0.084 U	0.038 U	0.017 U	0.016 U	0.1 U	0.081 U	...	0.017 U	0.017 U	...	0.017 U	0.017 U
Benzaldehyde	0.0041	0.13 U	0.027 U	0.057 U	0.14 U	0.065 U	0.029 U	0.027 UJ	0.27 U	0.14 U	...	0.029 U	0.028 U	...	0.029 U	0.029 U
Benzo(A)Anthracene	0.011	13	0.03 U	4.9	12	6	0.031 U	0.2	2.2	6.8	...	0.031 U	2.1	...	0.07	0.15
Benzo(A)Pyrene	0.018	15	0.011 U	5.3	13	6.9	0.011 U	0.25	2.4	7	...	0.014 J	2.4	...	0.07	0.17
Benzo(B)Fluoranthene	0.18	18	0.014 U	8.8	19	13	0.015 U	0.48	3.8	12	...	0.019 J	3.6	...	0.092	0.23
Benzo(G,H,I)Perylene	--	13	0.021 U	5	14	8.2	0.021 U	0.29 J	1.5 J	7.3	...	0.022 U	2.7	...	0.055 J+	0.2 J+
Benzo(K)Fluoranthene	1.8	6.1	0.016 U	3.3	7.9	4.3	0.016 U	0.15	1.6	4.2	...	0.016 U	1.3	...	0.041	0.083
Benzyl Butyl Phthalate	0.24	0.055 U	0.011 U	0.55 J	0.058 U	0.026 U	0.012 U	0.011 U	0.11 U	0.056 U	...	0.012 U	0.013 J	...	0.012 U	0.012 U
Biphenyl (Diphenyl)	0.00087	0.15 U	0.031 U	0.064 U	0.16 U	0.073 U	0.032 U	0.03 U	0.3 U	0.16 U	...	0.032 U	0.032 U	...	0.033 U	0.032 U
Bis(2-Chloroethoxy) Methane	0.0013	0.055 U	0.011 U	0.023 U	0.059 U	0.027 U	0.012 U	0.011 U	0.11 U	0.057 U	...	0.012 U	0.012 U	...	0.012 U	0.012 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.042 U	0.0084 U	0.018 U	0.044 U	0.02 U	0.0088 U	0.0083 U	0.082 U	0.043 U	...	0.0089 U	0.0088 U	...	0.0091 U	0.0089 U
Bis(2-Chloroisopropyl) Ether	0.026	0.073 U	0.015 U	0.031 U	0.077 U	0.035 U	0.015 U	0.014 U	0.14 U	0.075 U	...	0.015 UJ	0.015 UJ	...	0.016 U	0.016 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.069 U	0.014 U	0.17 J	0.074 U	0.033 U	0.015 U	0.014 U	0.14 U	0.071 U	...	0.015 U	0.057 J	...	0.015 U	0.015 U
Caprolactam	0.25	0.13 U	0.026 U	0.054 U	0.14 U	0.062 U	0.027 U	0.025 UJ	0.25 U	0.13 U	...	0.027 U	0.027 U	...	0.028 UJ	0.027 UJ
Carbazole	--	1.5 J	0.0089 U	0.76	1.7 J	1.2	0.0093 U	0.032 J	0.6 J	1.6 J	...	0.0093 U	0.35 J	...	0.012 J	0.028 J
Chrysene	9	15	0.011 J	8.8	22	11	0.018 J	0.32 J	3.7	12	...	0.017 J	2.8	...	0.085 J	0.19 J
Dibenz(A,H)Anthracene	0.096	3.7	0.019 U	1.4	4.2	2.2	0.019 U	0.082	0.5	1.9	...	0.02 U	0.63	...	0.02 U	0.042 J+
Dibenzofuran	0.015	0.3 J	0.011 U	0.097 J	0.21 J	0.17 J	0.011 U	0.014 J	0.18 J	0.41 J	...	0.011 U	0.092 J	...	0.012 U	0.011 U
Diethyl Phthalate	0.61	0.05 U	0.01 U	0.021 U	0.054 U	0.025 U	0.011 U	0.01 U	0.099 U	0.052 U	...	0.011 U	0.011 U	...	0.011 U	0.011 U
Dimethyl Phthalate	--	0.051 U	0.01 U	0.022 U	0.055 U	0.025 U	0.011 U	0.01 U	0.1 U	0.053 U	...	0.011 U	0.011 U	...	0.011 U	0.011 U
Di-N-Butyl Phthalate	0.23	0.053 U	0.011 U	0.022 U	0.056 U	0.026 U	0.011 U	0.011 U	0.1 U	0.054 U	...	0.011 U	0.011 U	...	0.012 U	0.011 U
Di-N-Octylphthalate	5.7	0.09 U	0.018 U	0.038 U	0.096 U	0.043 U	0.019 U	0.096 J	0.18 U	0.092 U	...	0.019 U	0.019 U	...	0.02 U	0.019 U
Fluoranthene	8.9	22	0.011 U	7.5	14	11	0.021 J	0.38	6.1	13	...	0.021 J	4.1	...	0.12 J	0.27 J
Fluorene	0.54	0.82 J	0.0078 U	0.21 J	0.43 J	0.3 J	0.0081 U	0.0077 U	0.3 J	0.83 J	...	0.0082 U	0.16 J	...	0.0084 U	0.012 J
Hexachlorobenzene	0.00012	0.072 U	0.015 U	0.03 U	0.075 U	0.035 U	0.015 U	0.014 U	0.14 U	0.074 U	...	0.015 U	0.015 U	...	0.016 U	0.015 U
Hexachlorobutadiene	0.00027	0.05 U	0.01 U	0.021 U	0.053 U	0.024 U	0.011 U	0.0098 U	0.098 U	0.051 U	...	0.011 U	0.01 U	...	0.011 U	0.011 U
Hexachlorocyclopentadiene	0.00013	0.11 U	0.022 U	0.047 U	0.12 U	0.053 U	0.023 U	0.022 U	0.22 U	0.11 U	...	0.023 U	0.023 U	...	0.024 U	0.024 U
Hexachloroethane	0.0002	0.065 U	0.013 U	0.027 U	0.069 U	0.031 U	0.014 U	0.013 U	0.13 U	0.067 U	...	0.014 U	0.014 U	...	0.014 U	0.014 U
Indeno(1,2,3-C,D)Pyrene	0.98	14	0.024 U	5.2	16	8.8	0.025 U	0.29	1.8	7.8	...	0.025 U	2.9	...	0.059 J+	0.19 J+
Isophorone	0.026	0.038 U	0.0077 U	0.017 U	0.04 U	0.018 U	0.008 U	0.0075 U	0.075 U	0.039 U	...	0.0081 U	0.008 U	...	0.0083 U	0.0081 U
Naphthalene	0.00054	0.2 J	0.0091 U	0.077 J	0.22 J	0.14 J	0.0095 U	0.036 J	0.098 U	0.51 J	...	0.0095 U	0.043 J	...	0.0098 U	0.0096 U
Nitrobenzene	0.000092	0.056 U	0.011 U	0.024 U	0.059 U	0.027 U	0.012 U	0.011 U	0.11 U	0.057 U	...	0.012 U	0.012 U	...	0.012 U	0.012 U
N-Nitrosodi-N-Propylamine	0.0000081	0.059 U	0.012 U	0.025 U	0.063 U	0.029 U	0.013 U	0.012 U	0.12 U	0.061 U	...	0.013 U	0.013 U	...	0.013 U	0.013 U
N-Nitrosodiphenylamine	0.067	0.16 U	0.032 U	0.069 U	0.17 U	0.078 U	0.034 U	0.032 UJ	0.32 U	0.16 U	...	0.034 U	0.034 U	...	0.035 U	0.034 U
Pentachlorophenol	0.000057	0.21 U	0.043 U	0.091 U	0.23 U	0.1 U	0.045 U	0.043 UJ	0.42 U	0.22 U	...	0.045 U	0.045 U	...	0.047 U	0.046 U
Phenanthrene	--	12	0.0095 U	3.7	7.6	4.4	0.01 U	0.22 J	3.6	7.8	...	0.013 J	2.4	...	0.087 J	0.19 J
Phenol	0.33	0.058 U	0.012 U	0.024 U	0.26 J	0.028 U	0.012 U	0.011 U	0.11 U	0.059 U	...	0.012 U	0.012 U	...	0.013 U	0.012 U
Pyrene	1.3	22	0.016 U	7.7	15	9.6	0.017 U	0.41	3.4 J	11	...	0.017 U	3.9	...	0.15 J	0.26 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	...	0.00038 U	...	0.00044 U	...	0.00029 U	...	0.00037 U	...	...	0.00036 U	...	...	0.00055 U	...
1,1,2,2-Tetrachloroethane	0.00003	...	0.00017 U	...	0.0002 U	...	0.00013 U	...	0.00017 U	...	...	0.00016 U	...	...	0.00025 U	...
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	...	0.00044 U	...	0.00051 U	...	0.00034 U	...	0.00043 U	...	...	0.00042 U	...	...	0.00064 U	...
1,1,2-Trichloroethane	0.000013	...	0.00028 U	...	0.00033 U	...	0.00021 U	...	0.00028 U	...	...	0.00027 U	...	...	0.00041 U	...
1,1-Dichloroethane	0.00078	...	0.00034 U	...	0.0004 U	...	0.00026 U	...	0.00034 U	...	...	0.00032 U	...	...	0.0005 U	...
1,1-Dichloroethene	0.01	...	0.00041 U	...	0.00048 U	...	0.00031 U	...	0.0004 U	...	...	0.00039 U	...	...	0.0006 U	...
1,2,3-Trichlorobenzene	0.0021	...	0.00011 UJ	...	0.00013 U	...	0.000084 U	...	0.00011 U	...	...	0.0001 U	...	...	0.00016 U	...
1,2,4-Trichlorobenzene	0.0012	...	0.00032 U	...	0.00037 U	...	0.00024 U	...	0.00032 U	...	...	0.0003 U	...	...	0.00047 U	...
1,2-Dibromo-3-Chloropropane	0.00000014	...	0.00047 U	...	0.00055 U	...	0.00036 U	...	0.00046 U	...	...	0.00045 U	...	...	0.00069 U	...

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--										
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-027	CFSB-028	CFSB-028	CFSB-030	CFSB-030	CFMW-002	CFMW-002	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-010	CFMW-010	CFMW-010	CFMW-012A	CFMW-012A
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		6/13/2016	7/18/2016	7/18/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	5/18/2016	5/18/2016	5/18/2016	5/20/2016	5/20/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.00012 U	...	0.00014 U	...	0.000091 U	...	0.00012 U	...	...	0.00011 U	...	...	0.00018 U	...
1,2-Dichlorobenzene	0.03	...	0.00014 U	...	0.00016 U	...	0.00011 U	...	0.00014 U	...	...	0.00013 U	...	...	0.0002 U	...
1,2-Dichloroethane	0.000048	...	0.00011 U	...	0.00013 U	...	0.000084 U	...	0.00011 U	...	...	0.0001 U	...	...	0.00016 U	...
1,2-Dichloropropane	0.000047	...	0.00017 U	...	0.0002 U	...	0.00013 U	...	0.00017 U	...	...	0.00016 U	...	...	0.00025 U	...
1,3-Dichlorobenzene	--	...	0.00012 U	...	0.00014 U	...	0.000091 U	...	0.00012 U	...	...	0.00011 U	...	...	0.00018 U	...
1,4-Dichlorobenzene	0.00046	...	0.00013 U	...	0.00015 U	...	0.000099 U	...	0.00013 U	...	...	0.00012 U	...	...	0.00019 U	...
2-Hexanone	0.00088	...	0.00095 U	...	0.0011 U	...	0.00072 U	...	0.00093 U	...	...	0.00089 U	...	...	0.0014 U	...
Acetone	0.29	...	0.018 J+	...	0.23 J+	...	0.019 J+	...	0.013 J+	...	...	0.027	...	...	0.031 J	...
Benzene	0.00023	...	0.0011	...	0.00043 J	...	0.00021 J	...	0.0097	...	...	0.00019 U	...	...	0.00029 U	...
Bromochloromethane	0.0021	...	0.00017 U	...	0.0002 U	...	0.00013 U	...	0.00017 U	...	...	0.00016 U	...	...	0.00025 U	...
Bromodichloromethane	0.000036	...	0.00038 U	...	0.00044 U	...	0.00029 U	...	0.00037 U	...	...	0.00036 U	...	...	0.00055 U	...
Bromoform	0.00087	...	0.00013 UJ	...	0.00015 U	...	0.000099 UJ	...	0.00013 U	...	...	0.00012 U	...	...	0.00019 U	...
Bromomethane	0.00019	...	0.00032 U	...	0.00037 U	...	0.00024 U	...	0.00032 U	...	...	0.0003 U	...	...	0.00047 UJ	...
Carbon Disulfide	0.024	...	0.00043 U	...	0.0059	...	0.00033 U	...	0.0019	...	...	0.00063 J	...	...	0.0041 J	...
Carbon Tetrachloride	0.00018	...	0.00043 U	...	0.0005 U	...	0.00033 U	...	0.00042 U	...	...	0.00041 U	...	...	0.00063 U	...
Chlorobenzene	0.0053	...	0.00014 U	...	0.00016 U	...	0.00011 U	...	0.00014 U	...	...	0.00013 U	...	...	0.0002 U	...
Chloroethane	0.59	...	0.00035 U	...	0.00041 U	...	0.00027 U	...	0.00035 U	...	...	0.00033 U	...	...	0.00051 U	...
Chloroform	0.000061	...	0.00021 U	...	0.00024 U	...	0.00016 U	...	0.00021 U	...	...	0.0002 U	...	...	0.00031 U	...
Chloromethane	0.0049	...	0.00038 U	...	0.00044 U	...	0.00029 U	...	0.00037 U	...	...	0.00036 U	...	...	0.00055 UJ	...
Cis-1,2-Dichloroethylene	0.0011	...	0.00022 U	...	0.00026 U	...	0.00017 U	...	0.00022 U	...	...	0.00021 U	...	...	0.00032 U	...
Cis-1,3-Dichloropropene	--	...	0.00015 U	...	0.00017 U	...	0.00011 U	...	0.00015 U	...	...	0.00014 U	...	...	0.00022 U	...
Cyclohexane	1.3	...	0.003	...	0.00054 U	...	0.00035 U	...	0.00052 J+	...	...	0.00044 U	...	...	0.00067 U	...
Dibromochloromethane	0.00023	...	0.00015 U	...	0.00017 U	...	0.00011 U	...	0.00015 U	...	...	0.00014 U	...	...	0.00022 U	...
Dichlorodifluoromethane	0.03	...	0.00032 UJ	...	0.00037 U	...	0.00024 U	...	0.00032 U	...	...	0.0003 U	...	...	0.00047 U	...
Ethylbenzene	0.0017	...	0.0015	...	0.00021 U	...	0.00014 U	...	0.0024	...	...	0.00017 U	...	...	0.00026 U	...
Isopropylbenzene (Cumene)	0.074	...	0.0002 J	...	0.0002 U	...	0.00013 U	...	0.00034 J	...	...	0.00016 U	...	...	0.00025 U	...
M,P-Xylene	--	...	0.0028	...	0.00013 U	...	0.000084 U	...	0.0038	...	...	0.0001 U	...	...	0.00016 U	...
Methyl Acetate	0.41	...	0.00091 U	...	0.001 U	...	0.00069 U	...	0.017 J+	...	...	0.00085 U	...	...	0.0013 U	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.00077 U	...	0.024	...	0.0013 J	...	0.012	...	...	0.00073 U	...	...	0.0011 U	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.00022 U	...	0.0026 U	...	0.0017 U	...	0.00022 U	...	...	0.00021 U	...	...	0.00032 U	...
Methylcyclohexane	--	...	0.0052	...	0.00053 U	...	0.00038 U	...	0.00062 J+	...	...	0.00047 U	...	...	0.00073 U	...
Methylene Chloride	0.0027	...	0.00032 U	...	0.0003 U	...	0.00024 U	...	0.00032 U	...	...	0.0003 U	...	...	0.00047 U	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00094 J	...	0.0011 U	...	0.00012 U	...	0.0016	...	...	0.00015 U	...	...	0.00023 U	...
Styrene	0.13	...	0.00015 U	...	0.00017 U	...	0.00011 U	...	0.00015 U	...	...	0.00014 U	...	...	0.00022 U	...
Tert-Butyl Methyl Ether	0.0032	...	0.00017 U	...	0.0002 U	...	0.00013 U	...	0.00017 U	...	...	0.00016 U	...	...	0.00025 U	...
Tetrachloroethylene (PCE)	0.0018	...	0.00028 U	...	0.00033 U	...	0.00021 U	...	0.00034 J	...	...	0.00027 U	...	...	0.00041 U	...
Toluene	0.076	...	0.0047	...	0.00033 J	...	0.00015 J	...	0.012	...	...	0.00018 U	...	...	0.00032 J	...
Trans-1,2-Dichloroethene	0.011	...	0.00039 U	...	0.00045 U	...	0.0003 U	...	0.00038 U	...	...	0.00037 U	...	...	0.00057 U	...
Trans-1,3-Dichloropropene	--	...	0.0001 U	...	0.00012 U	...	0.000076 U	...	0.000099 U	...	...	0.000095 U	...	...	0.00015 U	...
Trichloroethylene (TCE)	0.0001	...	0.00026 U	...	0.0003 U	...	0.0002 U	...	0.00026 U	...	...	0.00025 U	...	...	0.00038 U	...
Trichlorofluoromethane	0.33	...	0.00034 U	...	0.0004 U	...	0.00026 U	...	0.00034 U	...	...	0.00032 U	...	...	0.0005 U	...
Vinyl Chloride	0.0000065	...	0.00039 U	...	0.00045 U	...	0.0003 U	...	0.00038 U	...	...	0.00037 U	...	...	0.00057 U	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-012A	CFMW-012A-DUP	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-018	CFMW-018	CFMW-018	CFMW-019A	CFMW-019A	CFMW-019A-DUP	CFMW-022	CFMW-022	CFMW-022	CFMW-022-DUP
Sample Depth		0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/20/2016	5/20/2016	6/21/2016	6/21/2016	6/21/2016	5/19/2016	5/19/2016	5/19/2016	5/25/2016	5/25/2016	5/25/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	--	80.8 J-	25.4 J	59.4 J	--	7.71 J-	9.33 J-	--	62.2 J-	37 J-	44.2 J-	9.45 J	17.5 J	--	10.1 J
Cyanide	0.0015	--	0.51	0.018 U	0.32	--	0.018 U	0.018 U	--	0.024 J	0.063 J	0.018 U	0.045 J	0.29	--	0.079 J
METALS																
Aluminum	3000	--	15200	11800	12600	--	9270 J	10900 J	--	18100	9620	15000	9380	10600	--	7860
Antimony	0.035	--	0.45 UJ	0.41 UJ	0.41 UJ	--	0.35 UJ	0.35 UJ	--	0.36 UJ	0.37 UJ	0.39 UJ	0.39 UJ	0.4 UJ	--	0.42 UJ
Arsenic	0.0015	--	5.7 J	5	4.8	--	10.2 J	11.3 J	--	4.3	3.9	3.8	7.8	4.8	--	4.2 J
Barium	16	--	90	125 J	105 J	--	49.9	97.4	--	164	91.7	139	54.1	68.8	--	69.6
Beryllium	1.9	--	0.46	0.38 J	0.61	--	0.4	0.4	--	0.55	0.36	0.62	0.29 J	0.33 J	--	0.27 J
Cadmium	0.069	--	0.35 U	0.31 U	0.31 U	--	0.27 U	0.26 U	--	0.27 U	0.28 U	0.29 U	0.29 U	0.3 U	--	0.32 U
Calcium	--	--	6710 J	16300 J	41300 J	--	67000	59400	--	2280	11200	1820	95300	35000	--	29500 J
Chromium, Total	--	--	12.6	12.2	11.8 J	--	9.4	10.5	--	9.5	8.2	8.7	9.7	10	--	8.2
Cobalt	0.027	--	4.4	6.2	5.1	--	4.7	5.1	--	5.8	3.9	4.5	5.1	4.7	--	4.9
Copper	2.8	--	12.3 J+	16.9	14	--	11.6 J	15.4 J	--	11 J+	13.1 J	11.1 J	15.2	12.3	--	12.1
Iron	35	--	19500	16700	14100	--	14700	14000	--	15100	11000	13400	12600	15300	--	12900
Lead	400	15	8.7 J	8.8 J	23.3 J	20.6	9.8	12.4	9.7	10.3	11.9 J	8.5 J	9.1	9.1	21.6	5.9
Magnesium	--	--	14200 J	11500	9170	--	18800	13100	--	8850	7480	8380	12300	10600	--	11000
Manganese	2.8	--	438	483	446	--	436 J	405 J	--	350	368	297	337	368	--	378
Mercury	0.0033	--	0.014 J	0.076	0.02	--	0.031	0.034	--	0.014 U	0.024	0.013 U	0.031 J+	0.018	--	0.028
Nickel	2.6	--	13.4 J+	12.5	19.2	--	11.8	14.9	--	10.3	9.1	9.1	10.1	11.7	--	10.1
Potassium	--	--	845 J	984	1100	--	861	1160	--	1200 J+	847	1200	727	593	--	657
Selenium	0.052	--	0.43 U	0.38 U	0.38 U	--	0.33 U	0.32 U	--	0.34 U	0.34 U	0.36 U	0.36 U	0.37 U	--	0.39 U
Silver	0.08	--	0.83 U	0.75 U	0.75 U	--	0.64 U	0.63 U	--	0.66 U	0.67 U	0.71 U	0.71 U	0.73 U	--	0.77 U
Sodium	--	--	53.7 J	39 J	68.3 J	--	32.8 U	32.4 U	--	94.3	34.2 U	77.5 J	36.2 U	37.1 U	--	39.4 U
Thallium	0.0014	--	0.17 U	0.15 U	0.15 U	--	0.13 U	0.13 U	--	0.14 J	0.14 U	0.15 U	0.15 U	0.15 U	--	0.16 U
Vanadium	8.6	--	12.4	9.7	12.2	--	8.7	10.4	--	14.6	8.6	12.6	7.2	10.7	--	6.4
Zinc	37	--	45 J	47.9	45.4	--	37.8	41.3	--	39.6	34.6	37.9	30.4	39	--	32.6

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-012A	CFMW-012A-DUP	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-018	CFMW-018	CFMW-018	CFMW-019A	CFMW-019A	CFMW-019A-DUP	CFMW-022	CFMW-022	CFMW-022	CFMW-022-DUP
Sample Depth		0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/20/2016	5/20/2016	6/21/2016	6/21/2016	6/21/2016	5/19/2016	5/19/2016	5/19/2016	5/25/2016	5/25/2016	5/25/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016
PESTICIDES																
Aldrin	0.00015	---	---	---	0.0009 U	---	---	0.00091 U	---	---	0.0009 U	---	---	0.00092 U	---	---
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	---	---	---	0.00068 U	---	---	0.00068 U	---	---	0.00068 U	---	---	0.0007 U	---	---
Alpha Endosulfan	--	---	---	---	0.001 U	---	---	0.001 U	---	---	0.001 U	---	---	0.0011 U	---	---
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	---	---	---	0.00072 U	---	---	0.00073 U	---	---	0.00072 U	---	---	0.00074 U	---	---
Beta Endosulfan	--	---	---	---	0.0012 U	---	---	0.0012 U	---	---	0.0012 U	---	---	0.0012 U	---	---
cis-Chlordane	--	---	---	---	0.0012 U	---	---	0.0012 U	---	---	0.0012 U	---	---	0.0012 U	---	---
Delta BHC (Delta Hexachlorocyclohexane)	--	---	---	---	0.00081 U	---	---	0.00082 U	---	---	0.00081 U	---	---	0.00083 U	---	---
Dieldrin	0.000071	---	---	---	0.00097 U	---	---	0.00098 U	---	---	0.00097 U	---	---	0.00099 U	---	---
Endosulfan Sulfate	--	---	---	---	0.00087 U	---	---	0.00087 U	---	---	0.00087 U	---	---	0.00088 U	---	---
Endrin	0.0092	---	---	---	0.00095 U	---	---	0.00095 U	---	---	0.00094 U	---	---	0.00097 U	---	---
Endrin Aldehyde	--	---	---	---	0.00093 U	---	---	0.00093 U	---	---	0.00092 U	---	---	0.00095 U	---	---
Endrin Ketone	--	---	---	---	0.001 U	---	---	0.001 U	---	---	0.001 U	---	---	0.0011 U	---	---
Gamma Bhc (Lindane)	0.00024	---	---	---	0.00067 U	---	---	0.00068 U	---	---	0.00067 U	---	---	0.00068 U	---	---
Heptachlor	0.00012	---	---	---	0.00096 U	---	---	0.00097 U	---	---	0.00096 U	---	---	0.00098 U	---	---
Heptachlor Epoxide	0.000028	---	---	---	0.0015 U	---	---	0.0015 U	---	---	0.0015 U	---	---	0.0015 U	---	---
Methoxychlor	0.2	---	---	---	0.0016 U	---	---	0.0016 U	---	---	0.0016 U	---	---	0.0016 U	---	---
P,P'-DDD	0.0075	---	---	---	0.00098 U	---	---	0.00099 U	---	---	0.00098 U	---	---	0.001 U	---	---
P,P'-DDE	0.011	---	---	---	0.0011 U	---	---	0.0011 U	---	---	0.0011 U	---	---	0.0011 U	---	---
P,P'-DDT	0.077	---	---	---	0.00077 U	---	---	0.00077 U	---	---	0.00077 U	---	---	0.00078 U	---	---
Toxaphene	0.011	---	---	---	0.022 U	---	---	0.022 U	---	---	0.022 U	---	---	0.022 U	---	---
trans-Chlordane	--	---	---	---	0.0016 U	---	---	0.0016 U	---	---	0.0016 U	---	---	0.0017 U	---	---
PCB's																
PCB-1016 (Aroclor 1016)	0.013	---	0.01 U	0.0096 U	0.0099 U	---	0.01 U	0.01 U	---	0.011 U	0.0099 U	0.01 U	0.0094 U	0.01 U	---	0.0094 U
PCB-1221 (Aroclor 1221)	0.00008	---	0.01 U	0.0096 U	0.0099 U	---	0.01 U	0.01 U	---	0.011 U	0.0099 U	0.01 U	0.0094 U	0.01 U	---	0.0094 U
PCB-1232 (Aroclor 1232)	0.00008	---	0.01 U	0.0096 U	0.0099 U	---	0.01 U	0.01 U	---	0.011 U	0.0099 U	0.01 U	0.0094 U	0.01 U	---	0.0094 U
PCB-1242 (Aroclor 1242)	0.0012	---	0.01 U	0.0096 U	0.0099 U	---	0.01 U	0.01 U	---	0.011 U	0.0099 U	0.01 U	0.0094 U	0.01 U	---	0.0094 U
PCB-1248 (Aroclor 1248)	0.0012	---	0.01 U	0.0096 U	0.0099 U	---	0.01 U	0.01 U	---	0.011 U	0.0099 U	0.01 U	0.0094 U	0.01 U	---	0.0094 U
PCB-1254 (Aroclor 1254)	0.002	---	0.011 U	0.0099 U	0.01 U	---	0.01 U	0.01 U	---	0.011 U	0.01 U	0.011 U	0.0097 U	0.01 U	---	0.0097 U
PCB-1260 (Aroclor 1260)	0.0055	---	0.011 U	0.0099 U	0.01 U	---	0.01 U	0.01 U	---	0.011 U	0.01 U	0.011 U	0.0097 U	0.01 U	---	0.0097 U
PCB-1262 (Aroclor 1262)	--	---	0.011 U	0.0099 U	0.01 U	---	0.01 U	0.01 U	---	0.011 U	0.01 U	0.011 U	0.0097 U	0.01 U	---	0.0097 U
PCB-1268 (Aroclor 1268)	--	---	0.011 U	0.0099 U	0.01 U	---	0.01 U	0.01 U	---	0.011 U	0.01 U	0.011 U	0.0097 U	0.01 U	---	0.0097 U
Polychlorinated Biphenyl (PCBs)	--	---	0.011 U	0.0099 U	0.01 U	---	0.01 U	0.01 U	---	0.011 U	0.01 U	0.011 U	0.0097 U	0.01 U	---	0.0097 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	---	0.029 U	0.027 U	0.027 U	---	0.028 U	0.028 U	---	0.029 U	0.027 U	0.029 U	0.026 U	0.028 U	---	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	---	0.1 U	0.095 U	0.098 U	---	0.1 U	0.098 U	---	0.1 U	0.098 U	0.1 U	0.093 U	0.1 U	---	0.093 U
2,3,4,6-Tetrachlorophenol	0.018	---	0.036 U	0.034 U	0.035 U	---	0.035 U	0.035 U	---	0.037 UJ	0.035 U	0.036 U	0.033 U	0.035 U	---	0.033 U
2,4,5-Trichlorophenol	0.4	---	0.039 U	0.037 U	0.037 U	---	0.037 U	0.037 U	---	0.039 UJ	0.037 U	0.038 U	0.035 U	0.037 U	---	0.035 U
2,4,6-Trichlorophenol	0.0012	---	0.011 U	0.01 U	0.01 U	---	0.011 U	0.011 U	---	0.011 UJ	0.01 U	0.011 U	0.0099 U	0.011 U	---	0.0099 U
2,4-Dichlorophenol	0.0023	---	0.0091 U	0.0084 U	0.0087 U	---	0.0088 U	0.0087 U	---	0.0092 UJ	0.0087 U	0.0091 U	0.0082 U	0.0089 U	---	0.0082 U
2,4-Dimethylphenol	0.042	---	0.085 U	0.079 U	0.081 U	---	0.082 U	0.081 U	---	0.086 UJ	0.081 U	0.085 U	0.077 U	0.083 U	---	0.077 U
2,4-Dinitrophenol	0.0044	---	0.29 U	0.27 U	0.28 U	---	0.28 U	0.28 U	---	0.3 UJ	0.28 U	0.29 U	0.26 U	0.28 U	---	0.26 U
2,4-Dinitrotoluene	0.00032	---	0.015 U	0.014 U	0.015 U	---	0.015 U	0.015 U	---	0.015 U	0.015 U	0.015 U	0.014 U	0.015 U	---	0.014 U
2,6-Dinitrotoluene	0.000067	---	0.021 U	0.019 U	0.02 U	---	0.02 U	0.02 U	---	0.021 U	0.02 U	0.021 U	0.019 U	0.02 U	---	0.019 U
2-Chloronaphthalene	0.39	---	0.0088 U	0.0081 U	0.0083 U	---	0.0085 U	0.0084 U	---	0.0089 U	0.0083 U	0.0088 U	0.0079 U	0.0085 U	---	0.0079 U
2-Chlorophenol	0.0089	---	0.0098 U	0.0091 U	0.0094 U	---	0.0095 U	0.0094 U	---	0.0099 UJ	0.0093 U	0.0098 U	0.0089 U	0.0096 U	---	0.0089 U
2-Methylnaphthalene	0.019	---	0.0086 U	0.0079 U	0.11 J	---	0.0083 U	0.0082 U	---	0.0086 U	0.0084 J	0.0085 U	0.0077 U	0.0083 U	---	0.0077 U
2-Methylphenol (O-Cresol)	0.075	---	0.017 U	0.016 U	0.016 U	---	0.016 U	0.016 U	---	0.017 U	0.016 U	0.017 U	0.015 U	0.016 U	---	0.015 U
2-Nitroaniline	0.008	---	0.013 U	0.012 U	0.012 U	---	0.012 U	0.012 U	---	0.013 U	0.012 U	0.013 U	0.012 U	0.012 U	---	0.011 U
2-Nitrophenol	--	---	0.013 U	0.012 U	0.012 U	---	0.013 U	0.012 U	---	0.013 UJ	0.012 U	0.013 U	0.012 U	0.013 U	---	0.012 U
3- And 4- Methylphenol (Total)	--	---	0.01 U	0.0095 U	0.0098 U	---	0.01 U	0.0099 U	---	0.01 U	0.0098 U	0.01 U	0.0093 U	0.01 U	---	0.0093 U
3,3'-Dichlorobenzidine	0.00082	---	0.043 U	0.04 U	0.041 U	---	0.042 U	0.041 U	---	0.044 U	0.041 U	0.043 U	0.039 U	0.042 U	---	0.039 U
3-Nitroaniline	--	---	0.011 U	0.011 U	0.011 U	---	0.011 U	0.011 U	---	0.012 U	0.011 U	0.011 U	0.01 U	0.011 U	---	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	---	0.1 U	0.095 U	0.098 U	---	0.1 U	0.098 U	---	0.1 UJ	0.098 U	0.1 U	0.093 U	0.1 U	---	0.093 U
4-Bromophenyl Phenyl Ether	--	---	0.012 U	0.011 U	0.012 U	---	0.012 U	0.012 U	---	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	---	0.011 U
4-Chloro-3-Methylphenol	0.17	---	0.017 U	0.015 U	0.016 U	---	0.016 U	0.016 U	---	0.017 U	0.016 U	0.017 U	0.015 U	0.016 U	---	0.015 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-012A	CFMW-012A-DUP	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-018	CFMW-018	CFMW-018	CFMW-019A	CFMW-019A	CFMW-019A-DUP	CFMW-022	CFMW-022	CFMW-022	CFMW-022-DUP
Sample Depth		0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/20/2016	5/20/2016	6/21/2016	6/21/2016	6/21/2016	5/19/2016	5/19/2016	5/19/2016	5/25/2016	5/25/2016	5/25/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016
4-Chloroaniline	0.00016	...	0.01 U	0.0092 U	0.0095 U	...	0.0096 U	0.0095 U	...	0.01 U	0.0094 U	0.0099 U	0.009 U	0.0097 U	...	0.009 U
4-Chlorophenyl Phenyl Ether	--	...	0.012 U	0.011 U	0.011 U	...	0.011 U	0.011 U	...	0.012 U	0.011 U	0.012 U	0.01 U	0.011 U	...	0.01 U
4-Nitroaniline	0.0016	...	0.015 U	0.013 U	0.014 U	...	0.014 U	0.014 U	...	0.15 U	0.014 U	0.015 U	0.013 U	0.014 U	...	0.013 U
4-Nitrophenol	--	...	0.19 U	0.17 U	0.18 U	...	0.18 U	0.18 U	...	0.19 U	0.18 U	0.19 U	0.17 U	0.18 U	...	0.17 U
Acenaphthene	0.55	...	0.012 J	0.0086 U	0.7	...	0.0091 U	0.009 U	...	0.0095 U	0.058 J	0.023 J	0.0084 U	0.0091 U	...	0.0084 U
Acenaphthylene	--	...	0.01 U	0.0092 U	0.0095 U	...	0.0096 U	0.0095 U	...	0.01 U	0.0094 U	0.0099 U	0.009 U	0.0097 U	...	0.009 U
Acetophenone	0.058	...	0.0084 U	0.0078 U	0.008 U	...	0.0082 U	0.0081 U	...	0.0085 U	0.009 U	0.0084 U	0.0076 U	0.0082 U	...	0.0076 U
Anthracene	5.8	...	0.037 U	0.034 U	1.2	...	0.036 U	0.035 U	...	0.037 U	0.093 J	0.037 U	0.033 U	0.036 U	...	0.033 U
Atrazine	0.0002	...	0.017 U	0.016 U	0.016 U	...	0.017 U	0.016 U	...	0.017 U	0.016 U	0.017 U	0.016 U	0.017 U	...	0.016 U
Benzaldehyde	0.0041	...	0.03 U	0.027 U	0.028 U	...	0.029 U	0.028 U	...	0.03 UJ	0.028 U	0.029 U	0.027 U	0.029 U	...	0.027 U
Benzo(A)Anthracene	0.011	...	0.049	0.03 U	2.7	...	0.038	0.15	...	0.048	0.34	0.13	0.097 J	0.069	...	0.029 UJ
Benzo(A)Pyrene	0.018	...	0.048	0.015 J	2.8	...	0.046	0.21	...	0.049	0.43	0.17	0.011 U	0.077	...	0.011 U
Benzo(B)Fluoranthene	0.18	...	0.061	0.02 J	3.3	...	0.069	0.33	...	0.073	0.62	0.23	0.35 J	0.23	...	0.014 UJ
Benzo(G,H,I)Perylene	--	...	0.042 J+	0.021 U	4.2	...	0.045 J	0.24 J	...	0.04 J	0.39	0.13 J	0.02 U	0.086 J	...	0.02 U
Benzo(K)Fluoranthene	1.8	...	0.031 J	0.016 U	1.3	...	0.023 J	0.12	...	0.028 J	0.22	0.09	0.075 J	0.078	...	0.015 UJ
Benzyl Butyl Phthalate	0.24	...	0.012 U	0.011 U	0.011 U	...	0.012 U	0.011 U	...	0.028 J	0.011 U	0.012 U	0.011 U	0.012 U	...	0.011 U
Biphenyl (Diphenyl)	0.00087	...	0.033 U	0.03 U	0.035 J	...	0.032 U	0.032 U	...	0.033 U	0.031 U	0.033 U	0.03 U	0.032 U	...	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	...	0.012 U	0.011 U	0.011 U	...	0.012 U	0.012 U	...	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U	...	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	...	0.0091 U	0.0084 U	0.0087 U	...	0.0088 U	0.0087 U	...	0.0092 U	0.0087 U	0.0091 U	0.0082 U	0.0089 U	...	0.0082 U
Bis(2-Chloroisopropyl) Ether	0.026	...	0.016 U	0.015 U	0.015 U	...	0.015 U	0.015 U	...	0.016 U	0.015 U	0.016 U	0.014 U	0.015 U	...	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	...	0.015 U	0.014 U	0.014 U	...	0.015 U	0.062 J	...	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	...	0.014 U
Caprolactam	0.25	...	0.028 UJ	0.026 U	0.026 U	...	0.027 U	0.027 U	...	0.028 UJ	0.026 U	0.028 U	0.025 U	0.027 U	...	0.025 U
Carbazole	--	...	0.0096 UJ	0.0089 U	0.74	...	0.0093 U	0.018 J	...	0.0097 U	0.063 J	0.021 J	0.0087 U	0.0093 U	...	0.0086 U
Chrysene	9	...	0.06 J	0.013 J	3.1	...	0.048 J	0.22 J	...	0.053 J	0.46	0.19 J	0.19 J	0.14 J	...	0.0095 UJ
Dibenz(A,H)Anthracene	0.096	...	0.02 U	0.019 U	0.91	...	0.019 U	0.04 J+	...	0.02 U	0.1	0.039 J+	0.018 U	0.025 J	...	0.018 U
Dibenzofuran	0.015	...	0.012 U	0.011 U	0.3 J	...	0.011 U	0.011 U	...	0.012 U	0.027 J	0.012 U	0.011 U	0.011 U	...	0.011 U
Diethyl Phthalate	0.61	...	0.011 U	0.01 U	0.01 U	...	0.011 U	0.011 U	...	0.011 U	0.01 U	0.011 U	0.0099 U	0.011 U	...	0.0099 U
Dimethyl Phthalate	--	...	0.011 U	0.01 U	0.011 U	...	0.011 U	0.011 U	...	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	...	0.01 U
Di-N-Butyl Phthalate	0.23	...	0.012 U	0.011 U	0.023 J	...	0.011 U	0.011 U	...	0.012 U	0.011 U	0.012 U	0.01 U	0.011 U	...	0.01 U
Di-N-Octylphthalate	5.7	...	0.02 U	0.018 U	0.019 U	...	0.019 U	0.019 U	...	0.02 U	0.019 U	0.02 U	0.018 U	0.019 U	...	0.018 U
Fluoranthene	8.9	...	0.09 J	0.017 J	6.1	...	0.047 J	0.22 J	...	0.071 J	0.66	0.25 J	0.13 J	0.12 J	...	0.01 UJ
Fluorene	0.54	...	0.0085 J	0.0078 U	0.58	...	0.0082 U	0.0081 U	...	0.0085 U	0.046 J	0.018 J	0.0076 U	0.0082 U	...	0.0076 U
Hexachlorobenzene	0.00012	...	0.016 U	0.014 U	0.015 U	...	0.015 U	0.015 U	...	0.016 U	0.015 U	0.016 U	0.014 U	0.015 U	...	0.014 U
Hexachlorobutadiene	0.00027	...	0.011 U	0.01 U	0.01 U	...	0.011 U	0.01 U	...	0.011 U	0.01 U	0.011 U	0.0098 U	0.011 U	...	0.0098 U
Hexachlorocyclopentadiene	0.00013	...	0.024 U	0.022 U	0.023 U	...	0.023 U	0.023 U	...	0.024 UJ	0.023 U	0.024 UJ	0.022 U	0.023 U	...	0.022 U
Hexachloroethane	0.0002	...	0.014 U	0.013 U	0.013 U	...	0.014 U	0.014 U	...	0.014 U	0.013 U	0.014 U	0.013 U	0.014 U	...	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	...	0.046 J+	0.024 U	3.9	...	0.038 J+	0.23 J+	...	0.045 J+	0.42	0.14 J+	0.023 U	0.088	...	0.023 U
Isophorone	0.026	...	0.0083 U	0.0077 U	0.0079 U	...	0.008 U	0.008 U	...	0.0084 U	0.0079 U	0.0083 U	0.0075 U	0.0081 U	...	0.0075 U
Naphthalene	0.00054	...	0.0098 U	0.0091 U	0.29 J	...	0.0095 U	0.0094 U	...	0.0099 U	0.016 J	0.01 J	0.0089 U	0.0096 U	...	0.0089 U
Nitrobenzene	0.000092	...	0.012 U	0.011 U	0.012 U	...	0.012 U	0.012 U	...	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	...	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	...	0.013 U	0.012 U	0.012 U	...	0.013 U	0.012 U	...	0.013 U	0.012 U	0.013 U	0.012 U	0.013 U	...	0.012 U
N-Nitrosodiphenylamine	0.067	...	0.035 U	0.032 U	0.033 U	...	0.034 U	0.034 U	...	0.035 UJ	0.033 U	0.035 U	0.032 U	0.034 U	...	0.032 U
Pentachlorophenol	0.000057	...	0.047 U	0.043 U	0.045 U	...	0.045 U	0.045 U	...	0.047 UJ	0.044 U	0.047 U	0.042 U	0.046 U	...	0.042 U
Phenanthrene	--	...	0.073 J	0.014 J	5.7	...	0.027 J	0.093 J	...	0.05 J	0.46	0.16 J	0.0093 U	0.047 J	...	0.0093 U
Phenol	0.33	...	0.013 U	0.012 U	0.012 U	...	0.012 U	0.012 U	...	0.013 U	0.012 U	0.013 U	0.011 U	0.012 U	...	0.011 U
Pyrene	1.3	...	0.092 J	0.018 J	6.4	...	0.063 J	0.27 J	...	0.071 J	0.6	0.24 J	0.12 J	0.1 J	...	0.016 UJ
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	...	0.0004 U	0.00034 U	...	...	0.00042 U	...	...	0.00036 U	...	0.00034 U	0.00032 U	...	...	0.00034 U
1,1,2,2-Tetrachloroethane	0.00003	...	0.00018 U	0.00015 U	...	...	0.00019 U	...	...	0.00016 U	...	0.00015 U	0.00014 U	...	...	0.00015 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	...	0.00046 U	0.00039 U	...	...	0.00048 U	...	...	0.00042 U	...	0.0004 U	0.00037 U	...	...	0.00039 U
1,1,2-Trichloroethane	0.000013	...	0.00029 U	0.00025 U	...	...	0.00031 U	...	...	0.00027 U	...	0.00025 U	0.00024 U	...	...	0.00025 U
1,1-Dichloroethane	0.00078	...	0.00035 U	0.0003 U	...	...	0.00037 U	...	...	0.00033 U	...	0.00031 U	0.00029 U	...	...	0.0003 U
1,1-Dichloroethene	0.01	...	0.00043 U	0.00037 U	...	...	0.00045 U	...	...	0.00039 U	...	0.00037 U	0.00034 U	...	...	0.00036 U
1,2,3-Trichlorobenzene	0.0021	...	0.00011 U	0.000059 U	...	...	0.00012 U	...	...	0.00011 U	...	0.000069 U	0.000093 U	...	...	0.000097 U
1,2,4-Trichlorobenzene	0.0012	...	0.00033 U	0.00029 U	...	...	0.00035 U	...	...	0.00031 U	...	0.00029 U	0.00027 U	...	...	0.00028 U
1,2-Dibromo-3-Chloropropane	0.00000014	...	0.00049 U	0.00042 U	...	...	0.00052 U	...	...	0.00045 U	...	0.00042 U	0.0004 U	...	...	0.00042 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-012A	CFMW-012A-DUP	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-018	CFMW-018	CFMW-018	CFMW-019A	CFMW-019A	CFMW-019A-DUP	CFMW-022	CFMW-022	CFMW-022	CFMW-022-DUP
Sample Depth		0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/20/2016	5/20/2016	6/21/2016	6/21/2016	6/21/2016	5/19/2016	5/19/2016	5/19/2016	5/25/2016	5/25/2016	5/25/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.00012 U	0.00011 U	...	...	0.00013 U	...	...	0.00011 U	...	0.00011 U	0.0001 U	...	...	0.00011 U
1,2-Dichlorobenzene	0.03	...	0.00015 U	0.00013 U	...	...	0.00015 U	...	...	0.00013 U	...	0.00013 U	0.00012 U	...	...	0.00012 U
1,2-Dichloroethane	0.000048	...	0.00011 U	0.000059 U	...	...	0.00012 U	...	...	0.00011 U	...	0.000089 U	0.000093 U	...	...	0.000097 U
1,2-Dichloropropane	0.000047	...	0.00018 U	0.00015 U	...	...	0.00019 U	...	...	0.00016 U	...	0.00015 U	0.00014 U	...	...	0.00015 U
1,3-Dichlorobenzene	--	...	0.00012 U	0.00011 U	...	...	0.00013 U	...	...	0.00011 U	...	0.00011 U	0.0001 U	...	...	0.00011 U
1,4-Dichlorobenzene	0.00046	...	0.00014 U	0.00012 U	...	...	0.00014 U	...	...	0.00012 U	...	0.00012 U	0.00011 U	...	...	0.00012 U
2-Hexanone	0.00088	...	0.00098 U	0.00084 U	...	...	0.001 U	...	...	0.0009 U	...	0.00085 U	0.00079 U	...	...	0.00083 U
Acetone	0.29	...	0.011 J	0.024 J+	...	...	0.0088	...	...	0.001 UJ	...	0.049 J	0.02	...	...	0.022
Benzene	0.00023	...	0.00021 U	0.00034 J	...	...	0.00022 U	...	...	0.00023 J	...	0.0009 J	0.00017 U	...	...	0.00018 U
Bromochloromethane	0.0021	...	0.00018 U	0.00015 U	...	...	0.00019 U	...	...	0.00016 U	...	0.00015 U	0.00014 U	...	...	0.00015 U
Bromodichloromethane	0.000036	...	0.0004 U	0.00034 U	...	...	0.00042 U	...	...	0.00036 U	...	0.00034 U	0.00032 U	...	...	0.00034 U
Bromoform	0.00087	...	0.00014 U	0.00012 U	...	...	0.00014 U	...	...	0.00012 U	...	0.00012 U	0.00011 U	...	...	0.00012 U
Bromomethane	0.00019	...	0.00033 U	0.00029 U	...	...	0.00035 U	...	...	0.00031 U	...	0.00029 UJ	0.00027 U	...	...	0.00028 U
Carbon Disulfide	0.024	...	0.0019 J	0.0005 J	...	...	0.00047 U	...	...	0.00041 U	...	0.00039 U	0.0014 J	...	...	0.0024 J
Carbon Tetrachloride	0.00018	...	0.00045 U	0.00039 U	...	...	0.00047 U	...	...	0.00041 U	...	0.00039 U	0.00036 U	...	...	0.00038 U
Chlorobenzene	0.0053	...	0.00015 U	0.00013 U	...	...	0.00015 U	...	...	0.00013 U	...	0.00013 U	0.00012 U	...	...	0.00012 U
Chloroethane	0.59	...	0.00036 U	0.00031 U	...	...	0.00039 U	...	...	0.00033 U	...	0.00032 UJ	0.00029 U	...	...	0.00031 U
Chloroform	0.000061	...	0.00022 U	0.00019 U	...	...	0.00023 U	...	...	0.0002 U	...	0.00019 U	0.00018 U	...	...	0.00019 U
Chloromethane	0.0049	...	0.0004 U	0.00034 U	...	...	0.00042 U	...	...	0.00036 U	...	0.00034 U	0.00032 U	...	...	0.00034 U
Cis-1,2-Dichloroethylene	0.0011	...	0.00023 U	0.0002 U	...	...	0.00025 U	...	...	0.00021 U	...	0.0002 U	0.00019 U	...	...	0.00019 U
Cis-1,3-Dichloropropene	--	...	0.00016 U	0.00013 U	...	...	0.00017 U	...	...	0.00014 U	...	0.00014 U	0.00013 U	...	...	0.00013 U
Cyclohexane	1.3	...	0.00048 U	0.00041 U	...	...	0.00051 U	...	...	0.00044 U	...	0.00041 U	0.00039 U	...	...	0.00041 U
Dibromochloromethane	0.00023	...	0.00016 U	0.00013 U	...	...	0.00017 U	...	...	0.00014 U	...	0.00014 U	0.00013 U	...	...	0.00013 U
Dichlorodifluoromethane	0.03	...	0.00033 U	0.00029 U	...	...	0.00035 U	...	...	0.00031 U	...	0.00029 U	0.00027 U	...	...	0.00028 U
Ethylbenzene	0.0017	...	0.00019 U	0.00016 U	...	...	0.0002 U	...	...	0.00017 U	...	0.00016 U	0.00015 U	...	...	0.00016 U
Isopropylbenzene (Cumene)	0.074	...	0.00018 U	0.00015 U	...	...	0.00019 U	...	...	0.00016 U	...	0.00015 U	0.00014 U	...	...	0.00015 U
M,P-Xylene	--	...	0.00011 U	0.000099 U	...	...	0.00012 U	...	...	0.00011 U	...	0.000089 U	0.00012 J	...	...	0.0002 J
Methyl Acetate	0.41	...	0.00094 U	0.00081 U	...	...	0.00099 U	...	...	0.00086 UJ	...	0.0058 J	0.00076 U	...	...	0.0008 U
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.0008 U	0.0017 J	...	...	0.00085 U	...	...	0.00074 U	...	0.00069 U	0.00065 U	...	...	0.00068 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.0023 U	0.002 U	...	...	0.0024 U	...	...	0.0021 U	...	0.002 U	0.0019 U	...	...	0.002 U
Methylcyclohexane	--	...	0.00052 U	0.00045 U	...	...	0.00055 U	...	...	0.00048 U	...	0.00045 U	0.00042 U	...	...	0.00047 J
Methylene Chloride	0.0027	...	0.00033 U	0.00029 U	...	...	0.00035 U	...	...	0.00031 U	...	0.00029 U	0.00027 U	...	...	0.00028 U
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00017 U	0.00014 U	...	...	0.00018 U	...	...	0.00015 U	...	0.00014 U	0.00013 U	...	...	0.00014 U
Styrene	0.13	...	0.00016 U	0.00013 U	...	...	0.00017 U	...	...	0.00014 U	...	0.00014 U	0.00013 U	...	...	0.00013 U
Tert-Butyl Methyl Ether	0.0032	...	0.00018 U	0.00015 U	...	...	0.00019 U	...	...	0.00016 U	...	0.00015 U	0.00014 U	...	...	0.00015 U
Tetrachloroethylene (PCE)	0.0018	...	0.00029 U	0.00025 U	...	...	0.00031 U	...	...	0.00027 U	...	0.00025 U	0.00024 U	...	...	0.00025 U
Toluene	0.076	...	0.0002 J	0.00044 J	...	...	0.00022 J	...	...	0.0002 J	...	0.00027 J	0.00021 J	...	...	0.00036 J
Trans-1,2-Dichloroethene	0.011	...	0.00041 U	0.00035 U	...	...	0.00043 U	...	...	0.00037 U	...	0.00035 U	0.00033 U	...	...	0.00035 U
Trans-1,3-Dichloropropene	--	...	0.0001 U	0.000089 U	...	...	0.00011 U	...	...	0.000096 U	...	0.00009 U	0.000084 U	...	...	0.000089 U
Trichloroethylene (TCE)	0.0001	...	0.00027 U	0.00023 U	...	...	0.00029 U	...	...	0.00025 U	...	0.00023 U	0.00022 U	...	...	0.00023 U
Trichlorofluoromethane	0.33	...	0.00035 U	0.0003 U	...	...	0.00037 U	...	...	0.00033 U	...	0.00031 U	0.00029 U	...	...	0.0003 U
Vinyl Chloride	0.0000065	...	0.00041 U	0.00035 U	...	...	0.00043 U	...	...	0.00037 U	...	0.00035 U	0.00033 U	...	...	0.00035 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-023A	CFMW-023A	CFMW-023A	CFMW-029	CFMW-029	CFSB-001	CFSB-001	CFSB-002	CFSB-002	CFSB-003	CFSB-003	CFSB-004	CFSB-004	CFSB-005	CFSB-005
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		6/17/2016	6/17/2016	6/17/2016	5/18/2016	5/18/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	58.5	109 J-	--	50.3 J-	105 J-	53.7 J	56.5 J	28 J	22.4 J	16.3 J	26.9 J	39 J	34.1 J	20.4 J	11.6 J
Cyanide	0.0015	0.02 J	0.057 J	--	0.058 J	0.21	0.046 J	0.39	0.1 J	0.1 J	0.038 J	0.078 J	0.6	0.25	0.026 J	0.21
METALS																
Aluminum	3000	16100	20200	--	11900	19500	10100	20400	11600	10500	12100	15900	8960	8890	13200	11300
Antimony	0.035	0.47 UJ	0.42 UJ	--	0.31 UJ	0.33 UJ	0.37 U	0.44 U	0.4 U	0.37 U	0.37 UJ	0.4 UJ	0.36 U	0.34 U	0.38 UJ	0.38 UJ
Arsenic	0.0015	8.4	6.1	--	4.5	5.4	3.2	7.3	5.3	5.2	12 J	7.9 J	3.7	4.4	3.7 J	5.6 J
Barium	16	111	166	--	126	81.5	75.6	265	62.7	90.2	76.5	121	204	77.7	102	111
Beryllium	1.9	0.6	0.55	--	0.48	0.99	0.4	0.81	0.54	0.4	0.43	0.49	0.42	0.44	0.47	0.48
Cadmium	0.069	0.36 U	0.32 U	--	0.26 U	0.27 J	0.29 U	0.33 U	0.31 U	0.28 U	0.28 U	0.3 U	0.78 J	0.26 U	0.29 U	0.29 U
Calcium	--	2160 J	4540 J	--	21800	25400	6770	6020	24800	10600	38600	7630	14100	39100	17000	86800
Chromium, Total	--	15.5	8.7	--	10.4	15.5	8.2	12.5	9.9	7.8	10.5	12.5	9.5	9.6	13.2	8.9
Cobalt	0.027	6.9 J+	6 J+	--	5.6	5.8	4.1	6	5.2	4.3	6.1 J-	6.7 J-	4.2	4.1	11.7 J-	4.1 J-
Copper	2.8	11.9 J	8 J	--	28.6	16.4	8.9	21.8	34	7260	20.5 J+	17.7 J+	13.9	11.8	13.7 J+	12.5 J+
Iron	35	18100	12800	--	13500	13700	11100	16200	14800	11500	16000	18800	13400	10900	25000	12900
Lead	400	13.6	13.4	12	12.1	48	9.1	18.5	11.1	10.5	13.4 J	12.1 J	16.6	18.1	7.7 J	12.4 J
Magnesium	--	12400	8920	--	9500	11500	7940	9090	12700	9420	14200	14100	7930	7820	13400	15600
Manganese	2.8	442	444	--	429	333	331	521	436	385	397	443	886	361	433	446
Mercury	0.0033	0.04	0.014 U	--	0.015 J	0.019	0.017 J	0.021	0.026	0.026	0.012 U	0.015 U	0.012 U	0.013 U	0.013 U	0.013 U
Nickel	2.6	12 J-	89 J-	--	13.6	46.5	10.5	18.4	12.7	11.2	12.3	17	13.8	10.7	13.9	14.6
Potassium	--	1380	1010	--	814	1100	593	1310	795	828	1060 J+	1400 J+	842	772	1150 J+	1060 J+
Selenium	0.052	0.44 U	0.39 U	--	0.32 U	1 J	0.34 U	0.67 J	0.36 U	0.35 U	0.34 U	0.37 U	0.35 J	0.32 U	0.35 U	0.36 U
Silver	0.08	0.87 U	0.77 U	--	0.63 U	0.6 U	0.67 U	0.8 U	0.74 U	0.68 U	0.67 U	0.73 U	0.65 U	0.62 U	0.69 U	0.7 U
Sodium	--	44.2 U	72.6 J	--	58.1 J	209	38.1 J	104 J	37.6 U	34.7 U	34.3 U	37.2 J	48.2 J	31.7 U	35.2 U	49.5 J
Thallium	0.0014	0.18 U	0.16 U	--	0.13 U	0.14 J	0.14 U	0.16 U	0.15 U	0.14 U	0.14 U	0.15 U	0.14 J	0.13 U	0.14 U	0.14 U
Vanadium	8.6	15.4	21.7	--	11.1	22.8	8.3	15.6	8.1	9.3	9.2	11.2	10.5	8.1	20.7	10.6
Zinc	37	45.7	54.5	--	61.5	114	50.4	66.8	40.9	40.9	44.3	58.1	113	63.2	63.2	44.3

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-023A	CFMW-023A	CFMW-023A	CFMW-029	CFMW-029	CFSB-001	CFSB-001	CFSB-002	CFSB-002	CFSB-003	CFSB-003	CFSB-004	CFSB-004	CFSB-005	CFSB-005
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		6/17/2016	6/17/2016	6/17/2016	5/18/2016	5/18/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016
PESTICIDES																
Aldrin	0.00015	...	0.00095 U	...	...	0.00087 U	...	...	...	...	...	...	...	...	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	0.00072 U	...	...	0.00065 U	...	...	...	...	...	...	...	...	...	...
Alpha Endosulfan	--	...	0.0011 U	...	...	0.001 U	...	...	...	...	...	...	...	...	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	0.00077 U	...	...	0.0007 U	...	...	...	...	...	...	...	...	...	...
Beta Endosulfan	--	...	0.0012 U	...	...	0.0011 U	...	...	...	...	...	...	...	...	...	...
cis-Chlordane	--	...	0.0013 U	...	...	0.0012 U	...	...	...	...	...	...	...	...	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	0.00086 U	...	...	0.00078 U	...	...	...	...	...	...	...	...	...	...
Dieldrin	0.000071	...	...	...	...	0.00093 U	...	...	...	...	...	...	...	...	...	...
Endosulfan Sulfate	--	...	0.00092 U	...	...	0.00084 U	...	...	...	...	...	...	...	...	...	...
Endrin	0.0092	...	0.001 U	...	...	0.00091 U	...	...	...	...	...	...	...	...	...	...
Endrin Aldehyde	--	...	0.00098 U	...	...	0.00089 U	...	...	...	...	...	...	...	...	...	...
Endrin Ketone	--	...	0.0011 U	...	...	0.001 U	...	...	...	...	...	...	...	...	...	...
Gamma Bhc (Lindane)	0.00024	...	0.00071 U	...	...	0.00064 U	...	...	...	...	...	...	...	...	...	...
Heptachlor	0.00012	...	0.001 U	...	...	0.00092 U	...	...	...	...	...	...	...	...	...	...
Heptachlor Epoxide	0.000028	...	0.0015 U	...	...	0.0014 U	...	...	...	...	...	...	...	...	...	...
Methoxychlor	0.2	...	0.0017 U	...	...	0.0015 U	...	...	...	...	...	...	...	...	...	...
P,P'-DDD	0.0075	...	0.001 U	...	...	0.00094 U	...	...	...	...	...	...	...	...	...	...
P,P'-DDE	0.011	...	0.0011 U	...	...	0.001 U	...	...	...	...	...	...	...	...	...	...
P,P'-DDT	0.077	...	0.00081 U	...	...	0.00074 U	...	...	...	...	...	...	...	...	...	...
Toxaphene	0.011	...	0.023 U	...	...	0.021 U	...	...	...	...	...	...	...	...	...	...
trans-Chlordane	--	...	0.0017 U	...	...	0.0016 U	...	...	...	...	...	...	...	...	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.01 U	0.01 U	...	0.0095 U	0.0095 U	0.01 U	0.012 U	0.011 U	0.01 U	0.0098 U	0.012 U	0.0098 U	0.01 U	0.01 U	0.011 U
PCB-1221 (Aroclor 1221)	0.00008	0.01 U	0.01 U	...	0.0095 U	0.0095 U	0.01 U	0.012 U	0.011 U	0.01 U	0.0098 U	0.012 U	0.0098 U	0.01 U	0.01 U	0.011 U
PCB-1232 (Aroclor 1232)	0.00008	0.01 U	0.01 U	...	0.0095 U	0.0095 U	0.01 U	0.012 U	0.011 U	0.01 U	0.0098 U	0.012 U	0.0098 U	0.01 U	0.01 U	0.011 U
PCB-1242 (Aroclor 1242)	0.0012	0.01 U	0.01 U	...	0.0095 U	0.0095 U	0.01 U	0.012 U	0.011 U	0.01 U	0.0098 U	0.012 U	0.0098 U	0.01 U	0.01 U	0.011 U
PCB-1248 (Aroclor 1248)	0.0012	0.01 U	0.01 U	...	0.0095 U	0.0095 U	0.01 U	0.012 U	0.011 U	0.01 U	0.0098 U	0.012 U	0.0098 U	0.01 U	0.01 U	0.011 U
PCB-1254 (Aroclor 1254)	0.002	0.011 U	0.011 U	...	0.0098 U	0.0099 U	0.01 U	0.013 U	0.011 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U	0.01 U	0.011 U
PCB-1260 (Aroclor 1260)	0.0055	0.011 U	0.011 U	...	0.0098 U	0.0099 U	0.01 U	0.013 U	0.011 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U	0.01 U	0.011 U
PCB-1262 (Aroclor 1262)	--	0.011 U	0.011 U	...	0.0098 U	0.0099 U	0.01 U	0.013 U	0.011 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U	0.01 U	0.011 U
PCB-1268 (Aroclor 1268)	--	0.011 U	0.011 U	...	0.0098 U	0.0099 U	0.01 U	0.013 U	0.011 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U	0.01 U	0.011 U
Polychlorinated Biphenyl (PCBs)	--	0.011 U	0.011 U	...	0.0098 U	0.0099 U	0.01 U	0.013 U	0.011 U	0.011 U	0.01 U	0.012 U	0.01 U	0.01 U	0.01 U	0.011 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.028 U	0.029 U	...	0.026 U	0.053 U	0.028 U	0.034 U	0.03 U	0.029 U	0.027 U	0.032 U	1.4 U	1.4 U	0.028 U	0.029 U
1,4-Dioxane (P-Dioxane)	0.000094	0.1 U	0.1 U	...	0.094 U	0.19 U	0.1 U	0.12 U	0.11 U	0.1 U	0.097 U	0.11 U	4.9 U	4.9 U	0.1 U	0.11 U
2,3,4,6-Tetrachlorophenol	0.018	0.036 U	0.037 U	...	0.033 U	0.067 U	0.035 U	0.042 U	0.038 U	0.036 U	0.034 U	0.04 U	1.7 U	1.7 U	0.035 U	0.037 U
2,4,5-Trichlorophenol	0.4	0.038 U	0.039 U	...	0.035 U	0.071 U	0.037 U	0.045 U	0.04 U	0.039 U	0.036 U	0.043 U	1.8 U	1.8 U	0.037 U	0.039 U
2,4,6-Trichlorophenol	0.0012	0.011 U	0.011 U	...	0.01 U	0.02 U	0.011 U	0.013 U	0.011 U	0.011 U	0.01 U	0.012 U	0.52 U	0.53 U	0.011 U	0.011 U
2,4-Dichlorophenol	0.0023	0.009 U	0.0092 U	...	0.0083 U	0.017 U	0.0088 U	0.011 U	0.0095 U	0.0092 U	0.0086 U	0.01 U	0.43 U	0.44 U	0.0088 U	0.0093 U
2,4-Dimethylphenol	0.042	0.084 U	0.086 U	...	0.077 U	0.16 U	0.082 U	0.098 U	0.088 U	0.085 U	0.08 U	0.094 U	4 U	4.1 U	0.082 U	0.087 U
2,4-Dinitrophenol	0.0044	0.28 U	0.29 U	...	0.27 U	0.54 U	0.28 U	0.34 U	0.3 U	0.29 U	0.27 U	0.32 U	14 U	14 U	0.28 U	0.3 U
2,4-Dinitrotoluene	0.00032	0.015 U	0.015 U	...	0.014 U	0.028 U	0.015 U	0.018 U	0.016 U	0.015 U	0.014 U	0.017 U	0.72 U	0.73 U	0.015 U	0.016 U
2,6-Dinitrotoluene	0.000067	0.02 U	0.021 U	...	0.019 U	0.038 U	0.02 U	0.024 U	0.021 U	0.021 U	0.019 U	0.023 U	0.97 U	0.99 U	0.02 U	0.021 U
2-Chloronaphthalene	0.39	0.0086 U	0.0088 U	...	0.008 U	0.016 U	0.0085 U	0.01 U	0.0091 U	0.0088 U	0.0082 U	0.0097 U	0.41 U	0.42 U	0.0085 U	0.009 U
2-Chlorophenol	0.0089	0.0097 U	0.0099 U	...	0.0089 U	0.018 U	0.0095 U	0.011 U	0.01 U	0.0099 U	0.0092 U	0.011 U	0.46 U	0.47 U	0.0095 U	0.01 U
2-Methylnaphthalene	0.019	0.0084 U	0.048 J	...	0.0078 U	0.031 J	0.011 J	0.073 J	0.0089 U	0.0086 U	0.008 U	0.0095 U	3.9 J	2 J	0.0082 U	0.0087 U
2-Methylphenol (O-Cresol)	0.075	0.017 U	0.017 U	...	0.015 U	0.031 U	0.016 U	0.02 U	0.017 U	0.017 U	0.016 U	0.019 U	0.79 U	0.81 U	0.016 U	0.017 U
2-Nitroaniline	0.008	0.013 U	0.013 U	...	0.012 U	0.023 U	0.012 U	0.015 U	0.013 U	0.013 U	0.012 U	0.014 U	0.6 U	0.61 U	0.012 U	0.013 U
2-Nitrophenol	--	0.013 U	0.013 U	...	0.012 U	0.024 U	0.013 U	0.015 U	0.013 U	0.013 U	0.012 U	0.014 U	0.61 U	0.62 U	0.013 U	0.013 U
3- And 4- Methylphenol (Total)	--	0.01 U	0.01 U	...	0.0094 U	0.019 U	0.01 U	0.012 U	0.011 U	0.01 U	0.0097 U	0.011 U	1 J	0.48 U	0.0099 U	0.011 U
3,3'-Dichlorobenzidine	0.00082	0.042 U	0.043 U	...	0.039 U	0.079 U	0.042 U	0.05 U	0.045 U	0.043 U	0.041 U	0.048 U	2 U	2.1 U	0.042 U	0.044 U
3-Nitroaniline	--	0.011 U	0.012 U	...	0.01 U	0.021 U	0.011 U	0.013 U	0.012 U	0.012 U	0.011 U	0.013 U	0.54 U	0.55 U	0.011 U	0.012 U
4,6-Dinitro-2-Methylphenol	0.00026	0.1 U	0.1 U	...	0.094 U	0.19 U	0.1 U	0.12 U	0.11 U	0.1 U	0.097 U	0.11 U	4.9 U	4.9 U	0.099 U	0.11 U
4-Bromophenyl Phenyl Ether	--	0.012 U	0.012 U	...	0.011 U	0.022 U	0.012 U	0.014 U	0.013 U	0.012 U	0.011 U	0.013 U	0.57 U	0.58 U	0.012 U	0.012 U
4-Chloro-3-Methylphenol	0.17	0.016 U	0.017 U	...	0.015 U	0.03 U	0.016 U	0.018 U	0.017 U	0.017 U	0.016 U	0.018 U	0.78 U	0.79 U	0.016 U	0.017 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-023A	CFMW-023A	CFMW-023A	CFMW-029	CFMW-029	CFSB-001	CFSB-001	CFSB-002	CFSB-002	CFSB-003	CFSB-003	CFSB-004	CFSB-004	CFSB-005	CFSB-005
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		6/17/2016	6/17/2016	6/17/2016	5/18/2016	5/18/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016
4-Chloroaniline	0.00016	0.0098 U	0.01 U	...	0.009 U	0.018 U	0.0096 U	0.012 U	0.01 U	0.01 U	0.0093 U	0.011 U	0.47 U	0.48 U	0.0096 U	0.01 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.012 U	...	0.011 U	0.021 U	0.011 U	0.014 U	0.012 U	0.012 U	0.011 U	0.013 U	0.55 U	0.55 U	0.011 U	0.012 U
4-Nitroaniline	0.0016	0.014 U	0.015 U	...	0.013 U	0.027 U	0.014 U	0.017 U	0.015 U	0.015 U	0.014 U	0.016 U	0.69 U	0.7 U	0.014 U	0.015 U
4-Nitrophenol	--	0.18 U	0.19 U	...	0.17 U	0.34 U	0.18 U	0.22 U	0.19 U	0.19 U	0.17 U	0.21 U	8.8 U	8.9 U	0.18 U	0.19 U
Acenaphthene	0.55	0.0092 U	0.061 J	...	0.031 J	0.2 J	0.026 J	0.061 J	0.012 J	0.018 J	0.0088 U	0.01 U	28	22	0.009 U	0.025 J
Acenaphthylene	--	0.0098 U	0.01 U	...	0.009 U	0.018 U	0.0096 U	0.022 J	0.01 U	0.01 U	0.0093 U	0.011 U	1 J	0.54 J	0.0096 U	0.01 U
Acetophenone	0.058	0.0083 U	0.0085 U	...	0.0077 U	0.015 U	0.0082 U	0.0098 U	0.0087 U	0.0084 U	0.0079 U	0.0093 U	0.4 U	0.4 U	0.0081 U	0.0086 U
Anthracene	5.8	0.036 U	0.072 J	...	0.065 J	0.34 J	0.045 J	0.16 J	0.02 J	0.037 U	0.034 U	0.041 U	48	47	0.035 U	0.042 J
Atrazine	0.0002	0.017 U	0.017 U	...	0.016 U	0.032 U	0.017 U	0.02 U	0.017 U	0.017 U	0.016 U	0.019 U	0.81 U	0.82 U	0.017 U	0.018 U
Benzaldehyde	0.0041	0.029 U	0.03 U	...	0.027 U	0.054 U	0.029 U	0.034 U	0.031 U	0.03 U	0.028 U	0.033 U	1.4 U	1.4 U	0.028 U	0.03 U
Benzo(A)Anthracene	0.011	0.032 U	0.26	...	0.26	2.8	0.18	0.46	0.16	0.19	0.03 U	0.085	89	100	0.036 J	0.19
Benzo(A)Pyrene	0.018	0.011 U	0.33	...	0.32	3.1	0.25	0.7	0.25	0.24	0.027 J	0.11	75	100	0.04	0.23
Benzo(B)Fluoranthene	0.18	0.015 U	0.55	...	0.43	6.5	0.31	1	0.59	0.36	0.046	0.19	100	120	0.064	0.36
Benzo(G,H,I)Perylene	--	0.022 U	0.33 J	...	0.42	4.1	0.37	0.6	0.32 J	0.23 J	0.021 J	0.1 J	47	62	0.033 J	0.21 J
Benzo(K)Fluoranthene	1.8	0.017 U	0.19	...	0.17	2.2	0.14	0.33	0.2	0.15	0.018 J	0.076	38	50	0.023 J	0.15
Benzyl Butyl Phthalate	0.24	0.012 U	0.012 U	...	0.011 U	0.022 U	0.012 U	0.014 U	0.012 U	0.012 U	0.011 U	0.013 U	0.56 U	0.57 U	0.011 U	0.012 U
Biphenyl (Diphenyl)	0.00087	0.032 U	0.033 U	...	0.03 U	0.06 U	0.032 U	0.038 U	0.034 U	0.033 U	0.031 U	0.037 U	1.6 U	1.6 U	0.032 U	0.034 U
Bis(2-Chloroethoxy) Methane	0.0013	0.012 U	0.012 U	...	0.011 U	0.022 U	0.012 U	0.014 U	0.012 U	0.012 U	0.011 U	0.013 U	0.57 U	0.58 U	0.012 U	0.012 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.009 U	0.0092 U	...	0.0083 U	0.017 U	0.0088 U	0.011 U	0.0095 U	0.0092 U	0.0086 U	0.01 U	0.43 U	0.44 U	0.0088 U	0.0093 U
Bis(2-Chloroisopropyl) Ether	0.026	0.016 U	0.016 U	...	0.014 UJ	0.029 UJ	0.01	0.019 U	0.017 U	0.016 U	0.015 U	0.018 U	0.75 U	0.76 U	0.015 U	0.016 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.015 U	0.015 U	...	0.014 U	0.079 J	0.052 J	0.18 J	0.016 U	0.015 U	0.014 U	0.017 U	0.71 U	0.72 U	0.015 U	0.015 U
Caprolactam	0.25	0.027 U	0.028 U	...	0.025 U	0.051 U	0.027 U	0.032 U	0.029 U	0.028 U	0.026 U	0.031 U	1.3 U	1.3 U	0.027 U	0.028 U
Carbazole	--	0.0094 U	0.058 J	...	0.046 J	0.29 J	0.037 J	0.13 J	0.021 J	0.027 J	0.009 U	0.011 J	24	32	0.0092 U	0.033 J
Chrysene	9	0.01 U	0.41	...	0.36	4.1	0.28 J	0.77	0.29 J	0.28 J	0.033 J	0.13 J	110	110	0.05 J	0.26 J
Dibenz(A,H)Anthracene	0.096	0.02 U	0.02 U	...	0.078	1.2	0.08 J+	0.13	0.074	0.05	0.019 U	0.024 J	19	21	0.019 U	0.043
Dibenzofuran	0.015	0.011 U	0.021 J	...	0.016 J	0.06 J	0.011 U	0.031 J	0.012 U	0.012 U	0.011 U	0.013 U	15 J	10 J	0.011 U	0.012 U
Diethyl Phthalate	0.61	0.011 U	0.011 U	...	0.01 U	0.021 U	0.011 U	0.013 U	0.011 U	0.011 U	0.01 U	0.012 U	0.52 U	0.53 U	0.011 U	0.011 U
Dimethyl Phthalate	--	0.011 U	0.011 U	...	0.01 U	0.021 U	0.011 U	0.013 U	0.012 U	0.011 U	0.011 U	0.012 U	0.53 U	0.54 U	0.011 U	0.011 U
Di-N-Butyl Phthalate	0.23	0.038 J	0.052 J	...	0.011 U	0.021 U	0.011 U	0.014 U	0.012 U	0.012 U	0.011 U	0.013 U	0.55 U	0.55 U	0.011 U	0.012 U
Di-N-Octylphthalate	5.7	0.019 U	0.02 U	...	0.018 U	0.036 U	0.019 U	0.023 U	0.02 U	0.02 U	0.018 U	0.022 U	0.93 U	0.94 U	0.019 U	0.02 U
Fluoranthene	8.9	0.011 U	0.52	...	0.46	4	0.33 J	1	0.25 J	0.31 J	0.037 J	0.14 J	240	240	0.055 J	0.34 J
Fluorene	0.54	0.0083 U	0.035 J	...	0.026 J	0.099 J	0.018 J	0.044 J	0.0087 U	0.0084 U	0.0079 U	0.0093 U	25	19	0.0081 U	0.02 J
Hexachlorobenzene	0.00012	0.015 U	0.016 U	...	0.014 U	0.029 U	0.015 U	0.018 U	0.016 U	0.016 U	0.015 U	0.017 U	0.74 U	0.75 U	0.015 U	0.016 U
Hexachlorobutadiene	0.00027	0.011 U	0.011 U	...	0.009 U	0.02 U	0.011 U	0.013 U	0.011 U	0.011 U	0.01 U	0.012 U	0.51 U	0.52 U	0.01 U	0.011 U
Hexachlorocyclopentadiene	0.00013	0.024 U	0.024 U	...	0.022 U	0.044 U	0.023 UJ	0.028 U	0.025 U	0.024 U	0.023 U	0.027 U	1.1 U	1.2 U	0.023 U	0.025 U
Hexachloroethane	0.0002	0.014 U	0.014 U	...	0.013 U	0.026 U	0.014 U	0.017 U	0.015 U	0.014 U	0.013 U	0.016 U	0.67 U	0.68 U	0.014 U	0.014 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.025 U	0.34	...	0.42	5.1	0.32 J+	0.54	0.25	0.18	0.024 U	0.097	57	76	0.03 J	0.2
Isophorone	0.026	0.0082 U	0.0084 U	...	0.0076 U	0.015 U	0.008 U	0.0097 U	0.0086 U	0.0083 U	0.0078 U	0.0092 U	1.4 J	0.4 U	0.008 U	0.0085 U
Naphthalene	0.00054	0.0097 U	0.015 J	...	0.011 J	0.032 J	0.011 J	0.044 J	0.01 U	0.0099 U	0.0092 U	0.011 U	10 J	4.6 J	0.0095 U	0.01 U
Nitrobenzene	0.000092	0.012 U	0.012 U	...	0.011 U	0.022 U	0.012 U	0.014 U	0.013 U	0.012 U	0.011 U	0.013 U	0.57 U	0.58 U	0.012 U	0.012 U
N-Nitrosodi-N-Propylamine	0.0000081	0.013 U	0.013 U	...	0.012 U	0.024 U	0.013 U	0.015 U	0.013 U	0.013 U	0.012 U	0.014 U	0.61 U	0.62 U	0.013 U	0.013 U
N-Nitrosodiphenylamine	0.067	0.034 UJ	0.035 UJ	...	0.032 U	0.064 U	0.034 U	0.041 U	0.036 U	0.035 U	0.033 U	0.039 U	1.7 U	1.7 U	0.034 U	0.036 U
Pentachlorophenol	0.000057	0.046 U	0.047 U	...	0.043 U	0.086 U	0.045 U	0.055 U	0.049 U	0.047 U	0.044 U	0.052 U	2.2 U	2.2 U	0.045 U	0.048 U
Phenanthrene	--	0.01 U	0.36 J	...	0.29 J	1.5	0.22 J	0.5	0.12 J	0.18 J	0.02 J	0.071 J	240	180	0.032 J	0.21 J
Phenol	0.33	0.012 U	0.013 U	...	0.011 U	0.023 U	0.012 U	0.015 U	0.013 U	0.013 U	0.012 U	0.014 U	1.2 J	0.6 U	0.012 U	0.013 U
Pyrene	1.3	0.017 U	0.56	...	0.38	2.9	0.31 J	0.73	0.26 J	0.35 J	0.038 J	0.15 J	130	150	0.054 J	0.36 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.0003 U	...	...	0.00032 U	...	0.00041 U	...	0.00038 U	...	0.00031 U	...	0.00043 U	...	0.00032 U	...
1,1,2,2-Tetrachloroethane	0.00003	0.00014 U	...	...	0.00014 U	...	0.00018 U	...	0.00017 U	...	0.00014 U	...	0.00019 U	...	0.00014 U	...
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00035 U	...	...	0.00037 U	...	0.00047 U	...	0.00044 U	...	0.00036 U	...	0.00049 U	...	0.00037 U	...
1,1,2-Trichloroethane	0.000013	0.00022 U	...	...	0.00023 U	...	0.0003 U	...	0.00028 U	...	0.00023 U	...	0.00031 U	...	0.00024 U	...
1,1-Dichloroethane	0.00078	0.00027 U	...	...	0.00028 U	...	0.00036 U	...	0.00034 U	...	0.00028 U	...	0.00038 U	...	0.00029 U	...
1,1-Dichloroethene	0.01	0.00033 U	...	...	0.00034 U	...	0.00044 U	...	0.00041 U	...	0.00034 U	...	0.00046 U	...	0.00035 U	...
1,2,3-Trichlorobenzene	0.0021	0.000088 U	...	...	0.000092 U	...	0.00012 U	...	0.00011 U	...	0.000091 U	...	0.00012 U	...	0.000093 U	...
1,2,4-Trichlorobenzene	0.0012	0.00025 U	...	...	0.00027 U	...	0.00034 U	...	0.00032 U	...	0.00026 U	...	0.00036 U	...	0.00027 U	...
1,2-Dibromo-3-Chloropropane	0.00000014	0.00037 U	...	...	0.00039 U	...	0.0005 U	...	0.00047 U	...	0.00039 U	...	0.00053 U	...	0.0004 U	...

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-023A	CFMW-023A	CFMW-023A	CFMW-029	CFMW-029	CFSB-001	CFSB-001	CFSB-002	CFSB-002	CFSB-003	CFSB-003	CFSB-004	CFSB-004	CFSB-005	CFSB-005
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		6/17/2016	6/17/2016	6/17/2016	5/18/2016	5/18/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.000096 U	---	---	0.0001 U	---	0.00013 U	---	0.00012 U	---	0.000059 U	---	0.00013 U	---	0.0001 U	---
1,2-Dichlorobenzene	0.03	0.00011 U	---	---	0.00012 U	---	0.00015 U	---	0.00014 U	---	0.00012 U	---	0.00016 U	---	0.00012 U	---
1,2-Dichloroethane	0.000048	0.000098 U	---	---	0.000092 U	---	0.00012 U	---	0.00011 U	---	0.000091 U	---	0.00012 U	---	0.000093 U	---
1,2-Dichloropropane	0.000047	0.00014 U	---	---	0.00014 U	---	0.00018 U	---	0.00017 U	---	0.00014 U	---	0.00019 U	---	0.00014 U	---
1,3-Dichlorobenzene	--	0.000096 U	---	---	0.0001 U	---	0.00013 U	---	0.00012 U	---	0.000059 U	---	0.00013 U	---	0.0001 U	---
1,4-Dichlorobenzene	0.00046	0.0001 U	---	---	0.00011 U	---	0.00014 U	---	0.00013 U	---	0.00011 U	---	0.00015 U	---	0.00011 U	---
2-Hexanone	0.00088	0.00075 U	---	---	0.00079 U	---	0.001 U	---	0.00094 U	---	0.00078 U	---	0.0011 U	---	0.00079 U	---
Acetone	0.29	0.024 J+	---	---	0.033	---	0.029	---	0.041	---	0.041	---	0.019	---	0.033	---
Benzene	0.00023	0.00016 U	---	---	0.00038 J	---	0.00021 U	---	0.00017 U	---	0.0003 J	---	0.00038 J	---	0.00017 U	---
Bromochloromethane	0.0021	0.00014 U	---	---	0.00014 U	---	0.00018 U	---	0.00017 U	---	0.00014 U	---	0.00019 U	---	0.00014 U	---
Bromodichloromethane	0.000036	0.0003 U	---	---	0.00032 U	---	0.00041 U	---	0.00038 U	---	0.00031 U	---	0.00043 U	---	0.00032 U	---
Bromoform	0.00087	0.0001 U	---	---	0.00011 U	---	0.00014 U	---	0.00013 U	---	0.00011 U	---	0.00015 U	---	0.00011 U	---
Bromomethane	0.00019	0.00025 U	---	---	0.00027 U	---	0.00034 UJ	---	0.00032 UJ	---	0.00026 UJ	---	0.00036 UJ	---	0.00027 UJ	---
Carbon Disulfide	0.024	0.00034 U	---	---	0.00072 J	---	0.00046 U	---	0.00043 U	---	0.00036 U	---	0.0022	---	0.001	---
Carbon Tetrachloride	0.00018	0.00034 U	---	---	0.00036 U	---	0.00046 U	---	0.00043 U	---	0.00036 U	---	0.00048 U	---	0.00036 U	---
Chlorobenzene	0.0053	0.00011 U	---	---	0.00012 U	---	0.00015 U	---	0.00014 U	---	0.00012 U	---	0.00016 U	---	0.00012 U	---
Chloroethane	0.59	0.00028 U	---	---	0.00029 U	---	0.00038 UJ	---	0.00035 UJ	---	0.00029 UJ	---	0.00039 UJ	---	0.00029 UJ	---
Chloroform	0.000061	0.00017 U	---	---	0.00018 U	---	0.00023 U	---	0.00021 U	---	0.00017 U	---	0.00024 U	---	0.00018 U	---
Chloromethane	0.0049	0.0003 U	---	---	0.00032 U	---	0.00041 U	---	0.00038 U	---	0.00031 U	---	0.00043 U	---	0.00032 U	---
Cis-1,2-Dichloroethylene	0.0011	0.00018 U	---	---	0.00018 U	---	0.00024 U	---	0.00022 U	---	0.00018 U	---	0.00025 U	---	0.00019 U	---
Cis-1,3-Dichloropropene	--	0.00012 U	---	---	0.00013 U	---	0.00016 U	---	0.00015 U	---	0.00012 U	---	0.00017 U	---	0.00013 U	---
Cyclohexane	1.3	0.00037 U	---	---	0.00038 U	---	0.00049 U	---	0.00046 U	---	0.00038 U	---	0.00052 U	---	0.00039 U	---
Dibromochloromethane	0.00023	0.00012 U	---	---	0.00013 U	---	0.00016 U	---	0.00015 U	---	0.00012 U	---	0.00017 U	---	0.00013 U	---
Dichlorodifluoromethane	0.03	0.00025 U	---	---	0.00027 U	---	0.00034 U	---	0.00032 U	---	0.00026 U	---	0.00036 U	---	0.00027 U	---
Ethylbenzene	0.0017	0.00014 U	---	---	0.00015 U	---	0.00019 U	---	0.00018 U	---	0.00015 U	---	0.0002 U	---	0.00015 U	---
Isopropylbenzene (Cumene)	0.074	0.00014 U	---	---	0.00014 U	---	0.00018 U	---	0.00017 U	---	0.00014 U	---	0.00019 U	---	0.00014 U	---
M,P-Xylene	--	0.000098 U	---	---	0.000092 U	---	0.00012 U	---	0.00011 U	---	0.000091 U	---	0.00048 J	---	0.00014 J	---
Methyl Acetate	0.41	0.012	---	---	0.00075 U	---	0.00096 U	---	0.0009 U	---	0.00074 U	---	0.001 U	---	0.00076 U	---
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0018 J	---	---	0.00064 U	---	0.00083 U	---	0.00077 U	---	0.00064 U	---	0.00086 U	---	0.00065 U	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0018 U	---	---	0.0019 U	---	0.0024 U	---	0.0022 U	---	0.0018 U	---	0.0025 U	---	0.0019 U	---
Methylcyclohexane	--	0.0004 U	---	---	0.00042 J	---	0.00054 U	---	0.0005 U	---	0.00041 U	---	0.001 J	---	0.00042 U	---
Methylene Chloride	0.0027	0.00025 U	---	---	0.00027 U	---	0.00034 U	---	0.00032 U	---	0.00026 U	---	0.00036 U	---	0.00027 U	---
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00013 U	---	---	0.00013 U	---	0.00017 U	---	0.00016 U	---	0.00013 U	---	0.00018 U	---	0.00013 U	---
Styrene	0.13	0.00012 U	---	---	0.00013 U	---	0.00016 U	---	0.00015 U	---	0.00012 U	---	0.00017 U	---	0.00013 U	---
Tert-Butyl Methyl Ether	0.0032	0.00014 U	---	---	0.00014 U	---	0.00018 U	---	0.00017 U	---	0.00014 U	---	0.00019 U	---	0.00014 U	---
Tetrachloroethylene (PCE)	0.0018	0.00022 U	---	---	0.00023 U	---	0.0003 U	---	0.00028 U	---	0.00023 U	---	0.00031 U	---	0.00024 U	---
Toluene	0.076	0.00016 J	---	---	0.00048 J	---	0.0002 U	---	0.00019 U	---	0.00025 J	---	0.00098 J	---	0.00034 J	---
Trans-1,2-Dichloroethene	0.011	0.00031 U	---	---	0.00033 U	---	0.00042 U	---	0.00039 U	---	0.00032 U	---	0.00044 U	---	0.00033 U	---
Trans-1,3-Dichloropropene	--	0.00008 U	---	---	0.000084 U	---	0.00011 U	---	0.0001 U	---	0.000083 U	---	0.00011 U	---	0.000084 U	---
Trichloroethylene (TCE)	0.0001	0.00021 U	---	---	0.00022 U	---	0.00028 U	---	0.00026 U	---	0.00022 U	---	0.00029 U	---	0.00022 U	---
Trichlorofluoromethane	0.33	0.00027 U	---	---	0.00028 U	---	0.00036 U	---	0.00034 U	---	0.00028 U	---	0.00038 U	---	0.00029 U	---
Vinyl Chloride	0.0000065	0.00031 U	---	---	0.00033 U	---	0.00042 U	---	0.00039 U	---	0.00032 U	---	0.00044 U	---	0.00033 U	---

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-006	CFSB-006	CFSB-007	CFSB-007	CFSB-008	CFSB-008	CFSB-008-DUP	CFSB-009	CFSB-009	CFSB-009-DUP	CFSB-021	CFSB-021	CFSB-022	CFSB-022	CFSB-029
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/23/2016	5/23/2016	5/25/2016	5/25/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/24/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	5.6 J+	14.6 J	25 J	11.8 J	16.2 J	30.6 J	45.4 J	17.9 J	37.6 J	37.9 J+	81.1 J	89.9 J	24.7 J	28.9 J	21.7 J
Cyanide	0.0015	0.11 J	0.016 U	0.029 J	0.095 J	0.036 J	0.02 J	0.02 J	0.016 U	0.078 J	0.33	0.021 J	0.048 J	0.072 J	0.035 J	0.015 U
METALS																
Aluminum	3000	8230	7200	10200	12600	7990	15100	11800	10400	11400	20000	7000	13600	7510	8720	8220
Antimony	0.035	0.39 UJ	0.32 UJ	0.36 UJ	0.38 UJ	0.37 UJ	0.39 UJ	0.37 UJ	0.36 UJ	0.45 UJ	0.47 UJ	0.32 UJ	0.37 UJ	0.37 UJ	0.38 UJ	0.32 UJ
Arsenic	0.0015	4	3.6	3.1 J	4.4 J	7.2	11.8	11.8	3.7	7.1	5.2	2.8	6.7	4.1	6.7	3.8
Barium	16	112	77.4	90.9	109	41.7	105	62.1	75.7	117	319	99.9	72.3	102	91	40.7
Beryllium	1.9	0.28 J	0.36	0.39	0.51	0.24 J	0.65	0.4	0.47	0.55	0.85	0.3 J	0.45	0.36	0.38	0.32
Cadmium	0.069	0.3 U	0.24 U	0.28 U	0.29 U	0.28 U	0.29 U	0.28 U	0.27 U	0.32 U	0.36 U	0.24 U	0.28 U	0.28 U	0.29 U	0.24 U
Calcium	--	23400	34300	3990	20500	49600 J	2090	1210 J	5920	19400	7550 J	87500	1770	27800	18000	23300
Chromium, Total	--	7.2	7.7	8.7	10.8	8.7	10.4	7.9	8	12.2	18	6.5	11.2	6.6	7.7	8.4
Cobalt	0.027	8	4.4	5.3 J-	5.6 J-	5	5.5	4	4.1	5.4	6.3	3.5	5	3.5	3.9	4.5
Copper	2.8	8.9 J+	9.1	14.2 J+	15.1 J+	8.2 J	10.8	19.6 J	10.1	14.5	24.7 J+	19.1	11.6	10.3	8.8	9.9
Iron	35	10700	12000	12100	14300	10400	17900	12000	11300	14300	16400	9060	16800	9860	14700	11500
Lead	400	7.1	6.1 J+	6.9 J	9.9 J	19 J	11.6	84.2 J	8.2 J+	11 J+	17.1	8.4 J+	9.8 J+	7.8 J+	19.3 J+	8.7 J+
Magnesium	--	13300	12000	7430	10100	9670	11000	8450	7900	10500	12600	11700	12000	8020	11500	8610
Manganese	2.8	348	313	302	437	557 J	419	147 J	168	337	333	320	156	478	471	218
Mercury	0.0033	0.015 J	0.025	0.013 U	0.017 J	0.04	0.017 J	0.067	0.015 J	0.026	0.045	0.024	0.015 U	0.042	0.035	0.012 J
Nickel	2.6	10.5	9.3 J	10.3	16.3	8.7 J	13.6 J	7.9 J	9.4 J	10.6 J	13.2	7.8 J	12.4 J	7.4 J	8.9 J	9.8 J
Potassium	--	818 J+	541 J	858 J+	1230 J+	613 J	1340 J	883 J	643 J	864 J	1270 J+	561 J	1010 J	756 J	1020 J	557 J
Selenium	0.052	0.37 U	0.3 U	0.34 U	0.36 U	0.34 U	0.36 U	0.35 U	0.34 U	0.4 U	1.2 J	0.3 U	0.34 U	0.35 U	0.35 U	0.3 U
Silver	0.08	0.72 U	0.58 U	0.66 U	0.7 U	0.67 U	0.71 U	0.68 U	0.66 U	0.78 U	0.88 U	0.58 U	0.67 U	0.68 U	0.69 U	0.59 U
Sodium	--	36.8 U	29.7 U	45.2 J	45.5 J	34.3 U	36.2 U	34.6 U	37.7 J	57.7 J	81.6 J	33 J	34.4 U	34.6 U	35.4 U	30.1 U
Thallium	0.0014	0.15 U	0.12 U	0.14 U	0.14 U	0.14 U	0.15 U	0.14 U	0.14 U	0.16 U	0.18 U	0.12 U	0.14 U	0.14 U	0.14 U	0.12 U
Vanadium	8.6	6.4	6.2	10	11.7	6.9	15.3	7.5	8.1	9.9	13	5	12.4	5.7	7.6	6.4
Zinc	37	38.2	33.6	35.7	46.2	39.6	39.6	27.9	37	44.3	58.6	29.8	44.3	34.6	48.6	30.9

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Table C-1a
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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFSB-006**	**CFSB-006**	**CFSB-007**	**CFSB-007**	**CFSB-008**	**CFSB-008**	**CFSB-008-DUP**	**CFSB-009**	**CFSB-009**	**CFSB-009-DUP**	**CFSB-021**	**CFSB-021**	**CFSB-022**	**CFSB-022**	**CFSB-029**
Sample Depth		**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**
Chemical Name		**5/23/2016**	**5/23/2016**	**5/25/2016**	**5/25/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/24/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**
PESTICIDES																
Aldrin	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alpha Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beta Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
cis-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dieldrin	0.000071	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endosulfan Sulfate	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin	0.0092	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Aldehyde	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Endrin Ketone	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gamma Bhc (Lindane)	0.00024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor	0.00012	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heptachlor Epoxide	0.000028	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methoxychlor	0.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDD	0.0075	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDE	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
P,P'-DDT	0.077	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toxaphene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
trans-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.011 U	0.0096 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.0099 U	0.011 U	0.013 U	0.0095 U	0.011 U	0.011 U	0.011 U	0.0095 U
PCB-1221 (Aroclor 1221)	0.00008	0.011 U	0.0096 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.0099 U	0.011 U	0.013 U	0.0095 U	0.011 U	0.011 U	0.011 U	0.0095 U
PCB-1232 (Aroclor 1232)	0.00008	0.011 U	0.0096 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.0099 U	0.011 U	0.013 U	0.0095 U	0.011 U	0.011 U	0.011 U	0.0095 U
PCB-1242 (Aroclor 1242)	0.0012	0.011 U	0.0096 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.0099 U	0.011 U	0.013 U	0.0095 U	0.011 U	0.011 U	0.011 U	0.0095 U
PCB-1248 (Aroclor 1248)	0.0012	0.011 U	0.0096 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.0099 U	0.011 U	0.013 U	0.0095 U	0.011 U	0.011 U	0.011 U	0.0095 U
PCB-1254 (Aroclor 1254)	0.002	0.012 U	0.0099 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.012 U	0.013 U	0.0099 U	0.011 U	0.011 U	0.011 U	0.0098 U
PCB-1260 (Aroclor 1260)	0.0055	0.012 U	0.0099 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.012 U	0.013 U	0.0099 U	0.011 U	0.011 U	0.011 U	0.0098 U
PCB-1262 (Aroclor 1262)	--	0.012 U	0.0099 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.012 U	0.013 U	0.0099 U	0.011 U	0.011 U	0.011 U	0.0098 U
PCB-1268 (Aroclor 1268)	--	0.012 U	0.0099 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.012 U	0.013 U	0.0099 U	0.011 U	0.011 U	0.011 U	0.0098 U
Polychlorinated Biphenyl (PCBs)	--	0.012 U	0.0099 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.012 U	0.013 U	0.0099 U	0.011 U	0.011 U	0.011 U	0.0098 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.031 U	0.027 U	0.028 U	0.028 U	0.028 U	0.03 U	0.028 U	0.027 U	0.032 U	0.035 U	0.026 U	0.03 U	0.03 U	0.03 U	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	0.11 U	0.096 U	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.099 U	0.11 U	0.13 U	0.095 U	0.11 U	0.11 U	0.11 U	0.094 U
2,3,4,6-Tetrachlorophenol	0.018	0.039 U	0.034 U	0.035 U	0.035 U	0.036 U	0.038 U	0.036 U	0.035 U	0.04 U	0.044 U	0.033 U	0.038 U	0.038 U	0.037 U	0.033 U
2,4,5-Trichlorophenol	0.4	0.041 U	0.036 U	0.037 U	0.037 U	0.038 U	0.04 U	0.038 U	0.037 U	0.042 U	0.047 U	0.035 U	0.04 U	0.04 U	0.04 U	0.035 U
2,4,6-Trichlorophenol	0.0012	0.012 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.012 U	0.013 U	0.01 U	0.012 U	0.011 U	0.011 U	0.01 U
2,4-Dichlorophenol	0.0023	0.0098 U	0.0084 U	0.0089 U	0.0089 U	0.009 U	0.0095 U	0.009 U	0.0087 U	0.01 U	0.011 U	0.0084 U	0.0095 U	0.0095 U	0.0094 U	0.0088 U
2,4-Dimethylphenol	0.042	0.091 U	0.079 U	0.083 U	0.083 U	0.084 U	0.088 U	0.084 U	0.081 U	0.093 U	0.1 U	0.078 U	0.089 U	0.088 U	0.088 U	0.077 U
2,4-Dinitrophenol	0.0044	0.31 U	0.27 U	0.28 U	0.28 U	0.29 U	0.3 UJ	0.29 U	0.28 U	0.32 U	0.35 U	0.27 U	0.31 U	0.3 U	0.3 U	0.27 U
2,4-Dinitrotoluene	0.00032	0.016 U	0.014 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.017 U	0.019 U	0.014 U	0.016 U	0.016 U	0.016 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.022 U	0.019 U	0.02 U	0.02 U	0.02 U	0.021 U	0.02 U	0.02 U	0.023 U	0.025 U	0.019 U	0.022 U	0.021 U	0.021 U	0.019 U
2-Chloronaphthalene	0.39	0.0094 U	0.0081 U	0.0085 U	0.0085 U	0.0086 U	0.0091 U	0.0087 U	0.0084 U	0.0096 U	0.011 U	0.008 U	0.0092 U	0.0091 U	0.009 U	0.008 U
2-Chlorophenol	0.0089	0.011 U	0.0091 U	0.0096 U	0.0096 U	0.0097 U	0.01 U	0.0097 U	0.0094 U	0.011 U	0.012 U	0.009 U	0.01 U	0.01 U	0.01 U	0.0089 U
2-Methylnaphthalene	0.019	0.0092 U	0.0079 U	0.0083 U	0.0083 U	0.0084 U	0.0089 U	0.0085 U	0.0081 U	0.0094 U	0.01 U	0.0078 U	0.021 J	0.0089 U	0.0088 U	0.009 J
2-Methylphenol (O-Cresol)	0.075	0.018 U	0.016 U	0.016 U	0.016 U	0.017 U	0.017 U	0.017 U	0.016 U	0.018 U	0.02 U	0.015 U	0.018 U	0.017 U	0.017 U	0.015 U
2-Nitroaniline	0.008	0.014 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.013 U	0.012 U	0.014 U	0.015 U	0.012 U	0.013 U	0.013 U	0.013 U	0.012 U
2-Nitrophenol	--	0.014 U	0.012 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.012 U	0.014 U	0.016 U	0.012 U	0.014 U	0.013 U	0.013 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.011 U	0.0095 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.0098 U	0.026 J	0.012 U	0.0094 U	0.048 J	0.011 U	0.011 U	0.012 J
3,3'-Dichlorobenzidine	0.00082	0.046 U	0.04 U	0.042 U	0.042 U	0.042 U	0.045 U	0.043 U	0.041 U	0.047 U	0.052 U	0.04 U	0.045 U	0.045 U	0.044 U	0.039 U
3-Nitroaniline	--	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U	0.014 U	0.01 U	0.012 U	0.012 U	0.012 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.11 U	0.095 U	0.1 U	0.1 U	0.1 U	0.11 UJ	0.1 U	0.098 U	0.11 U	0.12 U	0.094 U	0.11 U	0.11 U	0.11 U	0.094 U
4-Bromophenyl Phenyl Ether	--	0.013 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.013 U	0.015 U	0.011 U	0.013 U	0.013 U	0.013 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.018 U	0.015 U	0.016 U	0.016 U	0.016 U	0.017 U	0.016 U	0.016 U	0.018 U	0.02 U	0.015 U	0.017 U	0.017 U	0.017 U	0.015 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFSB-006**	**CFSB-006**	**CFSB-007**	**CFSB-007**	**CFSB-008**	**CFSB-008**	**CFSB-008-DUP**	**CFSB-009**	**CFSB-009**	**CFSB-009-DUP**	**CFSB-021**	**CFSB-021**	**CFSB-022**	**CFSB-022**	**CFSB-029**
Sample Depth		**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**
Chemical Name		**5/23/2016**	**5/23/2016**	**5/25/2016**	**5/25/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/24/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**
4-Chloroaniline	0.00016	0.011 U	0.0092 U	0.0097 U	0.0097 U	0.0098 U	0.01 U	0.0098 U	0.0095 U	0.011 U	0.012 U	0.0091 U	0.01 U	0.01 U	0.01 U	0.009 U
4-Chlorophenyl Phenyl Ether	--	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U	0.014 U	0.011 U	0.012 U	0.012 U	0.012 U	0.011 U
4-Nitroaniline	0.0016	0.016 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.016 U	0.018 U	0.013 U	0.015 U	0.015 U	0.015 U	0.013 U
4-Nitrophenol	--	0.2 U	0.17 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.22 U	0.23 U	0.17 U	0.19 U	0.19 U	0.19 U	0.17 U
Acenaphthene	0.55	0.01 U	0.0086 U	0.064 J	0.029 J	0.0092 U	0.0097 U	0.0098 U	0.0089 U	0.01 U	0.012 J	0.0086 U	0.11 J	0.018 J	0.053 J	0.041 J
Acenaphthylene	--	0.011 U	0.0092 U	0.0097 U	0.0097 U	0.0098 U	0.01 U	0.0098 U	0.0095 U	0.011 U	0.012 U	0.0091 U	0.01 U	0.01 U	0.01 U	0.009 U
Acetophenone	0.058	0.009 U	0.0078 U	0.0082 U	0.0082 U	0.0083 U	0.0087 U	0.0084 U	0.008 U	0.0092 U	0.01 U	0.0077 U	0.0088 U	0.0087 U	0.0087 U	0.0077 U
Anthracene	5.8	0.039 U	0.034 U	0.14 J	0.093 J	0.036 U	0.038 U	0.036 U	0.036 U	0.04 U	0.044 U	0.034 U	0.16 J	0.038 U	0.075 J	0.072 J
Atrazine	0.0002	0.018 U	0.016 U	0.017 U	0.017 U	0.017 U	0.018 U	0.017 U	0.017 U	0.019 U	0.021 U	0.016 U	0.018 U	0.018 U	0.018 U	0.016 U
Benzaldehyde	0.0041	0.032 U	0.027 U	0.029 U	0.029 U	0.029 U	0.031 UJ	0.029 U	0.028 U	0.032 U	0.036 U	0.027 U	0.037 J	0.031 U	0.03 U	0.027 U
Benzo(A)Anthracene	0.011	0.051	0.03 U	0.27	0.41	0.07 J	0.034 U	0.032 UJ	0.031 U	0.077	0.093 J	0.081	0.85	0.18	0.61	0.63
Benzo(A)Pyrene	0.018	0.055	0.011 U	0.27	0.44	0.1 J	0.012 U	0.012 UJ	0.017 J	0.095	0.12 J	0.1	1.1	0.2	0.8	0.82
Benzo(B)Fluoranthene	0.18	0.1	0.015 J	0.34	0.84	0.15 J	0.016 U	0.015 U	0.041	0.19	0.24 J	0.18	1.8	0.33	1.2	1.5
Benzo(G,H,I)Perylene	--	0.058 J	0.021 U	0.15 J	0.48	0.1 J	0.023 U	0.022 U	0.021 U	0.095 J	0.14 J	0.078 J	1.1	0.14 J	0.57	1.1
Benzo(K)Fluoranthene	1.8	0.037 J	0.016 U	0.16	0.34	0.062 J	0.017 U	0.017 U	0.016 U	0.018 U	0.084 J	0.071	0.018 U	0.14	0.017 U	0.51
Benzyl Butyl Phthalate	0.24	0.013 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.013 U	0.014 U	0.011 U	0.012 U	0.012 U	0.012 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.035 U	0.03 U	0.032 U	0.032 U	0.032 U	0.034 U	0.033 U	0.031 U	0.036 U	0.04 U	0.03 U	0.035 U	0.034 U	0.034 U	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.013 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.013 U	0.015 U	0.011 U	0.013 U	0.013 U	0.012 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0098 U	0.0084 U	0.0089 U	0.0089 U	0.009 U	0.0095 U	0.009 U	0.0087 U	0.01 U	0.011 U	0.0084 U	0.0095 U	0.0095 U	0.0094 U	0.0083 U
Bis(2-Chloroisopropyl) Ether	0.026	0.017 U	0.015 U	0.015 U	0.015 U	0.016 U	0.016 U	0.016 U	0.015 U	0.017 U	0.019 U	0.015 U	0.017 U	0.017 U	0.016 U	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.016 U	0.051 J	0.015 U	0.015 U	0.025 J	0.016 UJ	0.015 U	0.014 U	0.017 U	0.069 J	0.014 U	0.016 U	0.016 U	0.016 U	0.014 U
Caprolactam	0.25	0.03 U	0.026 U	0.027 U	0.027 U	0.027 U	0.029 UJ	0.028 U	0.027 U	0.031 U	0.034 U	0.025 U	0.029 U	0.029 U	0.029 U	0.025 U
Carbazole	--	0.01 U	0.0089 U	0.089 J	0.061 J	0.0097 J	0.01 U	0.0095 U	0.0091 U	0.012 J	0.027 J	0.011 J	0.16 J	0.017 J	0.066 J	0.08 J
Chrysene	9	0.069 J	0.011 J	0.3 J	1.3	0.11 J	0.011 J	0.01 UJ	0.026 J	0.13 J	0.17 J	0.13 J	1.3	0.25 J	0.77	0.93
Dibenz(A,H)Anthracene	0.096	0.022 U	0.019 U	0.05	0.13	0.027 J	0.021 U	0.02 U	0.019 U	0.023 J	0.04 J	0.019 J	0.3	0.038 J	0.11	0.26
Dibenzofuran	0.015	0.013 U	0.011 U	0.029 J	0.011 U	0.012 U	0.012 U	0.012 U	0.011 U	0.013 U	0.014 U	0.011 U	0.053 J	0.012 U	0.012 U	0.014 J
Diethyl Phthalate	0.61	0.012 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.012 U	0.013 U	0.01 U	0.012 U	0.011 U	0.011 U	0.01 U
Dimethyl Phthalate	--	0.012 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.012 U	0.014 U	0.01 U	0.012 U	0.012 U	0.012 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.012 U	0.017 J	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U	0.014 U	0.011 U	0.012 U	0.012 U	0.012 U	0.011 U
Di-N-Octylphthalate	5.7	0.021 U	0.018 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U	0.61	0.022 U	0.024 U	0.018 U	0.021 U	0.02 U	0.02 U	0.018 U
Fluoranthene	8.9	0.081 J	0.014 J	0.59	0.75	0.14 J	0.012 U	0.011 UJ	0.023 J	0.13 J	0.18 J	0.14 J	1.5	0.38 J	0.98	0.87
Fluorene	0.54	0.009 U	0.0078 U	0.063 J	0.023 J	0.0083 U	0.0087 U	0.0084 U	0.008 U	0.0092 U	0.01 U	0.0077 U	0.087 J	0.012 J	0.023 J	0.024 J
Hexachlorobenzene	0.00012	0.017 U	0.014 U	0.015 U	0.015 U	0.015 U	0.016 U	0.016 U	0.015 U	0.017 U	0.019 U	0.014 U	0.016 U	0.016 U	0.016 U	0.014 U
Hexachlorobutadiene	0.00027	0.012 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.012 U	0.013 U	0.01 U	0.011 U	0.011 U	0.011 U	0.0099 U
Hexachlorocyclopentadiene	0.00013	0.026 UJ	0.022 UJ	0.023 U	0.023 U	0.024 UJ	0.025 UJ	0.024 UJ	0.023 U	0.026 U	0.029 UJ	0.022 U	0.025 U	0.025 U	0.025 U	0.022 U
Hexachloroethane	0.0002	0.015 U	0.013 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.013 U	0.016 U	0.017 U	0.013 U	0.015 U	0.015 U	0.015 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.058 J+	0.024 U	0.16	0.42	0.11 J	0.027 U	0.026 UJ	0.025 U	0.092	0.14 J	0.078	1.1	0.14	0.52	0.98
Isophorone	0.026	0.012 J	0.0077 U	0.0086 U	0.25	0.0082 U	0.0086 U	0.0082 U	0.017 J	0.048 J	0.011 J	0.019 J	0.072 J	0.024 J	0.0086 U	0.11 J
Naphthalene	0.00054	0.011 U	0.0091 U	0.01 U	0.0097 J	0.0097 U	0.01 U	0.0097 U	0.0094 U	0.011 U	0.012 U	0.009 U	0.051 J	0.01 U	0.01 U	0.01 J
Nitrobenzene	0.000092	0.013 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.013 U	0.015 U	0.011 U	0.013 U	0.013 U	0.013 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.014 U	0.012 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.012 U	0.014 U	0.016 U	0.012 U	0.014 U	0.013 U	0.013 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.038 U	0.032 U	0.034 U	0.034 U	0.035 U	0.036 U	0.035 U	0.033 U	0.039 U	0.042 U	0.032 U	0.037 U	0.036 U	0.036 U	0.032 U
Pentachlorophenol	0.000057	0.05 U	0.043 U	0.046 U	0.046 U	0.046 U	0.049 UJ	0.046 U	0.045 U	0.051 U	0.057 U	0.043 U	0.049 U	0.049 U	0.048 U	0.043 U
Phenanthrene	--	0.037 J	0.018 J	0.56	0.36 J	0.057 J	0.011 U	0.01 UJ	0.013 J	0.068 J	0.12 J	0.078 J	0.89	0.15 J	0.37 J	0.37
Phenol	0.33	0.014 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U	0.014 U	0.015 U	0.012 U	0.013 U	0.013 U	0.013 U	0.011 U
Pyrene	1.3	0.084 J	0.016 U	0.53	0.8	0.12 J	0.018 U	0.017 UJ	0.027 J	0.15 J	0.17 J	0.17 J	1.7	0.46	1.1	0.92
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00038 U	--	0.0003 U	--	0.0003 U	--	0.00034 U	0.00029 U	--	--	0.00042 U	--	0.00034 U	--	0.00031 U
1,1,2,2-Tetrachloroethane	0.00003	0.00017 U	--	0.00014 U	--	0.00013 U	--	0.00015 U	0.00013 U	--	--	0.00019 U	--	0.00015 U	--	0.00014 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00043 U	--	0.00036 U	--	0.00035 U	--	0.0004 U	0.00034 U	--	--	0.00048 U	--	0.0004 U	--	0.00036 U
1,1,2-Trichloroethane	0.000013	0.00028 U	--	0.00022 U	--	0.00022 U	--	0.00025 U	0.00022 U	--	--	0.00031 U	--	0.00025 U	--	0.00023 U
1,1-Dichloroethane	0.00078	0.00034 U	--	0.00027 U	--	0.00027 U	--	0.00031 U	0.00026 U	--	--	0.00037 U	--	0.00031 U	--	0.00028 U
1,1-Dichloroethene	0.01	0.00041 U	--	0.00033 U	--	0.00032 U	--	0.00037 U	0.00032 U	--	--	0.00045 U	--	0.00037 U	--	0.00033 U
1,2,3-Trichlorobenzene	0.0021	0.00011 U	--	0.000087 U	--	0.000087 U	--	0.000098 U	0.000085 U	--	--	0.00012 U	--	0.0001 U	--	0.00009 U
1,2,4-Trichlorobenzene	0.0012	0.00032 U	--	0.00025 U	--	0.00025 U	--	0.00028 U	0.00025 U	--	--	0.00035 U	--	0.00029 U	--	0.00026 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00046 U	--	0.00037 U	--	0.00037 U	--	0.00042 U	0.00036 U	--	--	0.00052 U	--	0.00043 U	--	0.00038 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFSB-006**	**CFSB-006**	**CFSB-007**	**CFSB-007**	**CFSB-008**	**CFSB-008**	**CFSB-008-DUP**	**CFSB-009**	**CFSB-009**	**CFSB-009-DUP**	**CFSB-021**	**CFSB-021**	**CFSB-022**	**CFSB-022**	**CFSB-029**
Sample Depth		**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**
Chemical Name		**5/23/2016**	**5/23/2016**	**5/25/2016**	**5/25/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/24/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**	**5/23/2016**
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00012 U	---	0.000095 U	---	0.000084 U	---	0.00011 U	0.000093 U	---	---	0.00013 U	---	0.00011 U	---	0.000098 U
1,2-Dichlorobenzene	0.03	0.00014 U	---	0.00011 U	---	0.00011 U	---	0.00013 U	0.00011 U	---	---	0.00015 U	---	0.00013 U	---	0.00011 U
1,2-Dichloroethane	0.000048	0.00011 U	---	0.000087 U	---	0.000087 U	---	0.000098 U	0.000085 U	---	---	0.00012 U	---	0.0001 U	---	0.00009 U
1,2-Dichloropropane	0.000047	0.00017 U	---	0.00014 U	---	0.00013 U	---	0.00015 U	0.00013 U	---	---	0.00019 U	---	0.00015 U	---	0.00014 U
1,3-Dichlorobenzene	--	0.00012 U	---	0.000095 U	---	0.000084 U	---	0.00011 U	0.000093 U	---	---	0.00013 U	---	0.00011 U	---	0.000098 U
1,4-Dichlorobenzene	0.00046	0.00013 U	---	0.0001 U	---	0.0001 U	---	0.00012 U	0.0001 U	---	---	0.00014 U	---	0.00012 U	---	0.00011 U
2-Hexanone	0.00088	0.00093 U	---	0.00075 U	---	0.00074 U	---	0.00085 U	0.00073 U	---	---	0.001 U	---	0.00085 U	---	0.00077 U
Acetone	0.29	0.031	---	0.042	---	0.048	---	0.045	0.022	---	---	0.022	---	0.023	---	0.012
Benzene	0.00023	0.0002 U	---	0.00044 J	---	0.00024 J	---	0.00051 J	0.0001 U	---	---	0.00022 U	---	0.00018 U	---	0.00017 J
Bromochloromethane	0.0021	0.00017 U	---	0.00014 U	---	0.00013 U	---	0.00015 U	0.00013 U	---	---	0.00019 U	---	0.00015 U	---	0.00014 U
Bromodichloromethane	0.000036	0.00038 U	---	0.0003 U	---	0.0003 U	---	0.00034 U	0.00029 U	---	---	0.00042 U	---	0.00034 U	---	0.00031 U
Bromoform	0.00087	0.00013 U	---	0.0001 U	---	0.0001 U	---	0.00012 U	0.0001 U	---	---	0.00014 U	---	0.00012 U	---	0.00011 U
Bromomethane	0.00019	0.00032 U	---	0.00025 UJ	---	0.00025 U	---	0.00028 U	0.00025 U	---	---	0.00035 U	---	0.00029 U	---	0.00026 U
Carbon Disulfide	0.024	0.00042 U	---	0.00034 U	---	0.00034 U	---	0.00039 U	0.00033 U	---	---	0.00047 U	---	0.00039 U	---	0.0018
Carbon Tetrachloride	0.00018	0.00042 U	---	0.00034 U	---	0.00034 U	---	0.00039 U	0.00033 U	---	---	0.00047 U	---	0.00039 U	---	0.00035 U
Chlorobenzene	0.0053	0.00014 U	---	0.00011 U	---	0.00011 U	---	0.00013 U	0.00011 U	---	---	0.00015 U	---	0.00013 U	---	0.00011 U
Chloroethane	0.59	0.00035 U	---	0.00028 UJ	---	0.00028 U	---	0.00032 U	0.00027 U	---	---	0.00039 U	---	0.00032 U	---	0.00029 U
Chloroform	0.000061	0.00021 U	---	0.00017 U	---	0.00017 U	---	0.00019 U	0.00016 U	---	---	0.00023 U	---	0.00019 U	---	0.00017 U
Chloromethane	0.0049	0.00038 U	---	0.0003 U	---	0.0003 U	---	0.00034 U	0.00029 U	---	---	0.00042 U	---	0.00034 U	---	0.00031 U
Cis-1,2-Dichloroethylene	0.0011	0.00022 U	---	0.00017 U	---	0.00017 U	---	0.0002 U	0.00017 U	---	---	0.00024 U	---	0.0002 U	---	0.00018 U
Cis-1,3-Dichloropropene	--	0.00015 U	---	0.00012 U	---	0.00012 U	---	0.00014 U	0.00012 U	---	---	0.00017 U	---	0.00014 U	---	0.00012 U
Cyclohexane	1.3	0.00045 U	---	0.00037 U	---	0.00036 U	---	0.00041 U	0.00036 U	---	---	0.00051 U	---	0.00042 U	---	0.00038 U
Dibromochloromethane	0.00023	0.00015 U	---	0.00012 U	---	0.00012 U	---	0.00014 U	0.00012 U	---	---	0.00017 U	---	0.00014 U	---	0.00012 U
Dichlorodifluoromethane	0.03	0.00032 U	---	0.00025 U	---	0.00025 U	---	0.00028 U	0.00025 U	---	---	0.00035 U	---	0.00029 U	---	0.00026 U
Ethylbenzene	0.0017	0.00018 U	---	0.00014 U	---	0.00014 U	---	0.00016 U	0.00014 U	---	---	0.0002 U	---	0.00016 U	---	0.00015 U
Isopropylbenzene (Cumene)	0.074	0.00017 U	---	0.00014 U	---	0.00013 U	---	0.00015 U	0.00013 U	---	---	0.00019 U	---	0.00015 U	---	0.00014 U
M,P-Xylene	--	0.00023 J	---	0.000087 U	---	0.000080 U	---	0.00017 J	0.000085 U	---	---	0.00012 U	---	0.0001 U	---	0.00033 J
Methyl Acetate	0.41	0.0031 J	---	0.00071 U	---	0.0029 J	---	0.00081 UJ	0.0028 J	---	---	0.00099 U	---	0.013	---	0.011
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0015 J	---	0.00061 U	---	0.0009 J	---	0.00068 U	0.0006 U	---	---	0.00085 U	---	0.0007 U	---	0.00063 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0022 U	---	0.0018 U	---	0.0017 U	---	0.002 U	0.0017 U	---	---	0.0024 U	---	0.002 U	---	0.0018 U
Methylcyclohexane	--	0.00049 U	---	0.0004 U	---	0.00039 UJ	---	0.00078 J	0.00039 U	---	---	0.00055 U	---	0.00045 U	---	0.00041 U
Methylene Chloride	0.0027	0.00032 U	---	0.00025 U	---	0.00025 U	---	0.00028 U	0.00025 U	---	---	0.00035 U	---	0.00029 U	---	0.00026 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00016 U	---	0.00013 U	---	0.00013 U	---	0.00014 U	0.00012 U	---	---	0.00018 U	---	0.00014 U	---	0.00013 U
Styrene	0.13	0.00015 U	---	0.00012 U	---	0.00012 U	---	0.00014 U	0.00012 U	---	---	0.00017 U	---	0.00014 U	---	0.00012 U
Tert-Butyl Methyl Ether	0.0032	0.00017 U	---	0.00014 U	---	0.00013 U	---	0.00015 U	0.00013 U	---	---	0.00019 U	---	0.00015 U	---	0.00014 U
Tetrachloroethylene (PCE)	0.0018	0.00028 U	---	0.00022 U	---	0.00022 U	---	0.00025 U	0.00022 U	---	---	0.00031 U	---	0.00025 U	---	0.00023 U
Toluene	0.076	0.0004 J	---	0.00024 J	---	0.00072 J	---	0.00061 J	0.0003 J	---	---	0.00021 U	---	0.00017 U	---	0.00042 J
Trans-1,2-Dichloroethene	0.011	0.00039 U	---	0.00031 U	---	0.00031 U	---	0.00035 U	0.0003 U	---	---	0.00043 U	---	0.00035 U	---	0.00032 U
Trans-1,3-Dichloropropene	--	0.000098 U	---	0.000079 U	---	0.000079 U	---	0.00009 U	0.000078 U	---	---	0.00011 U	---	0.00009 U	---	0.000082 U
Trichloroethylene (TCE)	0.0001	0.00026 U	---	0.00021 U	---	0.0002 U	---	0.00023 U	0.0002 U	---	---	0.00029 U	---	0.00024 U	---	0.00021 U
Trichlorofluoromethane	0.33	0.00034 U	---	0.00027 U	---	0.00027 U	---	0.00031 U	0.00026 U	---	---	0.00037 U	---	0.00031 U	---	0.00028 U
Vinyl Chloride	0.0000065	0.00039 U	---	0.00031 U	---	0.00031 U	---	0.00035 U	0.0003 U	---	---	0.00043 U	---	0.00035 U	---	0.00032 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-029	CFSB-033	CFSB-033	CFSB-034	CFSB-034	CFSB-035	CFSB-035	CFSB-036	CFSB-036	CFSB-037	CFSB-037	CFMW-003A	CFMW-003A	CFTP-17	CFTP-18
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
Chemical Name		5/23/2016	5/23/2016	5/23/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	8/25/2016	8/26/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	62 J	75.3 J	95.8 J	20.4 J	210 J-	116 J	180 J	104 J-	86.8 J	15.5 J	19.4 J	37.8 J-	4.17 J	21.1 J+	61.4 J
Cyanide	0.0015	0.016 J	0.85	0.18	0.02 J	0.097 J	0.051 J	0.2	0.024 J	0.05 J	0.029 J	0.026 J	0.053 J-	0.066 J-	0.25	0.048 U
METALS																
Aluminum	3000	9790	12100	12500	9920	14800	10900	10800	8750	9820	9600	12100	12700	6230	12500	21300
Antimony	0.035	0.33 UJ	0.37 UJ	0.38 UJ	0.45 UJ	0.49 UJ	0.41 UJ	0.45 U	0.43 UJ	0.57 J	0.4 UJ	0.43 UJ	0.33 UJ	0.5 U	0.3 UJ	0.45 UJ
Arsenic	0.0015	4	6	4.7	4.7	3.7	4.2	6.2	3.9	6.2	4.8	5.5	4.4	4.1	3	6
Barium	16	58	82.9	55.3	89.5	80.8	67.3	73.4	48.3	76.7	69.3	89.9	74.4	94.1	217 J	152 J
Beryllium	1.9	0.39	0.51	0.43	0.4 J	0.47 J	0.41	0.42 J	0.36 J	0.37 J	0.38 J	0.44	0.4	0.29 J	0.25 J	0.65
Cadmium	0.069	0.25 U	0.28 U	0.29 U	0.35 U	0.37 U	0.31 U	0.34 U	0.32 U	0.33 U	0.31 U	0.33 U	0.25 U	0.38 U	0.32 U	0.48 U
Calcium	--	30500	18200	36900	17600	22000	13300	13000	26600	22200	26200	23800	28000	75000	1920	2150
Chromium, Total	--	9.5	10.3	9.6	8.7	9.4	10.8	13.6	10	84.8	10.9	9.9	10.4	6.5	8.4	15.8
Cobalt	0.027	4.7	4.3	4.8	4.6	5.1	4.7	5.1	4.8	6.8	4.7	5.2	5.5	3.6	4.5 J	6.2 J
Copper	2.8	12.7	45.7	13.3	13.4 J	13.9 J	19.5 J	21.9	14.6 J	60 J	13.7 J	18.8 J	15.6	10.8	6 J	25.5 J
Iron	35	13800	14100	12700	13800	13800	16900	17800	12800	37100	13400	16000	15400	9890	11200 J	21800 J
Lead	400	7.8 J+	13.7 J+	10.4 J+	8 J	17 J	7.9 J	9.5	9.4 J	21.9 J	10 J	16.5 J	8.4	8.1	7.9 J	13.9 J
Magnesium	--	10800	10700	12000	12500	11300	9500	9260	9740	8360	10500	12200	14100	11800	5940	12500
Manganese	2.8	334	323	311	366	367	446	760	334	548	348	487	416	284	714 J	260 J
Mercury	0.0033	0.018 J	0.012 J	0.023	0.02 J	0.02	0.025	0.021	0.026	0.025	0.021	0.022	0.023	0.055	0.016 J	0.031
Nickel	2.6	11.3 J	18.1 J	20.4 J	9.7 J	19.8 J	21 J	41.4	26.7 J	80.5 J	10.4 J	15.1 J	12.4	7.8	10.6	16.4
Potassium	--	810 J	957 J	758 J	925	730	878	546	621	635	676	772	976	464	976	846
Selenium	0.052	0.31 U	0.35 U	0.43 J	0.43 U	0.46 U	0.62 J	1.1 J	0.49 J	1.2 J	0.38 U	0.4 U	0.31 U	0.47 U	0.28 U	0.42 U
Silver	0.08	0.6 U	0.68 U	0.69 U	0.84 U	0.9 U	0.75 U	0.82 U	0.78 U	0.8 U	0.74 U	0.79 U	0.61 U	0.91 U	0.59 U	0.89 U
Sodium	--	30.5 U	88.3 J	57.9 J	248	92 J	508	340	137	63.9 J	42.6 J	40.2 U	36.1 J	80.6 J	46.5 J	90.6 J
Thallium	0.0014	0.12 U	0.14 U	0.14 U	0.17 U	0.18 U	0.15 U	0.17 U	0.16 U	0.17 U	0.15 U	0.16 U	0.13 U	0.19 U	0.12 U	0.18 U
Vanadium	8.6	8.5	16.4	11.3	9.7	13	10	11.8	10.9	18.1	8.4	11.1	8.8	4.6	9.9 J	12.8 J
Zinc	37	39.6	69.4	42.2	35	51.5	33	28.9	41.2	52.5	37.8	42.4	45.4	41.3	50.1 J	53.7 J

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-029	CFSB-033	CFSB-033	CFSB-034	CFSB-034	CFSB-035	CFSB-035	CFSB-036	CFSB-036	CFSB-037	CFSB-037	CFMW-003A	CFMW-003A	CFTP-17	CFTP-18
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
Chemical Name		5/23/2016	5/23/2016	5/23/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	8/25/2016	8/26/2016
PESTICIDES																
Aldrin	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	0.00099 UJ	0.001 U	0.0015 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	...	...	...	...	...	...	...	...	...	...	...	0.00074 UJ	0.00076 U	0.0011 U
Alpha Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	0.0011 UJ	0.012 U	0.0017 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	...	...	...	...	...	...	...	...	...	...	...	0.00079 UJ	0.00081 U	0.0012 U
Beta Endosulfan	--	...	...	...	...	...	...	...	...	...	...	...	...	0.0013 UJ	0.0013 U	0.0019 U
cis-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	0.0013 UJ	0.0014 U	0.002 U
Delta BHC (Delta Hexachlorocyclohexane)	--	...	...	...	...	...	...	...	...	...	...	...	...	0.00089 UJ	0.00091 U	0.0013 U
Dieldrin	0.000071	...	...	...	...	...	...	...	...	...	...	...	...	0.0011 UJ	0.0011 U	0.0016 U
Endosulfan Sulfate	--	...	...	...	...	...	...	...	...	...	...	...	...	0.00095 UJ	0.00097 U	0.0014 U
Endrin	0.0092	...	...	...	...	...	...	...	...	...	...	...	...	0.001 UJ	0.0011 U	0.0016 U
Endrin Aldehyde	--	...	...	...	...	...	...	...	...	...	...	...	...	0.001 UJ	0.001 U	0.0015 U
Endrin Ketone	--	...	...	...	...	...	...	...	...	...	...	...	...	0.0011 UJ	0.0012 U	0.0017 U
Gamma Bhc (Lindane)	0.00024	...	...	...	...	...	...	...	...	...	...	...	...	0.00073 UJ	0.00074 U	0.0011 U
Heptachlor	0.00012	...	...	...	...	...	...	...	...	...	...	...	...	0.001 UJ	0.0011 U	0.0016 U
Heptachlor Epoxide	0.000028	...	...	...	...	...	...	...	...	...	...	...	...	0.0016 UJ	0.0016 U	0.0024 U
Methoxychlor	0.2	...	...	...	...	...	...	...	...	...	...	...	...	0.0017 UJ	0.0018 U	0.0026 U
P,P'-DDD	0.0075	...	...	...	...	...	...	...	...	...	...	...	...	0.0011 UJ	0.0011 U	0.0016 U
P,P'-DDE	0.011	...	...	...	...	...	...	...	...	...	...	...	...	0.0012 UJ	0.0012 U	0.0018 U
P,P'-DDT	0.077	...	...	...	...	...	...	...	...	...	...	...	...	0.00084 UJ	0.00086 U	0.0013 U
Toxaphene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	0.024 UJ	0.024 U	0.036 U
trans-Chlordane	--	...	...	...	...	...	...	...	...	...	...	...	...	0.0018 UJ	0.0018 U	0.0027 U
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0097 U	0.0097 U	0.0099 U	0.011 U	0.011 U	0.0098 U	0.0098 U	0.01 U	0.011 U	0.0098 U	0.01 U	0.01 U	0.011 U	0.011 U	0.016 U
PCB-1221 (Aroclor 1221)	0.00008	0.0097 U	0.0097 U	0.0099 U	0.011 U	0.011 U	0.0098 U	0.0098 U	0.01 U	0.011 U	0.0098 U	0.01 U	0.01 U	0.011 U	0.011 U	0.016 U
PCB-1232 (Aroclor 1232)	0.00008	0.0097 U	0.0097 U	0.0099 U	0.011 U	0.011 U	0.0098 U	0.0098 U	0.01 U	0.011 U	0.0098 U	0.01 U	0.01 U	0.011 U	0.011 U	0.016 U
PCB-1242 (Aroclor 1242)	0.0012	0.0097 U	0.0097 U	0.0099 U	0.011 U	0.011 U	0.0098 U	0.0098 U	0.01 U	0.011 U	0.0098 U	0.01 U	0.01 U	0.011 U	0.011 U	0.016 U
PCB-1248 (Aroclor 1248)	0.0012	0.0097 U	0.0097 U	0.0099 U	0.011 U	0.011 U	0.0098 U	0.0098 U	0.01 U	0.011 U	0.0098 U	0.01 U	0.01 U	0.011 U	0.011 U	0.016 U
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.017 U
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.017 U
PCB-1262 (Aroclor 1262)	--	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.017 U
PCB-1268 (Aroclor 1268)	--	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.017 U
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.017 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.13 U	0.027 U	0.03 UJ	0.29 UJ	0.027 U	0.027 U	0.028 UJ	0.029 U	0.027 UJ	0.027 U	0.028 U	0.03 UJ	0.03 U	0.045 U
1,4-Dioxane (P-Dioxane)	0.000094	0.096 U	0.48 U	0.099 U	0.11 UJ	1.1 UJ	0.097 U	0.098 U	0.1 UJ	0.11 U	0.097 UJ	0.099 U	0.099 U	0.11 UJ	0.11 U	0.16 U
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.17 U	0.035 U	0.038 UJ	0.37 UJ	0.034 U	0.035 U	0.035 UJ	0.037 U	0.034 UJ	0.035 U	0.035 U	0.038 UJ	0.039 U	0.057 U
2,4,5-Trichlorophenol	0.4	0.036 U	0.18 U	0.037 U	0.04 UJ	0.39 UJ	0.036 U	0.037 U	0.037 UJ	0.039 U	0.036 UJ	0.037 U	0.037 U	0.04 UJ	0.041 U	0.061 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.051 U	0.01 U	0.011 UJ	0.11 UJ	0.01 U	0.01 U	0.011 UJ	0.011 U	0.01 UJ	0.011 U	0.011 U	0.011 UJ	0.012 U	0.017 U
2,4-Dichlorophenol	0.0023	0.0085 U	0.042 U	0.0087 U	0.0095 UJ	0.093 UJ	0.0086 U	0.0087 U	0.0088 UJ	0.0093 U	0.0086 UJ	0.0087 U	0.0088 U	0.0095 UJ	0.0097 U	0.014 U
2,4-Dimethylphenol	0.042	0.079 U	0.39 U	0.081 U	0.088 UJ	0.87 UJ	0.08 U	0.081 U	0.082 UJ	0.087 U	0.08 UJ	0.081 U	0.082 U	0.088 UJ	0.09 U	0.13 U
2,4-Dinitrophenol	0.0044	0.27 U	1.4 U	0.28 U	0.3 UJ	3 UJ	0.27 U	0.28 U	0.28 UJ	0.3 U	0.27 UJ	0.28 U	0.28 U	0.3 UJ	0.31 UJ	0.46 UJ
2,4-Dinitrotoluene	0.00032	0.014 U	0.071 U	0.015 U	0.016 UJ	0.16 UJ	0.014 U	0.015 U	0.015 UJ	0.016 U	0.014 UJ	0.015 U	0.015 U	0.016 UJ	0.016 U	0.024 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.096 U	0.02 U	0.021 UJ	0.21 UJ	0.019 U	0.02 U	0.02 UJ	0.021 U	0.019 UJ	0.02 U	0.02 U	0.021 UJ	0.022 U	0.032 U
2-Chloronaphthalene	0.39	0.0082 U	0.041 U	0.0084 U	0.0091 UJ	0.089 UJ	0.0082 U	0.0084 U	0.0085 UJ	0.009 U	0.0082 UJ	0.0084 U	0.0084 U	0.0091 UJ	0.0093 U	0.014 U
2-Chlorophenol	0.0089	0.0091 U	0.046 U	0.0094 U	0.01 UJ	0.1 UJ	0.0092 U	0.0094 U	0.0095 UJ	0.01 U	0.0092 UJ	0.0094 U	0.0095 U	0.01 UJ	0.01 U	0.016 U
2-Methylnaphthalene	0.019	0.0079 U	0.04 U	0.0082 U	0.0089 UJ	0.24 J-	0.008 U	0.0081 U	0.0083 UJ	0.018 J	0.008 UJ	0.0082 U	0.0082 U	0.0089 UJ	0.009 U	0.013 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.078 U	0.016 U	0.018 UJ	0.17 UJ	0.016 U	0.016 U	0.016 UJ	0.017 U	0.016 UJ	0.016 U	0.016 U	0.018 UJ	0.018 U	0.027 U
2-Nitroaniline	0.008	0.012 U	0.059 U	0.012 U	0.013 UJ	0.13 UJ	0.012 U	0.012 U	0.012 UJ	0.013 U	0.012 UJ	0.012 U	0.012 U	0.013 UJ	0.014 U	0.02 U
2-Nitrophenol	--	0.012 U	0.06 U	0.012 U	0.013 UJ	0.13 UJ	0.012 U	0.012 U	0.013 UJ	0.013 U	0.012 UJ	0.012 U	0.012 U	0.014 UJ	0.014 U	0.02 U
3- And 4- Methylphenol (Total)	--	0.0096 U	0.048 U	0.0098 U	0.011 UJ	0.1 UJ	0.0097 U	0.0098 U	0.01 UJ	0.011 U	0.0097 UJ	0.0098 U	0.0099 U	0.011 UJ	0.011 U	0.068 J
3,3'-Dichlorobenzidine	0.00082	0.04 U	0.2 U	0.041 U	0.045 UJ	0.44 UJ	0.041 U	0.041 U	0.042 UJ	0.044 U	0.04 UJ	0.041 U	0.042 U	0.045 UJ	0.046 U	0.068 U
3-Nitroaniline	--	0.011 U	0.053 U	0.011 U	0.012 UJ	0.12 UJ	0.011 U	0.011 U	0.011 UJ	0.012 U	0.011 UJ	0.011 U	0.011 U	0.012 UJ	0.012 U	0.018 U
4,6-Dinitro-2-Methylphenol	0.00026	0.096 U	0.48 U	0.099 U	0.11 UJ	1 UJ	0.097 U	0.098 U	0.1 UJ	0.11 U	0.097 UJ	0.099 U	0.099 U	0.11 UJ	0.11 U	0.16 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.056 U	0.012 U	0.013 UJ	0.12 UJ	0.011 U	0.012 U	0.012 UJ	0.012 U	0.011 UJ	0.012 U	0.012 U	0.013 UJ	0.013 U	0.019 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.077 U	0.016 U	0.017 UJ	0.17 UJ	0.016 U	0.016 U	0.016 UJ	0.017 U	0.016 UJ	0.016 U	0.016 U	0.017 UJ	0.018 U	0.026 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-029	CFSB-033	CFSB-033	CFSB-034	CFSB-034	CFSB-035	CFSB-035	CFSB-036	CFSB-036	CFSB-037	CFSB-037	CFMW-003A	CFMW-003A	CFTP-17	CFTP-18
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
Chemical Name		5/23/2016	5/23/2016	5/23/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	8/25/2016	8/26/2016
4-Chloroaniline	0.00016	0.0092 U	0.046 U	0.0095 U	0.01 UJ	0.1 UJ	0.0093 U	0.0095 U	0.0096 UJ	0.01 U	0.0093 UJ	0.0095 U	0.0096 U	0.01 UJ	0.011 U	0.016 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.054 U	0.011 U	0.012 UJ	0.12 UJ	0.011 U	0.011 U	0.011 UJ	0.012 U	0.011 UJ	0.011 U	0.011 U	0.012 UJ	0.012 U	0.018 U
4-Nitroaniline	0.0016	0.014 U	0.068 U	0.014 U	0.015 UJ	0.15 UJ	0.014 U	0.014 U	0.014 UJ	0.015 U	0.014 UJ	0.014 U	0.014 U	0.015 UJ	0.015 U	0.023 U
4-Nitrophenol	--	0.17 U	0.86 U	0.18 U	0.19 UJ	1.9 UJ	0.17 U	0.18 U	0.18 UJ	0.19 U	0.17 UJ	0.18 U	0.18 U	0.19 UJ	0.2 U	0.29 U
Acenaphthene	0.55	0.021 J	0.043 U	0.051 J	0.012 J	1.7 J-	0.0088 U	0.022 J	0.014 J-	0.065 J	0.0083 UJ	0.013 J	0.009 U	0.0097 UJ	0.0099 U	0.019 J
Acenaphthylene	--	0.0092 U	0.046 U	0.0095 U	0.01 UJ	0.1 UJ	0.0093 U	0.0095 U	0.0096 UJ	0.01 U	0.0093 UJ	0.0095 U	0.0096 U	0.01 UJ	0.011 U	0.016 U
Acetophenone	0.058	0.0078 U	0.039 U	0.008 U	0.0088 UJ	0.086 UJ	0.0079 U	0.008 U	0.0091 J	0.0091 J	0.0079 UJ	0.008 U	0.0081 U	0.0088 UJ	0.0089 U	0.024 J
Anthracene	5.8	0.039 J	0.17 U	0.084 J	0.038 U	3.5 J-	0.034 U	0.059 J	0.056 J	0.14 J	0.034 UJ	0.035 U	0.035 U	0.038 UJ	0.039 U	0.058 U
Atrazine	0.0002	0.016 U	0.08 U	0.016 U	0.018 UJ	0.17 UJ	0.016 U	0.016 U	0.017 UJ	0.018 U	0.016 UJ	0.016 U	0.017 U	0.018 UJ	0.018 U	0.027 U
Benzaldehyde	0.0041	0.027 U	0.14 U	0.028 U	0.031 UJ	0.3 UJ	0.028 U	0.028 U	0.029 UJ	0.03 U	0.028 UJ	0.028 U	0.028 U	0.031 UJ	0.031 U	0.047 U
Benzo(A)Anthracene	0.011	0.31	0.81	0.6	0.1	19 J-	0.24	0.8	0.49 J-	1	0.1 J-	0.16	0.031 U	0.034 UJ	0.066	0.14
Benzo(A)Pyrene	0.018	0.39	1.1	0.7	0.12	25 J-	0.19	0.57	0.42 J-	1	0.11 J-	0.2	0.011 U	0.032 J-	0.083	0.54
Benzo(B)Fluoranthene	0.18	0.79	2	1.5	0.15	29 J-	1.1	3.5	1.8 J-	3.9	0.16 J-	0.31	0.015 J	0.044 J-	0.25	1.5
Benzo(G,H,I)Perylene	--	0.48	1.6 J	0.82	0.15 J	22 J-	0.29 J	0.86	0.97 J-	2	0.13 J-	0.25 J	0.021 U	0.033 J-	0.12 J	0.81
Benzo(K)Fluoranthene	1.8	0.016 U	0.66	0.016 U	0.057	14 J-	0.31	0.9	0.57 J-	1.2	0.053 J-	0.11	0.016 U	0.018 UJ	0.082	0.5
Benzyl Butyl Phthalate	0.24	0.011 U	0.055 U	0.011 U	0.012 UJ	0.12 UJ	0.011 U	0.011 U	0.22 J-	0.98	0.034 J-	0.057 J	0.011 U	0.012 UJ	0.013 U	0.019 U
Biphenyl (Diphenyl)	0.00087	0.031 U	0.15 U	0.031 U	0.034 UJ	0.34 UJ	0.031 U	0.031 U	0.032 UJ	0.034 U	0.031 UJ	0.032 U	0.032 U	0.034 UJ	0.035 U	0.052 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.056 U	0.012 U	0.013 UJ	0.12 UJ	0.011 U	0.011 U	0.012 UJ	0.012 U	0.011 UJ	0.012 U	0.012 U	0.013 UJ	0.013 U	0.019 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0085 U	0.042 U	0.0087 U	0.0095 UJ	0.093 UJ	0.0086 U	0.0087 U	0.0088 UJ	0.0093 U	0.0086 UJ	0.0087 U	0.0088 U	0.0095 UJ	0.0097 U	0.014 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.074 U	0.015 U	0.017 UJ	0.16 UJ	0.015 U	0.015 U	0.015 UJ	0.016 U	0.015 UJ	0.015 U	0.015 U	0.017 UJ	0.017 U	0.025 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.07 U	0.014 U	0.016 UJ	0.15 UJ	0.014 U	0.014 U	0.015 UJ	0.067 J+	0.069 J	0.087 J+	0.043 J+	0.064 J	0.016 U	0.024 U
Caprolactam	0.25	0.026 U	0.13 U	0.027 U	0.029 UJ	0.28 UJ	0.039 J	0.066 J	0.027 UJ	0.028 U	0.026 UJ	0.027 U	0.027 U	0.029 UJ	0.029 U	0.044 U
Carbazole	--	0.045 J	0.4 J	0.12 J	0.018 J	2.8 J-	0.028 J	0.065 J	0.059 J-	0.12 J	0.013 J-	0.022 J	0.0092 U	0.01 UJ	0.014 J	0.086 J
Chrysene	9	0.51	2.3	1	0.13 J	24 J-	0.57	1.8	1.1 J-	2.3	0.12 J-	0.23 J	0.01 U	0.035 J-	0.16 J	0.46 J
Dibenz(A,H)Anthracene	0.096	0.12	0.43	0.23	0.021 U	5.2 J-	0.13	0.37	0.35 J-	0.65	0.027 J-	0.05	0.019 U	0.021 UJ	0.021 U	0.17
Dibenzofuran	0.015	0.012 J	0.054 U	0.02 J	0.012 U	0.59 J-	0.011 U	0.012 J	0.011 UJ	0.037 J	0.011 UJ	0.011 U	0.011 U	0.012 UJ	0.012 U	0.018 U
Diethyl Phthalate	0.61	0.01 U	0.051 U	0.01 U	0.013 UJ	0.11 UJ	0.01 U	0.01 U	0.011 UJ	0.011 U	0.01 UJ	0.011 U	0.011 U	0.011 UJ	0.012 U	0.017 U
Dimethyl Phthalate	--	0.01 U	0.052 U	0.011 U	0.012 UJ	0.11 UJ	0.011 U	0.011 U	0.011 UJ	0.011 U	0.011 UJ	0.011 U	0.011 U	0.012 UJ	0.012 U	0.018 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.054 U	0.056 J	0.012 UJ	0.12 UJ	0.011 U	0.011 U	0.013 J-	0.012 U	0.011 UJ	0.011 U	0.011 U	0.012 UJ	0.012 U	0.22 J
Di-N-Octylphthalate	5.7	0.018 U	0.091 U	0.019 U	0.02 UJ	0.2 UJ	0.018 U	0.019 U	0.019 UJ	0.02 U	0.018 UJ	0.019 U	0.019 U	0.02 UJ	0.021 U	0.031 U
Fluoranthene	8.9	0.48	2.2	1.1	0.18 J	35 J-	0.29 J	0.78	0.62 J-	1.6	0.15 J-	0.28 J	0.011 U	0.033 J-	0.11 J	0.81
Fluorene	0.54	0.016 J	0.089 U	0.031 J	0.0088 UJ	1.1 J-	0.0079 U	0.014 J	0.01 J-	0.057 J	0.0079 UJ	0.01 J	0.0081 U	0.0088 UJ	0.0089 U	0.022 J
Hexachlorobenzene	0.00012	0.015 U	0.073 U	0.015 U	0.017 UJ	0.16 UJ	0.015 U	0.015 U	0.015 UJ	0.016 U	0.015 UJ	0.015 U	0.015 U	0.016 UJ	0.017 U	0.025 U
Hexachlorobutadiene	0.00027	0.01 U	0.05 U	0.01 U	0.011 UJ	0.11 UJ	0.01 U	0.01 U	0.011 UJ	0.011 U	0.01 UJ	0.01 U	0.01 U	0.011 UJ	0.012 U	0.017 U
Hexachlorocyclopentadiene	0.00013	0.022 U	0.11 U	0.023 U	0.025 UJ	0.25 UJ	0.023 U	0.023 U	0.023 UJ	0.025 UJ	0.023 UJ	0.023 UJ	0.023 UJ	0.025 UJ	0.026 U	0.038 U
Hexachloroethane	0.0002	0.013 U	0.066 U	0.014 U	0.015 UJ	0.14 UJ	0.013 U	0.013 U	0.014 UJ	0.014 U	0.013 UJ	0.014 U	0.014 U	0.015 UJ	0.015 U	0.022 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.44	1.4	0.82	0.13	23 J	0.32	1	1.1 J	2.2	0.14 J	0.28	0.025 U	0.027 UJ	0.12	0.86
Isophorone	0.026	0.034 J	0.039 U	0.036 J	0.0086 UJ	0.085 UJ	0.0078 U	0.016 J	0.008 UJ	0.069 J	0.0078 UJ	0.011 J	0.008 U	0.0086 UJ	0.0088 U	0.013 U
Naphthalene	0.00054	0.011 J	0.046 U	0.011 J	0.01 U	0.45 J-	0.0092 U	0.014 J	0.0095 UJ	0.052 J	0.0092 UJ	0.0094 U	0.0095 U	0.01 UJ	0.01 U	0.016 U
Nitrobenzene	0.000092	0.011 U	0.056 U	0.012 U	0.013 UJ	0.12 UJ	0.011 U	0.012 U	0.012 UJ	0.012 U	0.011 UJ	0.012 U	0.012 U	0.013 UJ	0.013 U	0.019 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.06 U	0.012 U	0.013 UJ	0.13 UJ	0.012 U	0.012 U	0.013 UJ	0.013 U	0.012 UJ	0.012 U	0.012 U	0.014 UJ	0.014 U	0.02 U
N-Nitrosodiphenylamine	0.067	0.033 U	0.16 U	0.034 U	0.036 UJ	0.36 UJ	0.033 U	0.033 U	0.034 UJ	0.036 U	0.033 UJ	0.034 U	0.034 U	0.037 UJ	0.037 U	0.055 U
Pentachlorophenol	0.000057	0.043 U	0.22 U	0.045 U	0.049 UJ	0.48 UJ	0.044 U	0.045 U	0.045 UJ	0.048 U	0.044 UJ	0.045 U	0.045 U	0.049 UJ	0.05 U	0.074 U
Phenanthrene	--	0.26 J	0.66 J	0.48	0.12 J	18 J-	0.13 J	0.3 J	0.24 J-	0.78	0.094 J-	0.14 J	0.0099 U	0.018 J-	0.052 J	0.28 J
Phenol	0.33	0.012 U	0.059 U	0.012 U	0.013 UJ	0.13 UJ	0.012 U	0.012 U	0.012 UJ	0.016 J	0.012 UJ	0.012 U	0.012 U	0.013 UJ	0.013 U	0.02 U
Pyrene	1.3	0.59	1.7 J	1.3	0.25 J	36 J-	0.26 J	0.73	0.66 J-	1.6	0.17 J-	0.29 J	0.017 U	0.042 J-	0.11 J	0.32 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	--	0.00032 U	--	0.00036 U	--	0.00032 U	--	0.00039 U	--	0.00028 U	--	0.00029 U	--	--	--
1,1,2,2-Tetrachloroethane	0.00003	--	0.00015 U	--	0.00016 U	--	0.00014 U	--	0.00017 U	--	0.00013 U	--	0.00013 U	--	--	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	--	0.00038 U	--	0.00042 U	--	0.00037 U	--	0.00045 U	--	0.00033 U	--	0.00034 U	--	--	--
1,1,2-Trichloroethane	0.000013	--	0.00024 U	--	0.00027 U	--	0.00024 U	--	0.00028 U	--	0.00021 U	--	0.00022 U	--	--	--
1,1-Dichloroethane	0.00078	--	0.00029 U	--	0.00032 U	--	0.00029 U	--	0.00035 U	--	0.00025 U	--	0.00026 U	--	--	--
1,1-Dichloroethene	0.01	--	0.00035 U	--	0.00039 U	--	0.00035 U	--	0.00042 U	--	0.0003 U	--	0.00032 U	--	--	--
1,2,3-Trichlorobenzene	0.0021	--	0.000094 U	--	0.0001 U	--	0.000093 U	--	0.00011 U	--	0.000082 U	--	0.000085 U	--	--	--
1,2,4-Trichlorobenzene	0.0012	--	0.00027 U	--	0.0003 U	--	0.00027 U	--	0.00032 U	--	0.00024 U	--	0.00025 U	--	--	--
1,2-Dibromo-3-Chloropropane	0.00000014	--	0.0004 U	--	0.00045 U	--	0.0004 U	--	0.00048 U	--	0.00035 U	--	0.00036 U	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-029	CFSB-033	CFSB-033	CFSB-034	CFSB-034	CFSB-035	CFSB-035	CFSB-036	CFSB-036	CFSB-037	CFSB-037	CFMW-003A	CFMW-003A	CFTP-17	CFTP-18
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
Chemical Name		5/23/2016	5/23/2016	5/23/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	8/25/2016	8/26/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.0001 U	...	0.00011 U	...	0.0001 U	...	0.00012 U	...	0.000089 U	...	0.000093 U	...	...	...
1,2-Dichlorobenzene	0.03	...	0.00012 U	...	0.00013 U	...	0.00012 U	...	0.00014 U	...	0.0001 U	...	0.00011 U	...	...	...
1,2-Dichloroethane	0.000048	...	0.000094 U	...	0.0001 U	...	0.000093 U	...	0.00011 U	...	0.000082 U	...	0.000085 U	...	...	...
1,2-Dichloropropane	0.000047	...	0.00015 U	...	0.00016 U	...	0.00014 U	...	0.00017 U	...	0.00013 U	...	0.00013 U	...	...	...
1,3-Dichlorobenzene	--	...	0.0001 U	...	0.00011 U	...	0.0001 U	...	0.00012 U	...	0.000089 U	...	0.000093 U	...	...	...
1,4-Dichlorobenzene	0.00046	...	0.00011 U	...	0.00012 U	...	0.00011 U	...	0.00013 U	...	0.000097 U	...	0.0001 U	...	...	...
2-Hexanone	0.00088	...	0.0008 U	...	0.00089 U	...	0.00079 U	...	0.00095 U	...	0.0007 U	...	0.00073 U	...	...	...
Acetone	0.29	...	0.02	...	0.019	...	0.014	...	0.0[illegible]	...	0.0079	...	0.0091	...	...	...
Benzene	0.00023	...	0.00026 J	...	0.00019 U	...	0.00017 U	...	0.00026 J	...	0.00015 U	...	0.00015 U	...	...	...
Bromochloromethane	0.0021	...	0.00015 U	...	0.00016 U	...	0.00014 U	...	0.00017 U	...	0.00013 U	...	0.00013 U	...	...	...
Bromodichloromethane	0.000036	...	0.00032 U	...	0.00036 U	...	0.00032 U	...	0.00039 U	...	0.00028 U	...	0.00029 U	...	...	...
Bromoform	0.00087	...	0.00011 U	...	0.00012 U	...	0.00011 U	...	0.00013 U	...	0.000097 U	...	0.0001 U	...	...	...
Bromomethane	0.00019	...	0.00027 U	...	0.00045 J	...	0.00027 U	...	0.00032 U	...	0.00024 U	...	0.00025 U	...	...	...
Carbon Disulfide	0.024	...	0.0033	...	0.0012	...	0.0017	...	0.00044 U	...	0.00039 J	...	0.00035 J	...	...	...
Carbon Tetrachloride	0.00018	...	0.00037 U	...	0.00041 U	...	0.00036 U	...	0.00044 U	...	0.00032 U	...	0.00033 U	...	...	...
Chlorobenzene	0.0053	...	0.00012 U	...	0.00013 U	...	0.00012 U	...	0.00014 U	...	0.0001 U	...	0.00011 U	...	...	...
Chloroethane	0.59	...	0.0003 U	...	0.00033 U	...	0.0003 U	...	0.00036 U	...	0.00026 U	...	0.00027 U	...	...	...
Chloroform	0.000061	...	0.00018 U	...	0.0002 U	...	0.00018 U	...	0.00021 U	...	0.00016 U	...	0.00016 U	...	...	...
Chloromethane	0.0049	...	0.00032 U	...	0.00036 U	...	0.00032 U	...	0.00039 U	...	0.00028 U	...	0.00029 U	...	...	...
Cis-1,2-Dichloroethylene	0.0011	...	0.00019 U	...	0.00021 U	...	0.00019 U	...	0.00022 U	...	0.00016 U	...	0.00017 U	...	...	...
Cis-1,3-Dichloropropene	--	...	0.00013 U	...	0.00014 U	...	0.00013 U	...	0.00015 U	...	0.00011 U	...	0.00012 U	...	...	...
Cyclohexane	1.3	...	0.00039 U	...	0.00044 U	...	0.00039 U	...	0.00047 U	...	0.00034 U	...	0.00035 U	...	...	...
Dibromochloromethane	0.00023	...	0.00013 U	...	0.00014 U	...	0.00013 U	...	0.00015 U	...	0.00011 U	...	0.00012 U	...	...	...
Dichlorodifluoromethane	0.03	...	0.00027 U	...	0.0003 U	...	0.00027 U	...	0.00032 U	...	0.00024 U	...	0.00025 U	...	...	...
Ethylbenzene	0.0017	...	0.00015 U	...	0.00017 U	...	0.00015 U	...	0.00018 U	...	0.00013 U	...	0.00014 U	...	...	...
Isopropylbenzene (Cumene)	0.074	...	0.00015 U	...	0.00016 U	...	0.00014 U	...	0.00017 U	...	0.00013 U	...	0.00013 U	...	...	...
M,P-Xylene	--	...	0.00021 J	...	0.00022 J	...	0.00016 J	...	0.00065 J	...	0.000082 U	...	0.000085 U	...	...	...
Methyl Acetate	0.41	...	0.00077 U	...	0.00086 U	...	0.00076 U	...	0.00091 U	...	0.00067 U	...	0.00069 U	...	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.00066 U	...	0.00073 U	...	0.00065 U	...	0.00078 U	...	0.00057 U	...	0.00059 U	...	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.0019 U	...	0.0021 U	...	0.0019 U	...	0.0023 U	...	0.0017 U	...	0.0017 U	...	...	...
Methylcyclohexane	--	...	0.00043 J	...	0.00048 U	...	0.00042 U	...	0.00086 J	...	0.00037 U	...	0.00039 U	...	...	...
Methylene Chloride	0.0027	...	0.00056 J	...	0.00[illegible]	...	0.00027 U	...	0.00032 U	...	0.00024 U	...	0.00025 U	...	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00014 U	...	0.00[illegible]	...	0.00014 U	...	0.00022 J	...	0.00012 U	...	0.00012 U	...	...	...
Styrene	0.13	...	0.00013 U	...	0.00[illegible]4 U	...	0.00013 U	...	0.00015 U	...	0.00011 U	...	0.00012 U	...	...	...
Tert-Butyl Methyl Ether	0.0032	...	0.00015 U	...	0.00016 U	...	0.00014 U	...	0.00017 U	...	0.00013 U	...	0.00013 U	...	...	...
Tetrachloroethylene (PCE)	0.0018	...	0.00024 U	...	0.00027 U	...	0.00024 U	...	0.00028 U	...	0.00021 U	...	0.00022 U	...	...	...
Toluene	0.076	...	0.0005 J	...	0.00039 J	...	0.00025 J	...	0.00093 J	...	0.0002 J	...	0.00015 U	...	...	...
Trans-1,2-Dichloroethene	0.011	...	0.00033 U	...	0.00037 U	...	0.00033 U	...	0.0004 U	...	0.00029 U	...	0.0003 U	...	...	...
Trans-1,3-Dichloropropene	--	...	0.000085 U	...	0.000095 U	...	0.000085 U	...	0.0001 U	...	0.000074 U	...	0.000077 U	...	...	...
Trichloroethylene (TCE)	0.0001	...	0.00022 U	...	0.00025 U	...	0.00022 U	...	0.00026 U	...	0.00019 U	...	0.0002 U	...	...	...
Trichlorofluoromethane	0.33	...	0.00029 U	...	0.00032 U	...	0.00029 U	...	0.00035 U	...	0.00025 U	...	0.00026 U	...	...	...
Vinyl Chloride	0.0000065	...	0.00033 U	...	0.00037 U	...	0.00033 U	...	0.0004 U	...	0.00029 U	...	0.0003 U	...	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFTP-19	CFTP-20	CFTP-21	CFTP-22	CFTP-23	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-011A-DUP	CFSB-011	CFSB-011	CFSB-122	CFSB-122	CFMW-056A	CFMW-056A
Sample Depth		0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		8/25/2016	8/25/2016	8/25/2016	8/25/2016	8/26/2016	6/25/2016	6/25/2016	6/25/2016	6/25/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	7/15/2016	7/15/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	17.3 J+	19.5 J+	22.2 J+	36.8 J+	23.7 J+	12 J+	27.6 J+	--	10.1 J+	11.2 J-	8.33 J-	5.57 J-	12.2 J-	3.64 J+	3.15 J
Cyanide	0.0015	0.11	0.45	0.11	0.085 J	0.06 J	0.051 J	0.042 J	--	0.034 J	0.044 J	0.12 J	0.024 U	0.026 U	0.022 J	0.22
METALS																
Aluminum	3000	12000	17100	14500	18800	18400	10000	15800	--	10400	14400 J	16400	15800 J	20200 J	19500	19700
Antimony	0.035	0.28 UJ	0.32 UJ	0.29 UJ	0.31 UJ	0.4 UJ	0.47 U	0.49 U	--	0.47 U	0.36 U	0.48 UJ	0.51 UJ	0.5 UJ	0.4 UJ	0.47 UJ
Arsenic	0.0015	5	4.7	3.9	4.2	4.3	4.6	4.9	--	4.5	6.1 J	5.2	2.2 J	2.8 J	5.7	6.4
Barium	16	184	226	176	266	267	61.8	158	--	63.3	195	253 J+	288	289	218	230
Beryllium	1.9	0.41	0.52	0.44	0.59	0.59	0.57	0.55	--	0.58	0.53	0.58	0.47 J	0.63	0.58	0.7
Cadmium	0.069	0.3 U	0.34 U	0.3 U	0.34 U	0.42 U	0.36 U	0.37 U	--	0.36 U	0.27 U	0.37 U	0.39 U	0.38 U	0.3 U	0.36 U
Calcium	--	1730	2300	2200	1980	2930	1660	6600	--	1560	3300	3070	3150	3300	2710 J	5740 J
Chromium, Total	--	9.7	10.2	9.3	9.6	11.3	9.8	8.6	--	9.7	13.5	10.9	4.9	5.4	11.2	12.6
Cobalt	0.027	5	5.4	4.4	5	5.3	8.1	6.2	--	8.5	6	6.6	2.8	2.9	6.6	6.7
Copper	2.8	7.6	7.2	6.7	8.3	7.7	12.2	13.4	--	11.3	20.6 J	13.1	10.2 J	9.1 J	11.5	20
Iron	35	14700	16300	13500	16600	16000	14500	14900	--	14300	17100	17000	7710	8140	18500	17700
Lead	400	13.5 J+	11.3 J+	8.5 J+	10.2 J+	11.8 J+	12.9	11.2	7.9	12.8	11.1	10.4	5.1	6.4	9.6	13.1
Magnesium	--	8350	8770	6500	7060	8550	6160	7170	--	6120	8700	7080	2950	2940	7640	8450
Manganese	2.8	877	805	521	493	736	475	446	--	490	453 J	457	44.4 J	49.4 J	410	588
Mercury	0.0033	0.013 J	0.034	0.015 J	0.013 U	0.068	0.014 U	0.015 U	--	0.013 U	0.014 J	0.02	0.017 U	0.019 U	0.012 J	0.031
Nickel	2.6	15.4 J+	13 J+	10.2 J+	11 J+	17 J+	11.2	12.2	--	10.8	11.2	12.2	5.8	6.4	12.2	14.3
Potassium	--	1070	1500	908	1020	1430	1040	978	--	1060	1140	1120	551	519	751	1120
Selenium	0.052	0.26 U	0.3 U	0.27 U	0.3 U	0.37 U	0.44 U	0.46 U	--	0.44 U	0.42 J	0.5 J	0.48 U	0.46 U	0.37 U	0.57 J
Silver	0.08	0.55 U	0.62 U	0.56 U	0.63 U	0.78 U	0.87 U	0.9 U	--	0.86 U	0.68 U	0.93 U	0.93 U	0.91 U	0.73 U	0.86 U
Sodium	--	38.5 U	44.8 J	38.7 U	57 J	55.1 J	44.2 U	168	--	44.1 U	45.5 J	64.6 J	555	552	57.4 J	158 J
Thallium	0.0014	0.11 U	0.13 U	0.11 U	0.13 U	0.16 U	0.18 U	0.19 U	--	0.18 U	0.14 U	0.18 U	0.19 U	0.19 U	0.15 U	0.18 U
Vanadium	8.6	12.9	14.7	12.6	14.6	16.7	12.5	12.8	--	13.2	12.6	11	7.4	7.7	13.5	13.8
Zinc	37	57.4	51.7	47.5	62	65.1	30.5	40	--	30	57.3	70.8	12.6	13.6	48.7	89

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFTP-19	CFTP-20	CFTP-21	CFTP-22	CFTP-23	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-011A-DUP	CFSB-011	CFSB-011	CFSB-122	CFSB-122	CFMW-056A	CFMW-056A
Sample Depth		0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		8/25/2016	8/25/2016	8/25/2016	8/25/2016	8/26/2016	6/25/2016	6/25/2016	6/25/2016	6/25/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	7/15/2016	7/15/2016
PESTICIDES																
Aldrin	0.00015	0.00088 U	0.00098 U	0.00089 U	0.00096 U	0.0013 U	---	0.001 U	---	---	---	---	---	0.0013 U	---	0.001 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	0.00066 U	0.00074 U	0.00067 U	0.00072 U	0.00095 UJ	---	0.00076 U	---	---	---	---	---	0.00097 U	---	0.00075 U
Alpha Endosulfan	--	0.001 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	---	0.0012 U	---	---	---	---	---	0.0015 U	---	0.0011 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	0.0007 U	0.00079 U	0.00071 U	0.00077 U	0.001 U	---	0.00081 U	---	---	---	---	---	0.001 U	---	0.0008 U
Beta Endosulfan	--	0.0011 U	0.0013 U	0.0011 U	0.0012 U	0.0016 U	---	0.0013 U	---	---	---	---	---	0.0017 U	---	0.0013 U
cis-Chlordane	--	0.0012 U	0.0013 U	0.0012 U	0.0013 U	0.0017 U	---	0.0014 U	---	---	---	---	---	0.0017 U	---	0.0013 U
Delta BHC (Delta Hexachlorocyclohexane)	--	0.00079 U	0.00089 U	0.0008 U	0.00086 U	0.0011 U	---	0.00091 U	---	---	---	---	---	0.0012 U	---	0.0009 U
Dieldrin	0.000071	0.00094 U	0.0011 U	0.00095 U	0.001 U	0.0014 UJ	---	0.0011 U	---	---	---	---	---	0.0014 U	---	0.0011 U
Endosulfan Sulfate	--	0.00084 U	0.00095 U	0.00085 U	0.00092 U	0.0012 U	---	0.00097 U	---	---	---	---	---	0.0012 U	---	0.00096 U
Endrin	0.0092	0.00092 U	0.001 U	0.00093 U	0.001 U	0.0013 U	---	0.0011 U	---	---	---	---	---	0.0014 U	---	0.0011 U
Endrin Aldehyde	--	0.0009 U	0.001 U	0.00091 U	0.00098 U	0.0013 U	---	0.001 U	---	---	---	---	---	0.0013 U	---	0.001 U
Endrin Ketone	--	0.001 U	0.0011 U	0.001 U	0.0011 U	0.0014 U	---	0.0012 U	---	---	---	---	---	0.0015 U	---	0.0011 U
Gamma Bhc (Lindane)	0.00024	0.00065 U	0.00073 U	0.00066 U	0.00071 U	0.00093 U	---	0.0007 U	---	---	---	---	---	0.00095 U	---	0.00074 U
Heptachlor	0.00012	0.00093 U	0.001 U	0.00094 U	0.001 U	0.0013 U	---	0.0011 U	---	---	---	---	---	0.0014 U	---	0.0011 U
Heptachlor Epoxide	0.000028	0.0014 U	0.0016 U	0.0014 U	0.0015 U	0.002 U	---	0.0016 U	---	---	---	---	---	0.0021 U	---	0.0016 U
Methoxychlor	0.2	0.0015 U	0.0017 U	0.0016 U	0.0017 U	0.0022 U	---	0.0018 U	---	---	---	---	---	0.0023 U	---	0.0018 U
P,P'-DDD	0.0075	0.00095 U	0.0011 U	0.00096 U	0.001 U	0.0014 U	---	0.0011 U	---	---	---	---	---	0.0014 U	---	0.0011 U
P,P'-DDE	0.011	0.001 U	0.0012 U	0.0011 U	0.0011 U	0.0015 U	---	0.0012 U	---	---	---	---	---	0.0015 U	---	0.0012 U
P,P'-DDT	0.077	0.00075 U	0.00084 U	0.00075 U	0.00082 U	0.0011 U	---	0.00086 U	---	---	---	---	---	0.0011 U	---	0.00085 U
Toxaphene	0.011	0.021 U	0.024 U	0.021 U	0.023 U	0.03 U	---	0.024 U	---	---	---	---	---	0.031 U	---	0.024 U
trans-Chlordane	--	0.0016 U	0.0018 U	0.0016 U	0.0017 U	0.0023 U	---	0.0018 U	---	---	---	---	---	0.0023 U	---	0.0018 U
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0096 U	0.011 U	0.0097 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.0099 U	0.011 U	0.013 U	0.014 U	0.0097 U	0.011 U
PCB-1221 (Aroclor 1221)	0.00008	0.0096 U	0.011 U	0.0097 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.0099 U	0.011 U	0.013 U	0.014 U	0.0097 U	0.011 U
PCB-1232 (Aroclor 1232)	0.00008	0.0096 U	0.011 U	0.0097 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.0099 U	0.011 U	0.013 U	0.014 U	0.0097 U	0.011 U
PCB-1242 (Aroclor 1242)	0.0012	0.0096 U	0.011 U	0.0097 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.0099 U	0.011 U	0.013 U	0.014 U	0.0097 U	0.011 U
PCB-1248 (Aroclor 1248)	0.0012	0.0096 U	0.011 U	0.0097 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.0099 U	0.011 U	0.013 U	0.014 U	0.0097 U	0.011 U
PCB-1254 (Aroclor 1254)	0.002	0.0099 U	0.011 U	0.01 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.01 U	0.011 U	0.014 U	0.015 U	0.01 U	0.011 U
PCB-1260 (Aroclor 1260)	0.0055	0.0099 U	0.011 U	0.01 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.01 U	0.011 U	0.014 U	0.015 U	0.01 U	0.011 U
PCB-1262 (Aroclor 1262)	--	0.0099 U	0.011 U	0.01 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.01 U	0.011 U	0.014 U	0.015 U	0.01 U	0.011 U
PCB-1268 (Aroclor 1268)	--	0.0099 U	0.011 U	0.01 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.01 U	0.011 U	0.014 U	0.015 U	0.01 U	0.011 U
Polychlorinated Biphenyl (PCBs)	--	0.0099 U	0.011 U	0.01 U	0.011 U	0.014 U	0.011 U	0.011 U	---	0.011 U	0.01 U	0.011 U	0.014 U	0.015 U	0.01 U	0.011 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.03 U	0.027 U	0.029 U	0.038 U	0.029 U	0.031 U	---	0.029 U	0.027 U	0.029 U	0.037 U	0.039 U	0.027 U	0.03 U
1,4-Dioxane (P-Dioxane)	0.000094	0.095 U	0.11 U	0.097 U	0.1 U	0.14 U	0.11 U	0.11 U	---	0.11 U	0.098 U	0.11 U	0.13 U	0.14 U	0.096 U	0.11 U
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.038 U	0.034 U	0.037 U	0.048 UJ	0.037 U	0.039 U	---	0.037 U	0.034 UJ	0.037 U	0.047 U	0.049 U	0.034 U	0.038 U
2,4,5-Trichlorophenol	0.4	0.035 U	0.04 U	0.035 U	0.039 U	0.051 UJ	0.039 U	0.041 U	---	0.039 U	0.036 UJ	0.039 U	0.05 U	0.052 U	0.036 U	0.041 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.011 U	0.01 U	0.011 U	0.015 UJ	0.011 U	0.012 U	---	0.011 U	0.01 UJ	0.011 U	0.014 U	0.015 U	0.01 U	0.012 U
2,4-Dichlorophenol	0.0023	0.0084 U	0.0095 U	0.0085 U	0.0092 U	0.012 UJ	0.0093 U	0.0097 U	---	0.0093 U	0.0086 UJ	0.0093 U	0.012 U	0.012 U	0.0085 U	0.0096 U
2,4-Dimethylphenol	0.042	0.078 U	0.088 U	0.08 U	0.086 U	0.11 UJ	0.087 U	0.091 U	---	0.087 U	0.081 UJ	0.087 U	0.11 U	0.12 U	0.079 U	0.09 U
2,4-Dinitrophenol	0.0044	0.27 UJ	0.3 UJ	0.27 UJ	0.3 UJ	0.39 UJ	0.3 U	0.31 U	---	0.3 U	0.28 UJ	0.3 U	0.38 U	0.4 U	0.27 U	0.31 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.016 U	0.014 U	0.015 U	0.02 UJ	0.016 U	0.016 U	---	0.016 U	0.015 U	0.016 U	0.02 U	0.021 U	0.014 U	0.016 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.021 U	0.019 U	0.021 U	0.027 UJ	0.021 U	0.022 U	---	0.021 U	0.019 U	0.021 U	0.027 U	0.028 U	0.019 U	0.022 U
2-Chloronaphthalene	0.39	0.0081 U	0.0091 U	0.0082 U	0.0089 U	0.012 UJ	0.009 U	0.0094 U	---	0.0089 U	0.0083 U	0.009 U	0.011 U	0.012 U	0.0081 U	0.0093 U
2-Chlorophenol	0.0089	0.0091 U	0.01 U	0.0092 U	0.0099 U	0.013 UJ	0.01 U	0.01 U	---	0.01 U	0.0093 UJ	0.01 U	0.013 U	0.013 U	0.0091 U	0.01 U
2-Methylnaphthalene	0.019	0.0079 U	0.0088 U	0.008 U	0.0086 U	0.014 J-	0.0087 U	0.0091 U	---	0.0087 U	0.0081 UJ	0.0087 U	0.011 U	0.012 U	0.0079 U	0.009 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.017 U	0.016 U	0.017 U	0.022 UJ	0.017 U	0.018 U	---	0.017 U	0.016 UJ	0.017 U	0.022 U	0.023 U	0.016 U	0.018 U
2-Nitroaniline	0.008	0.012 U	0.013 U	0.012 U	0.013 U	0.017 U	0.013 U	0.014 U	---	0.013 U	0.012 U	0.013 U	0.016 U	0.017 U	0.012 U	0.013 U
2-Nitrophenol	--	0.012 U	0.013 U	0.012 U	0.013 U	0.017 UJ	0.013 U	0.014 U	---	0.013 U	0.012 UJ	0.013 U	0.017 U	0.018 U	0.012 U	0.014 U
3- And 4- Methylphenol (Total)	--	0.0095 U	0.011 U	0.0096 U	0.01 J	0.014 UJ	0.011 U	0.011 U	---	0.01 U	0.0097 U	0.011 U	0.013 U	0.014 U	0.0096 U	0.011 U
3,3'-Dichlorobenzidine	0.00082	0.04 U	0.045 U	0.04 U	0.044 U	0.057 UR	0.044 U	0.046 U	---	0.044 U	0.041 U	0.044 U	0.056 U	0.059 U	0.04 U	0.046 U
3-Nitroaniline	--	0.011 U	0.012 U	0.011 U	0.012 U	0.015 UJ	0.012 U	0.012 U	---	0.012 U	0.011 U	0.012 U	0.015 U	0.016 U	0.011 U	0.012 U
4,6-Dinitro-2-Methylphenol	0.00026	0.095 U	0.11 U	0.096 U	0.1 U	0.14 UJ	0.11 U	0.11 U	---	0.11 U	0.098 UJ	0.11 U	0.13 U	0.14 U	0.096 U	0.11 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.013 U	0.011 U	0.012 U	0.016 U	0.012 U	0.013 U	---	0.012 U	0.012 U	0.012 U	0.016 U	0.017 U	0.011 U	0.013 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.017 U	0.016 U	0.017 U	0.022 UJ	0.017 U	0.018 U	---	0.017 U	0.016 UJ	0.017 U	0.021 U	0.023 U	0.015 U	0.018 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--					--	--	--	--		
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFTP-19	CFTP-20	CFTP-21	CFTP-22	CFTP-23	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-011A-DUP	CFSB-011	CFSB-011	CFSB-122	CFSB-122	CFMW-056A	CFMW-056A
Sample Depth		0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		8/25/2016	8/25/2016	8/25/2016	8/25/2016	8/26/2016	6/25/2016	6/25/2016	6/25/2016	6/25/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	7/15/2016	7/15/2016
4-Chloroaniline	0.00016	0.0092 U	0.01 U	0.0093 U	0.01 U	0.013 UJ	0.01 U	0.011 U	...	0.01 U	0.0094 U	0.01 U	0.013 U	0.014 U	0.0092 U	0.01 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.012 U	0.011 U	0.012 U	0.015 UJ	0.012 U	0.012 U	...	0.012 U	0.011 U	0.012 U	0.015 U	0.016 U	0.011 U	0.012 U
4-Nitroaniline	0.0016	0.013 U	0.015 U	0.014 U	0.015 U	0.019 UJ	0.015 U	0.016 U	...	0.015 U	0.014 UJ	0.015 U	0.019 U	0.02 U	0.014 U	0.015 U
4-Nitrophenol	--	0.17 U	0.19 U	0.17 U	0.19 U	0.25 U	0.19 U	0.2 U	...	0.19 U	0.18 U	0.19 U	0.24 U	0.25 U	0.17 U	0.2 U
Acenaphthene	0.55	0.0086 U	0.016 J	0.0087 U	0.0095 U	0.042 J-	0.0096 U	0.01 U	...	0.0095 U	0.0089 U	0.0096 U	0.012 U	0.013 U	0.0087 U	0.0099 U
Acenaphthylene	--	0.0092 U	0.01 U	0.0093 U	0.01 U	0.013 UJ	0.01 U	0.011 U	...	0.01 U	0.0094 U	0.01 U	0.013 U	0.014 U	0.0092 U	0.01 U
Acetophenone	0.058	0.0078 U	0.0087 U	0.0079 U	0.0085 U	0.019 J-	0.0086 U	0.009 U	...	0.0086 U	0.009 U	0.0086 U	0.011 U	0.011 U	0.0078 U	0.0089 U
Anthracene	5.8	0.034 U	0.038 U	0.034 U	0.037 U	0.089 J-	0.038 U	0.038 U	...	0.037 U	0.035 UJ	0.038 U	0.047 U	0.05 U	0.034 U	0.039 U
Atrazine	0.0002	0.016 U	0.018 U	0.016 U	0.017 U	0.023 UJ	0.018 U	0.018 U	...	0.018 U	0.016 U	0.018 U	0.022 U	0.023 U	0.016 U	0.018 U
Benzaldehyde	0.0041	0.027 U	0.031 U	0.028 U	0.03 U	0.06 J-	0.03 U	0.031 U	...	0.03 U	0.028 UJ	0.03 U	0.038 U	0.04 U	0.027 U	0.031 U
Benzo(A)Anthracene	0.011	0.046	0.24	0.03 U	0.033 U	0.55 J-	0.033 U	0.034 U	...	0.033 U	0.031 U	0.041	0.042 U	0.044 U	0.03 U	0.076
Benzo(A)Pyrene	0.018	0.053	0.38	0.029 J	0.027 J	0.85 J-	0.012 U	0.03 J	...	0.012 U	0.02 J	0.045	0.015 U	0.016 U	0.011 U	0.11
Benzo(B)Fluoranthene	0.18	0.14	0.83	0.075	0.079	2.7 J-	0.015 U	0.053	...	0.015 U	0.049	0.11	0.019 U	0.021 U	0.014 U	0.24
Benzo(G,H,I)Perylene	--	0.066 J	0.51	0.033 J	0.036 J	1.3	0.023 U	0.031 J	...	0.023 U	0.023 J+	0.051 J	0.029 U	0.03 U	0.021 U	0.097 J
Benzo(K)Fluoranthene	1.8	0.052	0.32	0.028 J	0.028 J	0.74 J-	0.017 U	0.023 J	...	0.017 U	0.016 U	0.033 J	0.022 U	0.023 U	0.016 U	0.063
Benzyl Butyl Phthalate	0.24	0.011 U	0.012 U	0.011 U	0.012 U	0.016 UJ	0.012 U	0.013 U	...	0.012 U	0.011 U	0.012 U	0.015 U	0.016 U	0.011 U	0.013 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.034 U	0.031 U	0.033 U	0.044 UJ	0.034 U	0.035 U	...	0.034 U	0.031 U	0.034 U	0.046 J	0.045 U	0.031 U	0.035 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.012 U	0.011 U	0.012 U	0.016 UJ	0.012 U	0.013 U	...	0.012 U	0.011 U	0.012 U	0.016 U	0.016 U	0.011 U	0.013 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0084 U	0.0095 U	0.0086 U	0.0092 U	0.012 UJ	0.0093 U	0.0097 U	...	0.0093 U	0.0086 U	0.0093 U	0.012 U	0.012 U	0.0085 U	0.0096 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.016 U	0.015 U	0.016 U	0.021 U	0.016 U	0.017 U	...	0.016 U	0.015 U	0.016 U	0.021 U	0.022 U	0.015 U	0.017 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.016 J	0.016 U	0.014 U	0.015 U	0.02 UJ	0.015 U	0.016 U	...	0.015 U	0.014 U	0.085 J	0.019 U	0.021 U	0.014 U	0.016 U
Caprolactam	0.25	0.026 U	0.029 U	0.026 U	0.028 U	0.037 UJ	0.028 UJ	0.03 UJ	...	0.028 UJ	0.026 UJ	0.028 U	0.036 U	0.038 U	0.026 U	0.029 U
Carbazole	--	0.0088 U	0.044 J	0.009 U	0.0097 U	0.13 J-	0.0098 U	0.01 U	...	0.0098 U	0.0091 UJ	0.0098 U	0.012 U	0.013 U	0.0089 U	0.016 J
Chrysene	9	0.09 J	0.52	0.045 J	0.053 J	1.5 J-	0.011 U	0.043 J	...	0.011 U	0.041 J	0.084 J	0.014 U	0.014 U	0.0098 U	0.15 J
Dibenz(A,H)Anthracene	0.096	0.019 U	0.11	0.019 U	0.02 U	0.27	0.021 U	0.021 U	...	0.02 U	0.019 U	0.021 U	0.026 U	0.027 U	0.019 U	0.027 J
Dibenzofuran	0.015	0.011 U	0.012 U	0.011 U	0.012 U	0.023 J-	0.012 U	0.012 U	...	0.012 U	0.011 U	0.012 U	0.015 U	0.016 U	0.011 U	0.012 U
Diethyl Phthalate	0.61	0.01 U	0.011 U	0.01 U	0.011 U	0.015 UJ	0.011 U	0.012 U	...	0.011 U	0.01 U	0.011 U	0.032 J	0.015 U	0.01 U	0.012 U
Dimethyl Phthalate	--	0.01 U	0.012 U	0.01 U	0.011 U	0.015 UJ	0.011 U	0.012 U	...	0.011 U	0.011 U	0.011 U	0.015 U	0.015 U	0.01 U	0.012 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.012 U	0.011 U	0.012 U	0.015 UJ	0.012 U	0.012 U	...	0.012 U	0.011 U	0.012 U	0.48 J	0.016 U	0.011 U	0.012 U
Di-N-Octylphthalate	5.7	0.018 U	0.02 U	0.018 U	0.02 U	0.026 UJ	0.02 U	0.021 U	...	0.02 U	0.019 U	0.02 U	0.025 U	0.027 U	0.018 U	0.021 U
Fluoranthene	8.9	0.07 J	0.44	0.033 J	0.026 J	1 J-	0.012 U	0.038 J	...	0.012 U	0.028 J-	0.059 J	0.015 U	0.016 U	0.011 U	0.15 J
Fluorene	0.54	0.0078 U	0.011 J	0.0079 U	0.0085 U	0.038 J-	0.0086 U	0.009 U	...	0.0086 U	0.009 UJ	0.0086 U	0.011 U	0.011 U	0.0078 U	0.0089 U
Hexachlorobenzene	0.00012	0.014 U	0.016 U	0.015 U	0.016 U	0.021 U	0.016 U	0.017 U	...	0.016 U	0.015 U	0.016 U	0.02 U	0.021 U	0.015 U	0.017 U
Hexachlorobutadiene	0.00027	0.01 U	0.011 U	0.01 U	0.011 U	0.014 UJ	0.011 U	0.012 U	...	0.011 U	0.01 U	0.011 U	0.014 U	0.015 U	0.01 U	0.011 U
Hexachlorocyclopentadiene	0.00013	0.022 U	0.025 U	0.023 U	0.024 U	0.032 UJ	0.025 U	0.026 U	...	0.025 U	0.023 U	0.025 U	0.031 U	0.033 U	0.022 U	0.025 U
Hexachloroethane	0.0002	0.013 U	0.015 U	0.013 U	0.014 U	0.019 UJ	0.014 U	0.015 U	...	0.014 U	0.013 U	0.014 U	0.018 U	0.019 U	0.013 U	0.015 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.076	0.55	0.032 J	0.04	1.4	0.026 U	0.027 U	...	0.026 U	0.024 J	0.056 J+	0.033 U	0.035 U	0.024 U	0.086
Isophorone	0.026	0.0077 U	0.0086 U	0.0078 U	0.0084 U	0.011 UJ	0.0085 U	0.0089 U	...	0.0085 U	0.0079 U	0.0089 J	0.011 U	0.011 U	0.0077 U	0.0088 U
Naphthalene	0.00054	0.0091 U	0.01 U	0.0091 U	0.0099 U	0.025 J-	0.01 U	0.01 U	...	0.01 U	0.0093 UJ	0.01 U	0.013 U	0.013 U	0.0091 U	0.01 U
Nitrobenzene	0.000092	0.011 U	0.013 U	0.011 U	0.012 U	0.016 UJ	0.012 U	0.013 U	...	0.012 U	0.012 U	0.012 U	0.016 U	0.017 U	0.011 U	0.013 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.013 U	0.012 U	0.013 U	0.017 UJ	0.013 U	0.014 U	...	0.013 U	0.012 U	0.013 U	0.017 U	0.018 U	0.012 U	0.014 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.036 U	0.033 U	0.035 U	0.047 UJ	0.036 U	0.037 U	...	0.036 U	0.033 UJ	0.036 U	0.045 U	0.048 U	0.033 U	0.037 U
Pentachlorophenol	0.000057	0.043 U	0.048 U	0.044 U	0.047 U	0.062 UJ	0.048 U	0.05 U	...	0.048 U	0.044 UJ	0.048 U	0.06 U	0.064 U	0.043 U	0.049 U
Phenanthrene	--	0.036 J	0.21 J	0.018 J	0.017 J	0.49 J-	0.011 U	0.018 J	...	0.01 U	0.018 J-	0.036 J	0.013 U	0.014 U	0.0096 U	0.077 J
Phenol	0.33	0.012 U	0.013 U	0.012 U	0.013 U	0.017 UJ	0.013 U	0.013 U	...	0.013 U	0.012 UJ	0.013 U	0.016 U	0.017 U	0.012 U	0.013 U
Pyrene	1.3	0.06 J	0.39 J	0.036 J	0.028 J	1 J-	0.018 U	0.043 J	...	0.018 U	0.029 J	0.063 J	0.023 U	0.024 U	0.016 U	0.16 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	...	...	...	...	...	0.00033 U	...	...	0.00032 U	0.00055 UJ	...	0.00055 U	...	0.00038 U	...
1,1,2,2-Tetrachloroethane	0.00003	...	...	...	...	...	0.00015 U	...	...	0.00014 U	0.00024 UJ	...	0.00024 U	...	0.00017 UJ	...
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	...	...	...	...	...	0.00038 U	...	...	0.00037 U	0.00063 UJ	...	0.00063 U	...	0.00044 U	...
1,1,2-Trichloroethane	0.000013	...	...	...	...	...	0.00024 U	...	...	0.00024 U	0.0004 UJ	...	0.0004 U	...	0.00028 U	...
1,1-Dichloroethane	0.00078	...	...	...	...	...	0.0003 U	...	...	0.00029 U	0.00049 UJ	...	0.00049 U	...	0.00034 U	...
1,1-Dichloroethene	0.01	...	...	...	...	...	0.00036 U	...	...	0.00035 U	0.00059 UJ	...	0.00059 U	...	0.00041 U	...
1,2,3-Trichlorobenzene	0.0021	...	...	...	...	...	0.000096 U	...	...	0.000093 U	0.00016 UJ	...	0.00016 U	...	0.00011 UJ	...
1,2,4-Trichlorobenzene	0.0012	...	...	...	...	...	0.00028 U	...	...	0.00027 U	0.00046 UJ	...	0.00046 U	...	0.00032 U	...
1,2-Dibromo-3-Chloropropane	0.00000014	...	...	...	...	...	0.00041 U	...	...	0.0004 U	0.00067 UJ	...	0.00068 U	...	0.00047 U	...

Preliminary - Under EPA and IDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--					--	--	--	--		
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFTP-19	CFTP-20	CFTP-21	CFTP-22	CFTP-23	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-011A-DUP	CFSB-011	CFSB-011	CFSB-122	CFSB-122	CFMW-056A	CFMW-056A
Sample Depth		0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		8/25/2016	8/25/2016	8/25/2016	8/25/2016	8/26/2016	6/25/2016	6/25/2016	6/25/2016	6/25/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	7/15/2016	7/15/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	...	...	...	...	0.0001 U	...	...	0.0001 U	0.00017 UJ	...	0.00017 U	...	0.00012 U	...
1,2-Dichlorobenzene	0.03	...	...	...	...	...	0.00012 U	...	...	0.00012 U	0.0002 UJ	...	0.0002 U	...	0.00014 U	...
1,2-Dichloroethane	0.000048	...	...	...	...	...	0.000096 U	...	...	0.000093 U	0.00016 U	...	0.00016 U	...	0.00011 U	...
1,2-Dichloropropane	0.000047	...	...	...	...	...	0.00015 U	...	...	0.00014 U	0.00024 UJ	...	0.00024 U	...	0.00017 U	...
1,3-Dichlorobenzene	--	...	...	...	...	...	0.0001 U	...	...	0.0001 U	0.00017 UJ	...	0.00017 U	...	0.00012 U	...
1,4-Dichlorobenzene	0.00046	...	...	...	...	...	0.00011 U	...	...	0.00011 U	0.00019 UJ	...	0.00019 U	...	0.00013 U	...
2-Hexanone	0.00088	...	...	...	...	...	0.00082 U	...	...	0.00079 U	0.0013 U	...	0.0014 U	...	0.00094 U	...
Acetone	0.29	...	...	...	...	...	0.038	...	...	0.045	0.042 J	...	0.012	...	0.034 J+	...
Benzene	0.00023	...	...	...	...	...	0.00017 UJ	...	...	0.0003 J	0.00041 J-	...	0.00029 U	...	0.0002 U	...
Bromochloromethane	0.0021	...	...	...	...	...	0.00015 U	...	...	0.00014 U	0.00024 U	...	0.00024 U	...	0.00017 U	...
Bromodichloromethane	0.000036	...	...	...	...	...	0.00033 U	...	...	0.00032 U	0.00055 UJ	...	0.00055 U	...	0.00038 U	...
Bromoform	0.00087	...	...	...	...	...	0.00011 U	...	...	0.00011 U	0.00019 U	...	0.00019 U	...	0.00013 UJ	...
Bromomethane	0.00019	...	...	...	...	...	0.00028 U	...	...	0.00027 U	0.00046 UJ	...	0.00046 U	...	0.00032 U	...
Carbon Disulfide	0.024	...	...	...	...	...	0.00038 U	...	...	0.00036 U	0.00062 UJ	...	0.00062 U	...	0.00043 U	...
Carbon Tetrachloride	0.00018	...	...	...	...	...	0.00038 U	...	...	0.00036 U	0.00062 UJ	...	0.00062 U	...	0.00043 UJ	...
Chlorobenzene	0.0053	...	...	...	...	...	0.00012 U	...	...	0.00012 U	0.0002 UJ	...	0.0002 U	...	0.00014 U	...
Chloroethane	0.59	...	...	...	...	...	0.00031 U	...	...	0.0003 U	0.0005 U	...	0.0005 U	...	0.00035 U	...
Chloroform	0.000061	...	...	...	...	...	0.00018 U	...	...	0.00018 U	0.0003 UJ	...	0.0003 U	...	0.00021 U	...
Chloromethane	0.0049	...	...	...	...	...	0.00033 U	...	...	0.00032 U	0.00055 UJ	...	0.00055 U	...	0.00038 U	...
Cis-1,2-Dichloroethylene	0.0011	...	...	...	...	...	0.00019 U	...	...	0.00019 U	0.00032 UJ	...	0.00032 U	...	0.00022 U	...
Cis-1,3-Dichloropropene	--	...	...	...	...	...	0.00013 U	...	...	0.00013 U	0.00022 UJ	...	0.00022 U	...	0.00015 U	...
Cyclohexane	1.3	...	...	...	...	...	0.00024 U	...	...	0.00039 U	0.00066 UJ	...	0.00066 U	...	0.00046 U	...
Dibromochloromethane	0.00023	...	...	...	...	...	0.00013 U	...	...	0.00013 U	0.00022 UJ	...	0.00022 U	...	0.00015 UJ	...
Dichlorodifluoromethane	0.03	...	...	...	...	...	0.00028 U	...	...	0.00027 U	0.00046 UJ	...	0.00046 U	...	0.00032 UJ	...
Ethylbenzene	0.0017	...	...	...	...	...	0.00016 U	...	...	0.00015 U	0.00026 UJ	...	0.00026 U	...	0.00018 U	...
Isopropylbenzene (Cumene)	0.074	...	...	...	...	...	0.00015 U	...	...	0.00014 U	0.00024 UJ	...	0.00024 U	...	0.00017 U	...
M,P-Xylene	--	...	...	...	...	...	0.000096 U	...	...	0.000093 U	0.00016 UJ	...	0.00016 U	...	0.00011 U	...
Methyl Acetate	0.41	...	...	...	...	...	0.0019 J	...	...	0.00076 UJ	0.27 J	...	0.0013 U	...	0.0009 U	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	...	...	...	...	0.0018 J	...	...	0.0021 J	0.0011 U	...	0.0011 U	...	0.00077 U	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	...	...	...	...	0.0019 U	...	...	0.0019 U	0.0032 UJ	...	0.0032 U	...	0.0022 U	...
Methylcyclohexane	--	...	...	...	...	...	0.00044 U	...	...	0.00042 U	0.00072 UJ	...	0.00072 U	...	0.0005 U	...
Methylene Chloride	0.0027	...	...	...	...	...	0.00028 U	...	...	0.00027 U	0.00046 UJ	...	0.00046 U	...	0.00032 U	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	...	...	...	...	0.00014 U	...	...	0.00014 U	0.00023 UJ	...	0.00023 U	...	0.00016 U	...
Styrene	0.13	...	...	...	...	...	0.00013 U	...	...	0.00013 U	0.00022 UJ	...	0.00022 U	...	0.00015 U	...
Tert-Butyl Methyl Ether	0.0032	...	...	...	...	...	0.00015 U	...	...	0.00014 U	0.00024 U	...	0.00024 U	...	0.00017 U	...
Tetrachloroethylene (PCE)	0.0018	...	...	...	...	...	0.00024 U	...	...	0.00024 U	0.0004 UJ	...	0.0004 U	...	0.00028 U	...
Toluene	0.076	...	...	...	...	...	0.00064 J	...	...	0.00024 J	0.00027 UJ	...	0.00027 U	...	0.00019 U	...
Trans-1,2-Dichloroethene	0.011	...	...	...	...	...	0.00034 U	...	...	0.00033 U	0.00056 UJ	...	0.00056 U	...	0.00039 U	...
Trans-1,3-Dichloropropene	--	...	...	...	...	...	0.000087 U	...	...	0.000084 U	0.00014 UJ	...	0.00014 U	...	0.0001 U	...
Trichloroethylene (TCE)	0.0001	...	...	...	...	...	0.00023 U	...	...	0.00022 U	0.00037 UJ	...	0.00037 U	...	0.00026 U	...
Trichlorofluoromethane	0.33	...	...	...	...	...	0.0003 U	...	...	0.00029 U	0.00049 UJ	...	0.00049 U	...	0.00034 U	...
Vinyl Chloride	0.0000065	...	...	...	...	...	0.00034 U	...	...	0.00033 U	0.00056 UJ	...	0.00056 U	...	0.00039 U	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-056A	CFMW-056A-DUP	CFMW-057A	CFMW-057A	CFMW-059A	CFMW-059A	CFMW-059A	CFSB-120	CFSB-120	CFSB-123	CFSB-123	CFSB-124	CFSB-124	CFSB-125	CFSB-125
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/15/2016	7/15/2016	7/27/2016	7/27/2016	7/22/2016	7/22/2016	7/22/2016	5/18/2016	5/18/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	5/18/2016	5/18/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	--	10.7 J	1.41	15.4	2.87	14.2	--	2.43 J-	5.63 J	9.29 J-	10.5 J-	6.61 J-	10.8 J-	8.91 J-	8.31 J-
Cyanide	0.0015	--	0.18	0.022 J	0.086 J	0.034 J	0.057 J	--	0.078 J	0.11 J	0.093 J	0.12 J	0.16	0.68	0.034 J	0.12
METALS																
Aluminum	3000	--	19100	15400	14200	14700	16600	--	30900	20400	18800 J	17300 J	19600 J	20500 J	16200	19600
Antimony	0.035	--	0.44 UJ	0.36 UJ	0.35 UJ	0.41 U	0.47 U	--	0.42 UJ	0.37 UJ	0.44 UJ	0.41 UJ	0.42 UJ	0.43 UJ	0.36 UJ	0.37 UJ
Arsenic	0.0015	--	5.8	3.7	4	4.7 J+	3.8 J+	--	5.6	4.5	5.3 J	4.8 J	6.8 J	5.9 J	4.7	4.8
Barium	16	--	221	137	170	176	218	--	440	245	305	278	303	347	188	229
Beryllium	1.9	--	0.69	0.55	0.51	0.53 J	0.61 J	--	1.2	0.97	0.87	0.77	0.81	0.95	0.76	0.65
Cadmium	0.069	--	0.33 U	0.28 U	0.27 U	0.31 U	0.35 U	--	0.32 U	0.28 U	0.33 U	0.31 U	0.32 U	0.33 U	0.27 U	0.28 U
Calcium	--	--	5520 J	1470 J+	2440 J+	1800 J	2500 J	--	3600	3520	5820	5430	4730	5850	10900	17200
Chromium, Total	--	--	12.5	8.6	8.3	8.7	7.3	--	20.9	16.9	16.3	15.3	15.3	18.3	11.1	11.1
Cobalt	0.027	--	6.3	5.8	5.4	4.7	5.4	--	7.2	6.2	6.3	5.8	7.2	7	5.9	7.2
Copper	2.8	--	19.1	11.3	11.2	13.1 J+	13.9 J+	--	23	20.3	18.4 J	18.5 J	18.4 J	27 J	15	14.1
Iron	35	--	17200	14700	14000	13600	13100	--	18200	17300	17100	15800	19200	19900	15000	17200
Lead	400	13.6	12	8.1	9.6	8.9 J+	9.3 J+	11.7	16	14.8	14.3	13.7	12.5	15.9	12.4	12.5
Magnesium	--	--	8090	6320	5840	6780	4660	--	10600	11200	10700	10100	9440	11400	7960	8510
Manganese	2.8	--	549	367	682	376	499	--	296	222	411 J	363 J	558 J	470 J	462	576
Mercury	0.0033	--	0.028	0.012 U	0.012 U	0.017 J	0.022	--	0.039	0.026	0.032	0.033	0.016 J	0.019 J	0.017 J	0.018
Nickel	2.6	--	13.1	10.6	10.4	8.9	8.9	--	14.2	13.4	12	11.4	13	14.2	10.5	13.3
Potassium	--	--	1090	982	1140	651	768	--	1340	1230	1210	1160	1220	1510	969	1020
Selenium	0.052	--	0.58 J	0.34 U	0.33 U	0.38 U	0.44 U	--	0.39 J	0.49 J	1.1 J	0.9 J	0.74 J	0.93 J	0.34 U	0.35 U
Silver	0.08	--	0.8 U	0.67 U	0.65 U	0.74 U	0.86 U	--	0.76 U	0.68 U	0.81 U	0.76 U	0.77 U	0.8 U	0.66 U	0.68 U
Sodium	--	--	49.6 J	45.2 J	34.6 J	71.9 J	80.2 J	--	251	95.1	93.9 J	78.7 J	74 J	76.5 J	63.3 J	62.7 J
Thallium	0.0014	--	0.16 U	0.14 U	0.13 U	0.15 U	0.18 U	--	0.16 U	0.14 U	0.17 U	0.16 U	0.16 U	0.16 U	0.14 U	0.14 U
Vanadium	8.6	--	12.5	16.7	13.9	12.6	14.2	--	12.4	13	11.3	10.5	13.3	12.7	14	16.5
Zinc	37	--	84.2	39.8	63.8	31.3	38.9	--	46.9	50.7	50.8	47.3	59.9	72	53.7	79.6

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-056A	CFMW-056A-DUP	CFMW-057A	CFMW-057A	CFMW-059A	CFMW-059A	CFMW-059A	CFSB-120	CFSB-120	CFSB-123	CFSB-123	CFSB-124	CFSB-124	CFSB-125	CFSB-125
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/15/2016	7/15/2016	7/27/2016	7/27/2016	7/22/2016	7/22/2016	7/22/2016	5/18/2016	5/18/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	5/18/2016	5/18/2016
PESTICIDES																
Aldrin	0.00015	---	---	---	0.0009 U	---	0.00099 U	---	---	0.00094 U	---	0.001 U	---	0.0011 U	---	0.00091 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	---	---	---	0.00068 U	---	0.00074 U	---	---	0.00071 U	---	0.00079 U	---	0.00083 U	---	0.00068 U
Alpha Endosulfan	--	---	---	---	0.001 U	---	0.0011 U	---	---	0.0011 U	---	0.0012 U	---	0.0013 U	---	0.001 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	---	---	---	0.00072 U	---	0.00079 U	---	---	0.00075 U	---	0.00084 U	---	0.00088 U	---	0.00073 U
Beta Endosulfan	--	---	---	---	0.0012 U	---	0.0013 U	---	---	0.0012 U	---	0.0014 U	---	0.0014 U	---	0.0012 U
cis-Chlordane	--	---	---	---	0.0012 U	---	0.0013 U	---	---	0.0013 U	---	0.0014 U	---	0.0015 U	---	0.0012 U
Delta BHC (Delta Hexachlorocyclohexane)	--	---	---	---	0.00081 U	---	0.00089 U	---	---	0.00085 U	---	0.00094 U	---	0.00099 U	---	0.00082 U
Dieldrin	0.000071	---	---	---	0.00097 U	---	0.0011 U	---	---	0.001 U	---	0.0011 U	---	0.0012 U	---	0.00097 U
Endosulfan Sulfate	--	---	---	---	0.00087 U	---	0.00095 U	---	---	0.0009 U	---	0.001 U	---	0.0011 U	---	0.00087 U
Endrin	0.0092	---	---	---	0.00095 U	---	0.001 U	---	---	0.00099 U	---	0.0011 U	---	0.0011 U	---	0.00095 U
Endrin Aldehyde	--	---	---	---	0.00092 U	---	0.001 U	---	---	0.00096 U	---	0.0011 U	---	0.0011 U	---	0.00093 U
Endrin Ketone	--	---	---	---	0.001 U	---	0.0011 U	---	---	0.0011 U	---	0.0012 U	---	0.0013 U	---	0.001 U
Gamma Bhc (Lindane)	0.00024	---	---	---	0.00067 U	---	0.00073 U	---	---	0.0007 U	---	0.00077 U	---	0.00081 U	---	0.00067 U
Heptachlor	0.00012	---	---	---	0.00096 U	---	0.001 U	---	---	0.001 U	---	0.0011 U	---	0.0012 U	---	0.00096 U
Heptachlor Epoxide	0.000028	---	---	---	0.0015 U	---	0.0016 U	---	---	0.0015 U	---	0.0017 U	---	0.0018 U	---	0.0015 U
Methoxychlor	0.2	---	---	---	0.0016 U	---	0.0017 U	---	---	0.0016 U	---	0.0018 U	---	0.0019 U	---	0.0016 U
P,P'-DDD	0.0075	---	---	---	0.00098 U	---	0.0011 U	---	---	0.001 U	---	0.0011 U	---	0.0012 U	---	0.00099 U
P,P'-DDE	0.011	---	---	---	0.0011 U	---	0.0012 U	---	---	0.0011 U	---	0.0013 U	---	0.0013 U	---	0.0011 U
P,P'-DDT	0.077	---	---	---	0.00077 U	---	0.00083 U	---	---	0.0008 U	---	0.00089 U	---	0.00093 U	---	0.00077 U
Toxaphene	0.011	---	---	---	0.022 U	---	0.024 U	---	---	0.023 U	---	0.025 U	---	0.026 U	---	0.022 U
trans-Chlordane	--	---	---	---	0.0016 U	---	0.0018 U	---	---	0.0017 U	---	0.0019 U	---	0.002 U	---	0.0016 U
PCB's																
PCB-1016 (Aroclor 1016)	0.013	---	0.01 U	0.0096 U	0.0099 U	0.0098 U	0.011 U	---	0.012 U	0.01 U	0.012 U	0.011 U	0.012 U	0.012 U	0.0097 U	0.01 U
PCB-1221 (Aroclor 1221)	0.00008	---	0.01 U	0.0096 U	0.0099 U	0.0098 U	0.011 U	---	0.012 U	0.01 U	0.012 U	0.011 U	0.012 U	0.012 U	0.0097 U	0.01 U
PCB-1232 (Aroclor 1232)	0.00008	---	0.01 U	0.0096 U	0.0099 U	0.0098 U	0.011 U	---	0.012 U	0.01 U	0.012 U	0.011 U	0.012 U	0.012 U	0.0097 U	0.01 U
PCB-1242 (Aroclor 1242)	0.0012	---	0.01 U	0.0096 U	0.0099 U	0.0098 U	0.011 U	---	0.012 U	0.01 U	0.012 U	0.011 U	0.012 U	0.012 U	0.0097 U	0.01 U
PCB-1248 (Aroclor 1248)	0.0012	---	0.01 U	0.0096 U	0.0099 U	0.0098 U	0.011 U	---	0.012 U	0.01 U	0.012 U	0.011 U	0.012 U	0.012 U	0.0097 U	0.01 U
PCB-1254 (Aroclor 1254)	0.002	---	0.011 U	0.0099 U	0.01 U	0.01 U	0.011 U	---	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.012 U	0.01 U	0.01 U
PCB-1260 (Aroclor 1260)	0.0055	---	0.011 U	0.0099 U	0.01 U	0.01 U	0.011 U	---	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.012 U	0.01 U	0.01 U
PCB-1262 (Aroclor 1262)	--	---	0.011 U	0.0099 U	0.01 U	0.01 U	0.011 U	---	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.012 U	0.01 U	0.01 U
PCB-1268 (Aroclor 1268)	--	---	0.011 U	0.0099 U	0.01 U	0.01 U	0.011 U	---	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.012 U	0.01 U	0.01 U
Polychlorinated Biphenyl (PCBs)	--	---	0.011 U	0.0099 U	0.01 U	0.01 U	0.011 U	---	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.012 U	0.01 U	0.01 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	---	0.028 U	0.027 U	0.027 UJ	0.027 U	0.03 U	---	0.032 U	0.028 U	0.033 U	0.032 U	0.032 U	0.033 U	0.027 U	0.028 U
1,4-Dioxane (P-Dioxane)	0.000094	---	0.1 U	0.095 U	0.099 U	0.098 U	0.11 U	---	0.12 U	0.1 U	0.12 U	0.11 U	0.11 U	0.12 U	0.096 U	0.099 U
2,3,4,6-Tetrachlorophenol	0.018	---	0.036 U	0.034 U	0.035 UJ	0.034 U	0.038 U	---	0.041 U	0.036 U	0.042 U	0.04 U	0.04 U	0.042 U	0.034 U	0.035 U
2,4,5-Trichlorophenol	0.4	---	0.038 U	0.036 U	0.037 UJ	0.036 U	0.04 U	---	0.043 U	0.039 U	0.045 U	0.042 U	0.043 U	0.044 U	0.036 U	0.037 U
2,4,6-Trichlorophenol	0.0012	---	0.011 U	0.01 U	0.01 UJ	0.01 U	0.011 U	---	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.013 U	0.01 U	0.011 U
2,4-Dichlorophenol	0.0023	---	0.009 U	0.0084 U	0.0087 UJ	0.0086 U	0.0095 U	---	0.01 U	0.009 U	0.011 U	0.01 U	0.01 U	0.011 U	0.0085 U	0.0087 U
2,4-Dimethylphenol	0.042	---	0.084 U	0.078 U	0.081 UJ	0.08 U	0.088 U	---	0.096 U	0.084 U	0.099 U	0.094 U	0.095 U	0.098 U	0.079 U	0.081 U
2,4-Dinitrophenol	0.0044	---	0.29 U	0.27 U	0.28 UJ	0.28 U	0.3 U	---	0.33 U	0.29 U	0.34 U	0.32 U	0.33 U	0.34 U	0.27 U	0.28 U
2,4-Dinitrotoluene	0.00032	---	0.015 U	0.014 U	0.015 UJ	0.014 U	0.016 U	---	0.017 U	0.015 U	0.018 U	0.017 U	0.017 U	0.018 U	0.014 U	0.015 U
2,6-Dinitrotoluene	0.000067	---	0.02 U	0.019 U	0.02 UJ	0.019 U	0.021 U	---	0.023 U	0.02 U	0.024 U	0.023 U	0.023 U	0.024 U	0.019 U	0.02 U
2-Chloronaphthalene	0.39	---	0.0086 U	0.0081 U	0.0084 UJ	0.0083 U	0.0091 U	---	0.0099 U	0.0087 U	0.01 U	0.0097 U	0.0098 U	0.01 U	0.0081 U	0.0084 U
2-Chlorophenol	0.0089	---	0.0097 U	0.0091 U	0.0094 UJ	0.0093 U	0.01 U	---	0.011 U	0.0097 U	0.011 U	0.011 U	0.011 U	0.011 U	0.0091 U	0.0094 U
2-Methylnaphthalene	0.019	---	0.0084 U	0.0079 U	0.0081 UJ	0.0081 U	0.0089 U	---	0.0096 U	0.0085 U	0.0099 U	0.0094 U	0.0095 U	0.0099 U	0.0079 U	0.0082 U
2-Methylphenol (O-Cresol)	0.075	---	0.017 U	0.016 U	0.016 UJ	0.016 U	0.017 U	---	0.019 U	0.017 U	0.02 U	0.019 U	0.019 U	0.019 U	0.016 U	0.016 U
2-Nitroaniline	0.008	---	0.013 U	0.012 U	0.012 U	0.012 U	0.013 U	---	0.014 U	0.013 U	0.015 U	0.014 U	0.014 U	0.015 U	0.012 U	0.012 U
2-Nitrophenol	--	---	0.013 U	0.012 U	0.012 UJ	0.012 U	0.013 U	---	0.015 U	0.013 U	0.015 U	0.014 U	0.014 U	0.015 U	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	---	0.01 U	0.0095 U	0.0098 UJ	0.0097 U	0.011 U	---	0.012 U	0.01 U	0.012 U	0.011 U	0.011 U	0.012 U	0.0095 U	0.0098 U
3,3'-Dichlorobenzidine	0.00082	---	0.043 U	0.04 U	0.041 U	0.041 U	0.045 U	---	0.049 U	0.043 U	0.05 U	0.048 U	0.048 U	0.05 U	0.04 U	0.041 U
3-Nitroaniline	--	---	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	---	0.013 U	0.011 U	0.013 U	0.013 U	0.013 U	0.013 U	0.011 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	---	0.1 U	0.095 U	0.098 UJ	0.097 U	0.11 U	---	0.12 U	0.1 U	0.12 U	0.11 U	0.11 U	0.12 U	0.096 U	0.099 U
4-Bromophenyl Phenyl Ether	--	---	0.012 U	0.011 U	0.012 UJ	0.011 U	0.013 U	---	0.014 U	0.012 U	0.014 U	0.013 U	0.014 U	0.014 U	0.011 U	0.012 U
4-Chloro-3-Methylphenol	0.17	---	0.016 U	0.015 U	0.016 UJ	0.015 U	0.017 U	---	0.019 U	0.016 U	0.019 U	0.018 U	0.018 U	0.019 U	0.015 U	0.016 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-056A	CFMW-056A-DUP	CFMW-057A	CFMW-057A	CFMW-059A	CFMW-059A	CFMW-059A	CFSB-120	CFSB-120	CFSB-123	CFSB-123	CFSB-124	CFSB-124	CFSB-125	CFSB-125
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/15/2016	7/15/2016	7/27/2016	7/27/2016	7/22/2016	7/22/2016	7/22/2016	5/18/2016	5/18/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	5/18/2016	5/18/2016
4-Chloroaniline	0.00016	--	0.0098 U	0.0092 U	0.0095 U	0.0094 U	0.01 U	--	0.011 U	0.0098 U	0.012 U	0.011 U	0.011 U	0.011 U	0.0092 U	0.0095 U
4-Chlorophenyl Phenyl Ether	--	--	0.011 U	0.011 U	0.011 UJ	0.011 U	0.012 U	--	0.013 U	0.011 U	0.013 U	0.013 U	0.013 U	0.013 U	0.011 U	0.011 U
4-Nitroaniline	0.0016	--	0.014 U	0.013 U	0.014 UJ	0.014 U	0.015 U	--	0.016 U	0.014 U	0.017 U	0.016 U	0.016 U	0.017 U	0.014 U	0.014 U
4-Nitrophenol	--	--	0.18 U	0.17 U	0.18 U	0.18 U	0.19 U	--	0.21 UJ	0.18 U	0.22 U	0.21 U	0.21 U	0.21 U	0.17 U	0.18 U
Acenaphthene	0.55	--	0.0092 U	0.0086 U	0.0089 UJ	0.0088 U	0.0097 U	--	0.011 U	0.0093 U	0.011 U	0.01 U	0.01 U	0.011 U	0.0087 U	0.0089 U
Acenaphthylene	--	--	0.0098 U	0.0092 U	0.0095 UJ	0.0094 U	0.01 U	--	0.011 U	0.0098 U	0.012 U	0.011 U	0.011 U	0.011 U	0.0092 U	0.0095 U
Acetophenone	0.058	--	0.0083 U	0.0078 U	0.008 UJ	0.008 U	0.0087 U	--	0.0095 U	0.0083 U	0.0098 U	0.0093 U	0.0094 U	0.0097 U	0.0078 U	0.0081 U
Anthracene	5.8	--	0.036 U	0.034 U	0.035 UJ	0.035 U	0.038 U	--	0.042 U	0.036 U	0.043 U	0.041 U	0.041 U	0.042 U	0.034 U	0.035 U
Atrazine	0.0002	--	0.017 U	0.016 U	0.016 U	0.016 U	0.018 U	--	0.02 U	0.017 U	0.02 U	0.019 U	0.019 U	0.02 U	0.016 U	0.016 U
Benzaldehyde	0.0041	--	0.029 U	0.027 U	0.028 UJ	0.028 U	0.031 U	--	0.033 U	0.029 U	0.034 U	0.033 U	0.033 U	0.034 U	0.027 U	0.028 U
Benzo(A)Anthracene	0.011	--	0.056	0.03 U	0.031 UJ	0.03 U	0.034 U	--	0.036 U	0.032 U	0.038 U	0.036 U	0.036 U	0.037 J	0.03 U	0.044
Benzo(A)Pyrene	0.018	--	0.069	0.011 U	0.011 UJ	0.011 U	0.012 U	--	0.013 U	0.017 J	0.014 U	0.014 J	0.015 J	0.028 J	0.013 J	0.051
Benzo(B)Fluoranthene	0.18	--	0.15	0.014 U	0.014 UJ	0.014 U	0.016 U	--	0.017 U	0.044	0.018 U	0.032 J	0.031 J	0.063	0.026 J	0.1
Benzo(G,H,I)Perylene	--	--	0.058 J	0.02 U	0.021 U	0.021 U	0.023 U	--	0.025 U	0.022 U	0.026 U	0.025 U	0.025 U	0.037 J+	0.022 J	0.074 J
Benzo(K)Fluoranthene	1.8	--	0.038	0.016 U	0.016 UJ	0.016 U	0.017 U	--	0.019 U	0.02 J	0.02 U	0.019 U	0.019 U	0.028 J	0.016 U	0.035 J
Benzyl Butyl Phthalate	0.24	--	0.012 U	0.011 U	0.011 UJ	0.011 U	0.012 U	--	0.013 U	0.012 U	0.014 U	0.013 U	0.013 U	0.014 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	--	0.033 U	0.03 U	0.031 UJ	0.031 U	0.034 U	--	0.037 U	0.033 U	0.038 U	0.036 U	0.037 U	0.038 U	0.031 U	0.032 U
Bis(2-Chloroethoxy) Methane	0.0013	--	0.012 U	0.011 U	0.011 UJ	0.011 U	0.013 U	--	0.014 U	0.012 U	0.014 U	0.013 U	0.013 U	0.014 U	0.011 U	0.012 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	--	0.009 U	0.0084 U	0.0087 UJ	0.0086 U	0.0095 U	--	0.01 U	0.009 U	0.011 U	0.01 U	0.01 U	0.011 U	0.0085 U	0.0087 U
Bis(2-Chloroisopropyl) Ether	0.026	--	0.016 U	0.015 U	0.015 U	0.015 U	0.017 U	--	0.018 UJ	0.016 UJ	0.019 U	0.018 U	0.018 U	0.018 U	0.015 UJ	0.015 UJ
Bis(2-Ethylhexyl) Phthalate	1.3	--	0.013 U	0.014 U	0.014 UJ	0.014 U	0.016 U	--	0.017 U	0.015 U	0.018 U	0.017 U	0.017 U	0.017 U	0.014 U	0.014 U
Caprolactam	0.25	--	0.027 U	0.026 U	0.027 UJ	0.026 U	0.029 U	--	0.031 U	0.028 U	0.032 U	0.031 U	0.031 U	0.032 U	0.026 U	0.027 U
Carbazole	--	--	0.012 J	0.0088 U	0.0091 UJ	0.0091 U	0.01 U	--	0.011 U	0.0095 U	0.011 U	0.011 U	0.011 U	0.011 U	0.0089 U	0.0092 U
Chrysene	9	--	0.1 J	0.0097 U	0.01 UJ	0.0099 U	0.011 U	--	0.012 U	0.032 J	0.014 J	0.02 J	0.02 J	0.048 J	0.014 J	0.065 J
Dibenz(A,H)Anthracene	0.096	--	0.02 U	0.019 U	0.019 U	0.019 U	0.021 U	--	0.023 U	0.02 U	0.023 U	0.022 U	0.022 U	0.023 U	0.019 U	0.019 U
Dibenzofuran	0.015	--	0.012 U	0.011 U	0.011 UJ	0.011 U	0.012 U	--	0.013 U	0.012 U	0.014 U	0.013 U	0.013 U	0.014 U	0.011 U	0.011 U
Diethyl Phthalate	0.61	--	0.011 U	0.01 U	0.01 UJ	0.01 U	0.011 U	--	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.013 U	0.01 U	0.011 U
Dimethyl Phthalate	--	--	0.011 U	0.01 U	0.011 UJ	0.01 U	0.012 U	--	0.013 U	0.011 U	0.013 U	0.012 U	0.012 U	0.013 U	0.01 U	0.011 U
Di-N-Butyl Phthalate	0.23	--	0.011 U	0.011 U	0.011 J	0.013 J	0.012 U	--	0.013 U	0.011 U	0.013 U	0.013 U	0.013 U	0.013 U	0.011 U	0.011 U
Di-N-Octylphthalate	5.7	--	0.019 U	0.018 U	0.019 U	0.019 U	0.02 U	--	0.022 U	0.019 U	0.023 U	0.022 U	0.022 U	0.023 U	0.018 U	0.019 U
Fluoranthene	8.9	--	0.1 J	0.011 U	0.011 UJ	0.011 U	0.012 U	--	0.013 U	0.028 J	0.013 U	0.019 J	0.018 J	0.043 J	0.013 J	0.065 J
Fluorene	0.54	--	0.0083 U	0.0078 U	0.008 UJ	0.008 U	0.0087 U	--	0.0095 U	0.0083 U	0.0098 U	0.0093 U	0.0094 U	0.0097 U	0.0078 U	0.0081 U
Hexachlorobenzene	0.00012	--	0.015 U	0.014 U	0.014 UJ	0.015 U	0.016 U	--	0.018 U	0.016 U	0.018 U	0.017 U	0.017 U	0.018 U	0.015 U	0.015 U
Hexachlorobutadiene	0.00027	--	0.011 U	0.01 U	0.01 UJ	0.01 U	0.011 U	--	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.013 U	0.01 U	0.01 U
Hexachlorocyclopentadiene	0.00013	--	0.024 U	0.022 U	0.023 U	0.023 U	0.025 U	--	0.027 U	0.024 U	0.028 U	0.027 U	0.027 U	0.028 U	0.022 U	0.023 U
Hexachloroethane	0.0002	--	0.014 U	0.013 U	0.013 UJ	0.013 U	0.015 U	--	0.016 U	0.014 U	0.016 U	0.016 U	0.016 U	0.016 U	0.013 U	0.014 U
Indeno(1,2,3-C,D)Pyrene	0.98	--	0.06	0.024 U	0.025 U	0.024 U	0.027 U	--	0.029 U	0.025 U	0.03 U	0.028 U	0.029 U	0.033 J	0.024 U	0.082
Isophorone	0.026	--	0.0082 U	0.0077 U	0.0079 UJ	0.0078 U	0.0086 U	--	0.0094 U	0.0082 U	0.0097 U	0.0092 U	0.0092 U	0.0096 U	0.0077 U	0.0079 U
Naphthalene	0.00054	--	0.0097 U	0.01 U	0.0094 UJ	0.0093 U	0.01 U	--	0.011 U	0.0097 U	0.011 U	0.011 U	0.011 U	0.011 U	0.0091 U	0.0094 U
Nitrobenzene	0.000092	--	0.012 U	0.011 U	0.012 UJ	0.011 U	0.013 U	--	0.014 U	0.012 U	0.014 U	0.013 U	0.014 U	0.014 U	0.011 U	0.012 U
N-Nitrosodi-N-Propylamine	0.0000081	--	0.013 U	0.012 U	0.012 U	0.012 U	0.013 U	--	0.015 U	0.013 U	0.015 U	0.014 U	0.014 U	0.015 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	--	0.035 U	0.032 U	0.033 UJ	0.033 U	0.036 U	--	0.04 U	0.035 U	0.041 U	0.039 U	0.039 U	0.041 U	0.033 U	0.034 U
Pentachlorophenol	0.000057	--	0.046 U	0.043 U	0.045 UJ	0.044 U	0.049 U	--	0.053 U	0.046 U	0.054 U	0.052 U	0.052 U	0.054 U	0.043 U	0.045 U
Phenanthrene	--	--	0.058 J	0.0095 U	0.0098 UJ	0.0097 U	0.011 U	--	0.012 U	0.016 J	0.012 U	0.015 J	0.013 J	0.028 J	0.0095 U	0.031 J
Phenol	0.33	--	0.012 U	0.012 U	0.012 UJ	0.012 U	0.013 U	--	0.014 U	0.013 U	0.015 U	0.014 U	0.014 U	0.015 U	0.012 U	0.012 U
Pyrene	1.3	--	0.1 J	0.016 U	0.017 U	0.017 U	0.018 U	--	0.02 U	0.027 J	0.02 U	0.02 J	0.022 J	0.044 J	0.016 U	0.067 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	--	0.00046 U	0.00033 U	--	0.00034 U	--	--	0.00043 U	--	0.0006 U	--	0.00054 U	--	0.00039 U	--
1,1,2,2-Tetrachloroethane	0.00003	--	0.00021 UJ	0.00015 U	--	0.00015 U	--	--	0.00019 U	--	0.00027 U	--	0.00024 U	--	0.00017 U	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	--	0.00063 U	0.00038 U	--	0.00039 U	--	--	0.0005 U	--	0.0007 U	--	0.00063 U	--	0.00045 U	--
1,1,2-Trichloroethane	0.000013	--	0.00034 U	0.00024 U	--	0.00025 U	--	--	0.00032 U	--	0.00044 U	--	0.0004 U	--	0.00029 U	--
1,1-Dichloroethane	0.00078	--	0.00041 U	0.0003 U	--	0.0003 U	--	--	0.00039 U	--	0.00054 U	--	0.00049 U	--	0.00035 U	--
1,1-Dichloroethene	0.01	--	0.0005 U	0.00036 U	--	0.00036 U	--	--	0.00047 U	--	0.00065 U	--	0.00059 U	--	0.00042 U	--
1,2,3-Trichlorobenzene	0.0021	--	0.00013 UJ	0.000096 U	--	0.000087 U	--	--	0.00013 U	--	0.00017 U	--	0.00016 U	--	0.00011 U	--
1,2,4-Trichlorobenzene	0.0012	--	0.00039 U	0.00028 U	--	0.00028 U	--	--	0.00037 U	--	0.00051 U	--	0.00046 U	--	0.00033 U	--
1,2-Dibromo-3-Chloropropane	0.00000014	--	0.00057 U	0.00041 U	--	0.00042 UJ	--	--	0.00054 U	--	0.00074 U	--	0.00067 U	--	0.00048 U	--

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Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFMW-056A	CFMW-056A-DUP	CFMW-057A	CFMW-057A	CFMW-059A	CFMW-059A	CFMW-059A	CFSB-120	CFSB-120	CFSB-123	CFSB-123	CFSB-124	CFSB-124	CFSB-125	CFSB-125
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/15/2016	7/15/2016	7/27/2016	7/27/2016	7/22/2016	7/22/2016	7/22/2016	5/18/2016	5/18/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	5/18/2016	5/18/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.00014 U	0.0001 U	...	0.00011 U	...	...	0.00014 U	...	0.00019 U	...	0.00017 U	...	0.00012 U	...
1,2-Dichlorobenzene	0.03	...	0.00017 U	0.00012 U	...	0.00012 U	...	...	0.00016 U	...	0.00022 U	...	0.0002 U	...	0.00014 U	...
1,2-Dichloroethane	0.000048	...	0.00013 U	0.000096 U	...	0.000087 U	...	...	0.00013 U	...	0.00017 U	...	0.00016 U	...	0.00011 U	...
1,2-Dichloropropane	0.000047	...	0.00021 U	0.00015 U	...	0.00015 U	...	...	0.00019 U	...	0.00027 U	...	0.00024 U	...	0.00017 U	...
1,3-Dichlorobenzene	--	...	0.00014 U	0.0001 U	...	0.00011 U	...	...	0.00014 U	...	0.00019 U	...	0.00017 U	...	0.00012 U	...
1,4-Dichlorobenzene	0.00046	...	0.00016 U	0.00011 U	...	0.00012 U	...	...	0.00015 U	...	0.00021 U	...	0.00019 U	...	0.00013 U	...
2-Hexanone	0.00088	...	0.0011 U	0.00082 U	...	0.00083 U	...	...	0.0011 U	...	0.0015 U	...	0.0013 U	...	0.00097 U	...
Acetone	0.29	...	0.0013 U	0.025	...	0.051	...	...	0.049	...	0.068	...	0.093	...	0.02	...
Benzene	0.00023	...	0.00024 U	0.00017 U	...	0.00018 U	...	...	0.001 J	...	0.0015 J	...	0.00082 J	...	0.0013	...
Bromochloromethane	0.0021	...	0.00021 U	0.00015 U	...	0.00015 U	...	...	0.00019 U	...	0.00027 U	...	0.00024 U	...	0.00017 U	...
Bromodichloromethane	0.000036	...	0.00046 U	0.00033 U	...	0.00034 U	...	...	0.00043 U	...	0.0006 U	...	0.00054 U	...	0.00039 U	...
Bromoform	0.00087	...	0.00016 UJ	0.00011 U	...	0.00012 U	...	...	0.00015 U	...	0.00021 U	...	0.00019 U	...	0.00013 U	...
Bromomethane	0.00019	...	0.00039 U	0.00028 U	...	0.00028 U	...	...	0.00037 U	...	0.00051 U	...	0.00046 U	...	0.00033 U	...
Carbon Disulfide	0.024	...	0.00052 U	0.00037 U	...	0.00038 U	...	...	0.00049 U	...	0.00068 U	...	0.00062 U	...	0.00044 U	...
Carbon Tetrachloride	0.00018	...	0.00052 UJ	0.00037 U	...	0.00038 U	...	...	0.00049 U	...	0.00068 U	...	0.00062 U	...	0.00044 U	...
Chlorobenzene	0.0053	...	0.00017 U	0.00012 U	...	0.00012 U	...	...	0.00016 U	...	0.00022 U	...	0.0002 U	...	0.00014 U	...
Chloroethane	0.59	...	0.00042 U	0.0003 U	...	0.00031 U	...	...	0.0004 U	...	0.00055 U	...	0.0005 U	...	0.00036 U	...
Chloroform	0.000061	...	0.00025 U	0.00018 U	...	0.00019 U	...	...	0.00024 U	...	0.00033 U	...	0.0003 U	...	0.00022 U	...
Chloromethane	0.0049	...	0.00046 U	0.00033 U	...	0.00034 U	...	...	0.00043 U	...	0.0006 U	...	0.00054 U	...	0.00039 U	...
Cis-1,2-Dichloroethylene	0.0011	...	0.00027 U	0.00019 U	...	0.00019 U	...	...	0.00025 U	...	0.00035 U	...	0.00031 U	...	0.00023 U	...
Cis-1,3-Dichloropropene	--	...	0.00018 U	0.00013 U	...	0.00013 U	...	...	0.00017 U	...	0.00024 U	...	0.00021 U	...	0.00015 U	...
Cyclohexane	1.3	...	0.00056 U	0.0004 U	...	0.00041 U	...	...	0.00053 U	...	0.00073 U	...	0.00066 U	...	0.001	...
Dibromochloromethane	0.00023	...	0.00018 UJ	0.00013 U	...	0.00013 U	...	...	0.00017 U	...	0.00024 U	...	0.00021 U	...	0.00015 U	...
Dichlorodifluoromethane	0.03	...	0.00039 UJ	0.00028 U	...	0.00028 U	...	...	0.00037 U	...	0.00051 U	...	0.00046 U	...	0.00033 U	...
Ethylbenzene	0.0017	...	0.00022 U	0.00016 U	...	0.00016 U	...	...	0.00021 U	...	0.00028 U	...	0.00026 U	...	0.00018 U	...
Isopropylbenzene (Cumene)	0.074	...	0.00021 U	0.00015 U	...	0.00015 U	...	...	0.00019 U	...	0.00027 U	...	0.00024 U	...	0.00017 U	...
M,P-Xylene	--	...	0.00013 U	0.000096 U	...	0.000087 U	...	...	0.00013 U	...	0.00017 U	...	0.00016 U	...	0.00051 J	...
Methyl Acetate	0.41	...	0.0011 U	0.00078 U	...	0.0008 U	...	...	0.001 U	...	0.0039 J	...	0.035	...	0.00092 U	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.00093 U	0.0022 J	...	0.00068 U	...	...	0.00098 U	...	0.0012 U	...	0.0011 U	...	0.00079 U	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.0027 U	0.0019 U	...	0.002 U	...	...	0.0025 U	...	0.0035 U	...	0.0032 U	...	0.0023 U	...
Methylcyclohexane	--	...	0.0006 U	0.00043 U	...	0.00044 U	...	...	0.00057 U	...	0.00079 U	...	0.00072 U	...	0.0015	...
Methylene Chloride	0.0027	...	0.00039 U	0.00028 U	...	0.00028 U	...	...	0.00037 U	...	0.00051 U	...	0.00046 U	...	0.00033 U	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00019 U	0.00014 U	...	0.00014 U	...	...	0.00018 U	...	0.00025 U	...	0.00023 U	...	0.00016 U	...
Styrene	0.13	...	0.00018 U	0.00013 U	...	0.00013 U	...	...	0.00017 U	...	0.00024 U	...	0.00021 U	...	0.00015 U	...
Tert-Butyl Methyl Ether	0.0032	...	0.00021 U	0.00015 U	...	0.00015 U	...	...	0.00019 U	...	0.00027 U	...	0.00024 U	...	0.00017 U	...
Tetrachloroethylene (PCE)	0.0018	...	0.00034 U	0.00024 U	...	0.00025 U	...	...	0.00032 U	...	0.00044 U	...	0.0004 U	...	0.00029 U	...
Toluene	0.076	...	0.00023 U	0.00017 U	...	0.0011	...	...	0.00024 J	...	0.0003 U	...	0.00027 U	...	0.0014	...
Trans-1,2-Dichloroethene	0.011	...	0.00047 U	0.0003 U	...	0.00035 U	...	...	0.00045 U	...	0.00062 U	...	0.00056 U	...	0.0004 U	...
Trans-1,3-Dichloropropene	--	...	0.00012 U	0.000086 U	...	0.000089 U	...	...	0.00011 U	...	0.00016 U	...	0.00014 U	...	0.0001 U	...
Trichloroethylene (TCE)	0.0001	...	0.00031 U	0.00023 U	...	0.00023 U	...	...	0.0003 U	...	0.00041 U	...	0.00037 U	...	0.00027 U	...
Trichlorofluoromethane	0.33	...	0.00041 U	0.0003 U	...	0.0003 U	...	...	0.00039 U	...	0.00054 U	...	0.00049 U	...	0.00035 U	...
Vinyl Chloride	0.0000065	...	0.00047 U	0.00034 U	...	0.00035 U	...	...	0.00045 U	...	0.00062 U	...	0.00056 U	...	0.0004 U	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-126	CFSB-126	CFSB-127	CFSB-127	CFSB-132	CFSB-132	CFSB-133	CFSB-133	CFMW-061	CFMW-061	CFMW-061	CFMW-064	CFMW-064	CFMW-064	CFSB-101
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/18/2016	5/18/2016	5/18/2016	5/18/2016	6/3/2016	6/3/2016	6/3/2016	6/3/2016	7/12/2016	7/12/2016	7/12/2016	7/11/2016	7/11/2016	7/11/2016	7/21/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	5.3 J-	6.31 J-	1.54 J-	3.93 J-	0.31 J	1.78 J	0.92 J	2.4 J	4.88 J	3.06 J	--	15.2 J	15 J	--	10.2 J+
Cyanide	0.0015	0.12	0.17	0.052 J	0.087 J	0.069 J	0.024 J	0.17	0.057 J	0.062 J	0.061 J	--	0.042 J	0.17	--	0.3
METALS																
Aluminum	3000	18900	29200	11700	26900	16300	8330	17200	18700	10500	8430	--	8810	10000	--	8020
Antimony	0.035	0.38 UJ	0.4 UJ	0.36 UJ	0.35 UJ	0.51 UJ	0.44 UJ	0.53 UJ	0.49 UJ	0.41 U	0.4 U	--	0.42 U	0.48 U	--	0.52 UJ
Arsenic	0.0015	5.3	7.1	6	6.4	2.2	3.5	2.5	2.1	4.5	3.5	--	4.6	4.6	--	3.2
Barium	16	245	429	120	429	200	84.9	231	245	85.7	74	--	85.9	98.7	--	85.5
Beryllium	1.9	0.61	1.2	0.35 J	0.98	0.59	0.32 J	0.68	0.75	0.43	0.38 J	--	0.4 J	0.4 J	--	0.55
Cadmium	0.069	0.29 U	0.3 U	0.29 U	0.28 U	0.39 U	0.33 U	0.4 U	0.37 U	0.31 U	0.31 U	--	0.32 U	0.37 U	--	0.4 U
Calcium	--	3040	6000	2370	3630	3660	18900	4960	4410	33900	7410	--	13200	9450	--	5450
Chromium, Total	--	13.9	15.5	10.7	13.3	12.6	7.7	13.1	14.3	10.1	8	--	10.2	9.7	--	9.3
Cobalt	0.027	7.4	6.1	5.5	6.1	4.7	3.5	4.8	5	4.8	4.7	--	6.1	5.7	--	4.2
Copper	2.8	20.6	24.5	10.6	17	13.3 J-	13.9 J-	15.7 J-	17 J-	19.2	13.9	--	14.7	18.3	--	9.1
Iron	35	17800	18600	15800	18700	12700	11300	13100	13500	14200	11300	--	15800	14100	--	12600
Lead	400	19.3	15.2	21.2	12.5	10.3 J	10.2 J	13.5 J	12.7 J	8.9	8.9	15.2	8.1	12.4	10.4	6.3
Magnesium	--	9280	9020	9240	7440	9980	9640	9970	10700	11600	8370	--	10300	8460	--	8110
Manganese	2.8	462	446	659	347	70.2	284	89.9	62.7	355	332	--	284	359	--	71
Mercury	0.0033	0.021	0.036	0.017 J	0.021	0.04	0.021	0.034	0.04	0.032	0.023	--	0.025	0.049	--	0.017 J
Nickel	2.6	12.6	13.6	10.3	12.1	9.5 J	8.9 J	10.5 J	11 J	11.7	12.7	--	12.8	18.1	--	9
Potassium	--	782	1310	555	953	695	737	1090	851	749	638	--	818	1050	--	929
Selenium	0.052	0.35 U	0.71 J	0.33 U	0.4 J	0.5 J	0.41 U	0.63 J	0.56 J	0.39 U	0.38 U	--	0.4 U	0.45 U	--	0.49 U
Silver	0.08	0.69 U	0.73 U	0.69 U	0.68 U	0.94 U	0.8 U	0.97 U	0.9 U	0.76 U	0.74 U	--	0.77 U	0.88 U	--	0.96 U
Sodium	--	78 J	136	38.8 J	135	73.8 J	51 J	73.7 J	87.7 J	38.7 U	37.6 U	--	39.5 U	45.2 U	--	56.7 J
Thallium	0.0014	0.14 U	0.15 U	0.14 U	0.13 U	0.19 U	0.17 U	0.2 U	0.18 U	0.16 U	0.15 U	--	0.16 U	0.18 U	--	0.2 U
Vanadium	8.6	12.6	13.8	12	14.7	9.3	6.3	9.7	10.2	10.2	9.3	--	16.2	15.1	--	13.2
Zinc	37	52.1	66.8	36.1	59.4	35.6	34.1	54.4	39.8	41.7	37.4	--	41.4	49.8	--	29.2

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-126	CFSB-126	CFSB-127	CFSB-127	CFSB-132	CFSB-132	CFSB-133	CFSB-133	CFMW-061	CFMW-061	CFMW-061	CFMW-064	CFMW-064	CFMW-064	CFSB-101
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/18/2016	5/18/2016	5/18/2016	5/18/2016	6/3/2016	6/3/2016	6/3/2016	6/3/2016	7/12/2016	7/12/2016	7/12/2016	7/11/2016	7/11/2016	7/11/2016	7/21/2016
PESTICIDES																
Aldrin	0.00015	...	0.0011 U	...	0.00093 U	...	...	...	...	...	...	...	...	0.001 U	...	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	0.00079 U	...	0.0007 U	...	...	...	...	...	...	...	...	0.00079 U	...	...
Alpha Endosulfan	--	...	0.0012 U	...	0.0011 U	...	...	...	...	...	...	...	...	0.0012 U	...	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	0.00084 U	...	0.00074 U	...	...	...	...	...	...	...	...	0.00084 U	...	...
Beta Endosulfan	--	...	0.0014 U	...	0.0012 U	...	...	...	...	...	...	...	...	0.0014 U	...	...
cis-Chlordane	--	...	0.0014 U	...	0.0012 U	...	...	...	...	...	...	...	...	0.0014 U	...	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	0.00095 U	...	0.00083 U	...	...	...	...	...	...	...	...	0.00094 U	...	...
Dieldrin	0.000071	...	0.0011 U	...	0.00099 U	...	...	...	...	...	...	...	...	0.0011 U	...	...
Endosulfan Sulfate	--	...	0.001 U	...	0.00089 U	...	...	...	...	...	...	...	...	0.001 U	...	...
Endrin	0.0092	...	0.0011 U	...	0.00097 U	...	...	...	...	...	...	...	...	0.0011 U	...	...
Endrin Aldehyde	--	...	0.0011 U	...	0.00095 U	...	...	...	...	...	...	...	...	0.0011 U	...	...
Endrin Ketone	--	...	0.0012 U	...	0.0011 U	...	...	...	...	...	...	...	...	0.0012 U	...	...
Gamma Bhc (Lindane)	0.00024	...	0.00078 U	...	0.00069 U	...	...	...	...	...	...	...	...	0.00078 U	...	...
Heptachlor	0.00012	...	0.0011 U	...	0.00098 U	...	...	...	...	...	...	...	...	0.0011 U	...	...
Heptachlor Epoxide	0.000028	...	0.0017 U	...	0.0015 U	...	...	...	...	...	...	...	...	0.0017 U	...	...
Methoxychlor	0.2	...	0.0018 U	...	0.0016 U	...	...	...	...	...	...	...	...	0.0018 U	...	...
P,P'-DDD	0.0075	...	0.0011 U	...	0.001 U	...	...	...	...	...	...	...	...	0.0011 U	...	...
P,P'-DDE	0.011	...	0.0013 U	...	0.0011 U	...	...	...	...	...	...	...	...	0.0013 U	...	...
P,P'-DDT	0.077	...	0.0009 U	...	0.00079 U	...	...	...	...	...	...	...	...	0.00089 U	...	...
Toxaphene	0.011	...	0.025 U	...	0.022 U	...	...	...	...	...	...	...	...	0.025 U	...	...
trans-Chlordane	--	...	0.0019 U	...	0.0017 U	...	...	...	...	...	...	...	...	0.0019 U	...	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.01 U	0.012 U	0.0098 U	0.01 U	0.012 U	0.0096 U	0.012 U	0.012 U	0.0093 U	0.0094 U	...	0.01 U	0.012 U	...	0.012 U
PCB-1221 (Aroclor 1221)	0.00008	0.01 U	0.012 U	0.0098 U	0.01 U	0.012 U	0.0096 U	0.012 U	0.012 U	0.0093 U	0.0094 U	...	0.01 U	0.012 U	...	0.012 U
PCB-1232 (Aroclor 1232)	0.00008	0.01 U	0.012 U	0.0098 U	0.01 U	0.012 U	0.0096 U	0.012 U	0.012 U	0.0093 U	0.0094 U	...	0.01 U	0.012 U	...	0.012 U
PCB-1242 (Aroclor 1242)	0.0012	0.01 U	0.012 U	0.0098 U	0.01 U	0.012 U	0.0096 U	0.012 U	0.012 U	0.0093 U	0.0094 U	...	0.01 U	0.012 U	...	0.012 U
PCB-1248 (Aroclor 1248)	0.0012	0.01 U	0.012 U	0.0098 U	0.01 U	0.012 U	0.0096 U	0.012 U	0.012 U	0.0093 U	0.0094 U	...	0.01 U	0.012 U	...	0.012 U
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.012 U	0.01 U	0.011 U	0.012 U	0.0099 U	0.012 U	0.012 U	0.0096 U	0.0097 U	...	0.01 U	0.012 U	...	0.012 U
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.012 U	0.01 U	0.011 U	0.012 U	0.0099 U	0.012 U	0.012 U	0.0096 U	0.0097 U	...	0.01 U	0.012 U	...	0.012 U
PCB-1262 (Aroclor 1262)	--	0.01 U	0.012 U	0.01 U	0.011 U	0.012 U	0.0099 U	0.012 U	0.012 U	0.0096 U	0.0097 U	...	0.01 U	0.012 U	...	0.012 U
PCB-1268 (Aroclor 1268)	--	0.01 U	0.012 U	0.01 U	0.011 U	0.012 U	0.0099 U	0.012 U	0.012 U	0.0096 U	0.0097 U	...	0.01 U	0.012 U	...	0.012 U
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.012 U	0.01 U	0.011 U	0.012 U	0.0099 U	0.012 U	0.012 U	0.0096 U	0.0097 U	...	0.01 U	0.012 U	...	0.012 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.028 U	0.032 U	0.027 U	0.028 U	0.032 U	0.026 U	0.032 U	0.033 U	0.026 U	0.026 U	...	0.028 U	0.032 U	...	0.033 U
1,4-Dioxane (P-Dioxane)	0.000094	0.099 U	0.11 U	0.098 U	0.1 U	0.11 U	0.095 U	0.12 U	0.12 U	0.092 U	0.093 U	...	0.1 U	0.11 U	...	0.12 U
2,3,4,6-Tetrachlorophenol	0.018	0.035 U	0.04 U	0.034 U	0.036 U	0.04 U	0.033 U	0.041 U	0.041 U	0.032 U	0.033 U	...	0.035 UJ	0.04 UJ	...	0.042 U
2,4,5-Trichlorophenol	0.4	0.037 U	0.043 U	0.036 U	0.038 U	0.043 U	0.035 U	0.043 U	0.044 U	0.034 U	0.035 U	...	0.037 U	0.042 U	...	0.044 U
2,4,6-Trichlorophenol	0.0012	0.011 U	0.012 U	0.01 U	0.011 U	0.012 U	0.01 U	0.012 U	0.013 U	0.0098 U	0.0099 U	...	0.011 U	0.012 U	...	0.013 U
2,4-Dichlorophenol	0.0023	0.0088 U	0.01 U	0.0086 U	0.0089 U	0.01 U	0.0084 U	0.01 U	0.01 U	0.0081 U	0.0082 U	...	0.0088 U	0.01 U	...	0.01 U
2,4-Dimethylphenol	0.042	0.082 U	0.094 U	0.08 U	0.083 U	0.094 U	0.078 U	0.095 U	0.097 U	0.076 U	0.077 U	...	0.082 U	0.094 U	...	0.098 U
2,4-Dinitrophenol	0.0044	0.28 U	0.32 U	0.28 U	0.29 U	0.32 U	0.27 U	0.33 U	0.33 U	0.26 U	0.26 U	...	0.28 U	0.32 U	...	0.34 U
2,4-Dinitrotoluene	0.00032	0.015 U	0.017 U	0.014 U	0.015 U	0.017 U	0.014 U	0.017 U	0.017 U	0.014 U	0.014 U	...	0.015 U	0.017 U	...	0.018 U
2,6-Dinitrotoluene	0.000067	0.02 U	0.023 U	0.019 U	0.02 U	0.023 U	0.019 U	0.023 U	0.023 U	0.018 U	0.019 U	...	0.02 U	0.023 U	...	0.024 U
2-Chloronaphthalene	0.39	0.0084 U	0.0097 U	0.0083 U	0.0086 U	0.0097 U	0.0081 U	0.0098 U	0.01 U	0.0078 U	0.0079 U	...	0.0085 U	0.0097 U	...	0.01 U
2-Chlorophenol	0.0089	0.0094 U	0.011 U	0.0093 U	0.0096 U	0.011 U	0.009 U	0.011 U	0.011 U	0.0088 U	0.0089 U	...	0.0095 U	0.011 U	...	0.011 U
2-Methylnaphthalene	0.019	0.0082 U	0.0095 U	0.0081 U	0.0083 U	0.0094 U	0.023 J	0.013 J	0.016 J	0.0076 U	0.0077 U	...	0.0082 U	0.0094 U	...	0.0098 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.019 U	0.016 U	0.016 U	0.019 U	0.016 U	0.019 U	0.019 U	0.015 U	0.015 U	...	0.016 U	0.019 U	...	0.019 U
2-Nitroaniline	0.008	0.012 U	0.014 U	0.012 U	0.012 U	0.014 U	0.012 U	0.014 U	0.015 U	0.011 U	0.011 U	...	0.012 U	0.014 U	...	0.015 U
2-Nitrophenol	--	0.012 U	0.014 U	0.012 U	0.013 U	0.014 U	0.012 U	0.015 U	0.015 U	0.012 U	0.012 U	...	0.013 U	0.014 U	...	0.015 U
3- And 4- Methylphenol (Total)	--	0.0099 U	0.011 U	0.0097 U	0.01 U	0.011 U	0.0095 U	0.012 U	0.012 U	0.0092 U	0.0093 U	...	0.0099 U	0.011 U	...	0.012 U
3,3'-Dichlorobenzidine	0.00082	0.041 U	0.048 U	0.041 U	0.042 U	0.048 U	0.04 U	0.048 U	0.049 U	0.039 U	0.039 U	...	0.042 U	0.048 U	...	0.05 U
3-Nitroaniline	--	0.011 U	0.013 U	0.011 U	0.011 U	0.013 U	0.011 U	0.013 U	0.013 U	0.01 U	0.01 U	...	0.011 U	0.013 U	...	0.013 U
4,6-Dinitro-2-Methylphenol	0.00026	0.099 U	0.11 U	0.097 U	0.1 U	0.11 U	0.095 U	0.12 U	0.12 U	0.092 U	0.093 U	...	0.099 U	0.11 U	...	0.12 U
4-Bromophenyl Phenyl Ether	--	0.012 U	0.013 U	0.011 U	0.012 U	0.013 U	0.011 U	0.014 U	0.014 U	0.011 U	0.011 U	...	0.012 U	0.013 U	...	0.014 U
4-Chloro-3-Methylphenol	0.17	0.016 U	0.018 U	0.016 U	0.016 U	0.018 U	0.015 U	0.019 U	0.019 U	0.015 U	0.015 U	...	0.016 U	0.018 U	...	0.019 U

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Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA Upper Hydrogeologic Unit	Exp Area 8 SOUTH PERCOLATION POND AREA Upper Hydrogeologic Unit	Exp Area 8 SOUTH PERCOLATION POND AREA Upper Hydrogeologic Unit	Exp Area 8 SOUTH PERCOLATION POND AREA Upper Hydrogeologic Unit	Exp Area 8 SOUTH PERCOLATION POND AREA Upper Hydrogeologic Unit	Exp Area 8 SOUTH PERCOLATION POND AREA Upper Hydrogeologic Unit	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--							--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-126	CFSB-126	CFSB-127	CFSB-127	CFSB-132	CFSB-132	CFSB-133	CFSB-133	CFMW-061	CFMW-061	CFMW-061	CFMW-064	CFMW-064	CFMW-064	CFSB-101
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/18/2016	5/18/2016	5/18/2016	5/18/2016	6/3/2016	6/3/2016	6/3/2016	6/3/2016	7/12/2016	7/12/2016	7/12/2016	7/11/2016	7/11/2016	7/11/2016	7/21/2016
4-Chloroaniline	0.00016	0.0095 U	0.011 U	0.0094 U	0.0097 U	0.011 U	0.0092 U	0.011 U	0.011 U	0.0089 U	0.009 U	...	0.0096 U	0.011 U	...	0.011 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.013 U	0.011 U	0.011 U	0.013 U	0.011 U	0.013 U	0.013 U	0.01 U	0.01 U	...	0.011 U	0.013 U	...	0.013 U
4-Nitroaniline	0.0016	0.014 U	0.016 U	0.014 U	0.014 U	0.016 U	0.013 U	0.016 U	0.017 U	0.013 U	0.013 U	...	0.014 U	0.016 U	...	0.017 U
4-Nitrophenol	--	0.18 U	0.21 U	0.18 U	0.18 U	0.21 U	0.17 U	0.21 U	0.21 U	0.17 U	0.17 U	...	0.18 U	0.21 U	...	0.21 U
Acenaphthene	0.55	0.009 U	0.01 U	0.0088 U	0.0091 U	0.01 U	0.0086 U	0.01 U	0.011 U	0.0084 U	0.0084 U	...	0.009 U	0.024 J	...	0.011 U
Acenaphthylene	--	0.0095 U	0.011 U	0.0094 U	0.0097 U	0.011 U	0.0092 U	0.011 U	0.011 U	0.0089 U	0.009 U	...	0.0096 U	0.011 U	...	0.011 U
Acetophenone	0.058	0.0081 U	0.0093 U	0.0079 U	0.0082 U	0.0093 U	0.0078 U	0.0094 U	0.0096 U	0.0075 U	0.0076 U	...	0.0081 U	0.0093 U	...	0.0097 U
Anthracene	5.8	0.035 U	0.041 U	0.035 U	0.036 U	0.041 U	0.034 U	0.041 U	0.042 U	0.033 U	0.033 U	...	0.035 U	0.041 U	...	0.042 U
Atrazine	0.0002	0.017 U	0.019 U	0.016 U	0.017 U	0.019 U	0.016 U	0.019 U	0.02 U	0.015 U	0.015 U	...	0.017 U	0.019 U	...	0.02 U
Benzaldehyde	0.0041	0.028 U	0.033 U	0.028 U	0.029 U	0.033 U	0.027 U	0.033 U	0.034 U	0.026 U	0.031 J	...	0.028 U	0.033 J	...	0.034 U
Benzo(A)Anthracene	0.011	0.031 U	0.036 U	0.03 U	0.032 U	0.036 U	0.03 U	0.036 U	0.037 U	0.064	0.072	...	0.031 U	0.26	...	0.037 U
Benzo(A)Pyrene	0.018	0.011 U	0.023 J	0.011 U	0.011 U	0.013 U	0.011 U	0.013 U	0.013 U	0.075	0.081	...	0.039	0.36	...	0.013 U
Benzo(B)Fluoranthene	0.18	0.014 U	0.049	0.014 U	0.02 J	0.017 U	0.014 U	0.017 U	0.017 U	0.12	0.14	...	0.092	0.62	...	0.017 U
Benzo(G,H,I)Perylene	--	0.021 U	0.025 U	0.021 U	0.022 U	0.025 U	0.02 U	0.025 U	0.025 U	0.092 J	0.11 J	...	0.061 J	0.46	...	0.026 U
Benzo(K)Fluoranthene	1.8	0.016 U	0.019 U	0.016 U	0.016 U	0.019 U	0.016 U	0.019 U	0.019 U	0.049	0.049	...	0.02 J	0.21	...	0.019 U
Benzyl Butyl Phthalate	0.24	0.011 U	0.013 U	0.011 U	0.012 U	0.013 U	0.011 U	0.013 U	0.014 U	0.011 U	0.011 U	...	0.012 U	0.013 U	...	0.014 U
Biphenyl (Diphenyl)	0.00087	0.032 U	0.037 U	0.031 U	0.032 U	0.036 U	0.03 U	0.037 U	0.038 U	0.029 U	0.03 U	...	0.032 U	0.036 U	...	0.038 U
Bis(2-Chloroethoxy) Methane	0.0013	0.012 U	0.013 U	0.011 U	0.012 U	0.013 U	0.011 U	0.014 U	0.014 U	0.011 U	0.011 U	...	0.012 U	0.013 U	...	0.014 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0088 U	0.01 U	0.0086 U	0.0089 U	0.01 U	0.0084 U	0.01 U	0.01 U	0.0081 U	0.0082 U	...	0.0088 U	0.01 U	...	0.01 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 UJ	0.018 UJ	0.015 U	0.016 U	0.018 U	0.015 U	0.018 U	0.018 U	0.014 U	0.014 U	...	0.015 UJ	0.018 UJ	...	0.018 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.017 U	0.014 U	0.015 U	0.017 U	0.016 J	0.017 U	0.017 U	0.013 U	0.014 U	...	0.015 U	0.017 U	...	0.017 U
Caprolactam	0.25	0.027 U	0.031 U	0.026 U	0.027 U	0.031 U	0.026 U	0.031 U	0.032 U	0.025 U	0.025 U	...	0.042 J	0.031 U	...	0.032 U
Carbazole	--	0.0092 U	0.011 U	0.009 U	0.0094 U	0.011 U	0.0088 U	0.011 U	0.011 U	0.0086 U	0.012 J	...	0.0093 U	0.051 J	...	0.011 U
Chrysene	9	0.01 U	0.031 J	0.0099 U	0.013 J	0.012 U	0.0097 U	0.012 U	0.012 U	0.08 J	0.1 J	...	0.051 J	0.42 J	...	0.012 U
Dibenz(A,H)Anthracene	0.096	0.019 U	0.022 U	0.019 U	0.02 U	0.022 U	0.019 U	0.023 U	0.023 U	0.019 J	0.018 U	...	0.019 U	0.079	...	0.023 U
Dibenzofuran	0.015	0.011 U	0.013 U	0.011 U	0.011 U	0.013 U	0.011 U	0.013 U	0.013 U	0.01 U	0.011 U	...	0.011 U	0.013 U	...	0.013 U
Diethyl Phthalate	0.61	0.011 U	0.012 U	0.01 U	0.011 U	0.012 U	0.01 U	0.012 U	0.013 U	0.0098 U	0.0099 U	...	0.011 U	0.012 U	...	0.013 U
Dimethyl Phthalate	--	0.011 U	0.012 U	0.011 U	0.011 U	0.012 U	0.01 U	0.013 U	0.013 U	0.01 U	0.01 U	...	0.011 U	0.012 U	...	0.013 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.013 U	0.011 U	0.011 U	0.013 U	0.011 U	0.013 U	0.013 U	0.02 J	0.01 U	...	0.018 J	0.014 J	...	0.013 U
Di-N-Octylphthalate	5.7	0.019 U	0.022 U	0.019 U	0.019 U	0.022 U	0.018 U	0.022 U	0.022 U	0.018 U	0.018 U	...	0.019 U	0.022 U	...	0.023 U
Fluoranthene	8.9	0.011 U	0.034 J	0.011 U	0.016 J	0.013 U	0.011 U	0.013 U	0.013 U	0.081 J	0.1 J	...	0.037 J	0.42 J	...	0.013 U
Fluorene	0.54	0.0081 U	0.0093 U	0.0079 U	0.0082 U	0.0093 U	0.0078 U	0.0094 U	0.0096 U	0.0075 U	0.0076 U	...	0.0081 U	0.015 J	...	0.0097 U
Hexachlorobenzene	0.00012	0.015 U	0.017 U	0.015 U	0.015 U	0.017 U	0.014 U	0.018 U	0.018 U	0.014 U	0.014 U	...	0.015 UJ	0.017 UJ	...	0.018 U
Hexachlorobutadiene	0.00027	0.01 U	0.012 U	0.01 U	0.011 U	0.012 U	0.01 U	0.012 U	0.012 U	0.0097 U	0.0098 U	...	0.01 UJ	0.012 UJ	...	0.013 U
Hexachlorocyclopentadiene	0.00013	0.023 U	0.027 U	0.023 U	0.024 U	0.027 U	0.022 U	0.027 U	0.027 U	0.022 U	0.022 U	...	0.023 U	0.027 U	...	0.028 U
Hexachloroethane	0.0002	0.014 U	0.016 U	0.013 U	0.014 U	0.016 U	0.013 U	0.016 U	0.016 U	0.013 U	0.013 U	...	0.014 U	0.016 U	...	0.016 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.025 U	0.029 U	0.024 U	0.025 U	0.028 U	0.024 U	0.029 U	0.029 U	0.087	0.096	...	0.053	0.43	...	0.03 U
Isophorone	0.026	0.008 U	0.0092 U	0.0078 U	0.0081 U	0.0092 U	0.0076 U	0.0093 U	0.0095 U	0.0074 U	0.0075 U	...	0.008 U	0.0092 U	...	0.0096 U
Naphthalene	0.00054	0.0094 U	0.011 U	0.011 U	0.0096 U	0.011 U	0.01 J	0.011 U	0.011 U	0.0088 U	0.0089 U	...	0.0095 U	0.011 U	...	0.011 U
Nitrobenzene	0.000092	0.012 U	0.013 U	0.011 U	0.012 U	0.013 U	0.011 U	0.014 U	0.014 U	0.011 U	0.011 U	...	0.012 U	0.013 U	...	0.014 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.014 U	0.012 U	0.013 U	0.014 U	0.012 U	0.015 U	0.015 U	0.012 U	0.012 U	...	0.013 U	0.014 U	...	0.015 U
N-Nitrosodiphenylamine	0.067	0.034 U	0.039 U	0.033 U	0.034 U	0.039 U	0.032 U	0.038 U	0.04 U	0.031 U	0.032 U	...	0.034 U	0.039 U	...	0.04 U
Pentachlorophenol	0.000057	0.045 U	0.052 U	0.044 U	0.046 U	0.052 U	0.043 U	0.052 U	0.053 U	0.042 U	0.042 U	...	0.045 UJ	0.052 UJ	...	0.054 U
Phenanthrene	--	0.0099 U	0.015 J	0.0097 U	0.01 U	0.011 U	0.0095 U	0.012 U	0.012 U	0.048 J	0.058 J	...	0.019 J	0.21 J	...	0.012 U
Phenol	0.33	0.012 U	0.014 U	0.012 U	0.012 U	0.014 U	0.012 U	0.014 U	0.014 U	0.011 U	0.011 U	...	0.012 U	0.014 U	...	0.015 U
Pyrene	1.3	0.017 U	0.033 J	0.017 U	0.017 U	0.019 U	0.016 U	0.02 U	0.02 U	0.11 J	0.14 J	...	0.055 J+	0.56 J+	...	0.02 U
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00056 U	...	0.00049 U	...	0.00038 U	...	0.00037 U	...	0.00032 U	...	...	0.00042 U	...	...	0.00046 U
1,1,2,2-Tetrachloroethane	0.00003	0.00025 U	...	0.00022 U	...	0.00017 U	...	0.00016 U	...	0.00014 U	...	...	0.00019 U	...	...	0.00021 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00065 U	...	0.00056 U	...	0.00044 U	...	0.00042 U	...	0.00037 U	...	...	0.00048 UJ	...	...	0.00054 U
1,1,2-Trichloroethane	0.000013	0.00041 U	...	0.00036 U	...	0.00028 U	...	0.00027 U	...	0.00024 U	...	...	0.00031 U	...	...	0.00034 U
1,1-Dichloroethane	0.00078	0.0005 U	...	0.00043 U	...	0.00034 U	...	0.00033 U	...	0.00029 U	...	...	0.00037 U	...	...	0.00041 U
1,1-Dichloroethene	0.01	0.0006 U	...	0.00052 U	...	0.00041 U	...	0.0004 U	...	0.00034 U	...	...	0.00045 U	...	...	0.0005 U
1,2,3-Trichlorobenzene	0.0021	0.00016 U	...	0.00014 U	...	0.00011 U	...	0.00011 U	...	0.000092 U	...	...	0.00012 U	...	...	0.00013 U
1,2,4-Trichlorobenzene	0.0012	0.00047 U	...	0.00041 U	...	0.00032 U	...	0.00031 U	...	0.00027 U	...	...	0.00035 U	...	...	0.00039 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00069 U	...	0.0006 U	...	0.00047 U	...	0.00045 U	...	0.00039 U	...	...	0.00052 U	...	...	0.00057 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-126	CFSB-126	CFSB-127	CFSB-127	CFSB-132	CFSB-132	CFSB-133	CFSB-133	CFMW-061	CFMW-061	CFMW-061	CFMW-064	CFMW-064	CFMW-064	CFSB-101
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		5/18/2016	5/18/2016	5/18/2016	5/18/2016	6/3/2016	6/3/2016	6/3/2016	6/3/2016	7/12/2016	7/12/2016	7/12/2016	7/11/2016	7/11/2016	7/11/2016	7/21/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00018 U	---	0.00015 U	---	0.00012 U	---	0.00012 U	---	0.0001 U	---	---	0.00013 U	---	---	0.00015 U
1,2-Dichlorobenzene	0.03	0.00021 U	---	0.00018 U	---	0.00014 U	---	0.00014 U	---	0.00012 U	---	---	0.00015 U	---	---	0.00017 U
1,2-Dichloroethane	0.000048	0.00016 U	---	0.00014 U	---	0.00011 U	---	0.00011 U	---	0.00009 2 U	---	---	0.00012 U	---	---	0.00013 U
1,2-Dichloropropane	0.000047	0.00025 U	---	0.00022 U	---	0.00017 U	---	0.00016 U	---	0.00014 U	---	---	0.00019 U	---	---	0.00021 U
1,3-Dichlorobenzene	--	0.00018 U	---	0.00015 U	---	0.00012 U	---	0.00012 U	---	0.0001 U	---	---	0.00013 U	---	---	0.00015 U
1,4-Dichlorobenzene	0.00046	0.00019 U	---	0.00017 U	---	0.00013 U	---	0.00013 U	---	0.00011 U	---	---	0.00014 U	---	---	0.00016 U
2-Hexanone	0.00088	0.0014 U	---	0.0012 U	---	0.00094 U	---	0.00091 U	---	0.00079 U	---	---	0.001 U	---	---	0.0011 U
Acetone	0.29	0.05	---	0.042	---	0.019	---	0.0094	---	0.074 J+	---	---	0.18	---	---	0.03
Benzene	0.00023	0.00035 J	---	0.00029 J	---	0.00044 J	---	0.00072 J	---	0.00052 J	---	---	0.0017	---	---	0.0019
Bromochloromethane	0.0021	0.00025 U	---	0.00022 U	---	0.00017 U	---	0.00016 U	---	0.00014 U	---	---	0.00019 U	---	---	0.00021 U
Bromodichloromethane	0.000036	0.00056 U	---	0.00049 U	---	0.00038 U	---	0.00037 U	---	0.00032 U	---	---	0.00042 U	---	---	0.00046 U
Bromoform	0.00087	0.00019 U	---	0.00017 U	---	0.00013 U	---	0.00013 U	---	0.00011 U	---	---	0.00014 U	---	---	0.00016 U
Bromomethane	0.00019	0.00047 U	---	0.00041 U	---	0.00032 U	---	0.00031 U	---	0.00027 U	---	---	0.00035 UJ	---	---	0.00039 U
Carbon Disulfide	0.024	0.00063 U	---	0.00056 U	---	0.00043 U	---	0.00042 U	---	0.00052 J	---	---	0.0015 J-	---	---	0.00052 U
Carbon Tetrachloride	0.00018	0.00063 U	---	0.00055 U	---	0.00043 U	---	0.00041 U	---	0.00036 U	---	---	0.00047 U	---	---	0.00052 U
Chlorobenzene	0.0053	0.00021 U	---	0.00018 U	---	0.00014 U	---	0.00014 U	---	0.00012 U	---	---	0.00015 U	---	---	0.00017 U
Chloroethane	0.59	0.00051 U	---	0.00045 U	---	0.00035 U	---	0.00034 U	---	0.00029 U	---	---	0.00039 U	---	---	0.00043 U
Chloroform	0.000061	0.00031 U	---	0.00027 U	---	0.00021 U	---	0.0002 U	---	0.00018 U	---	---	0.00023 U	---	---	0.00026 U
Chloromethane	0.0049	0.00056 U	---	0.00049 U	---	0.00038 U	---	0.00037 U	---	0.00032 U	---	---	0.00042 U	---	---	0.00046 U
Cis-1,2-Dichloroethylene	0.0011	0.00032 U	---	0.00028 U	---	0.00022 U	---	0.00021 U	---	0.00018 U	---	---	0.00024 U	---	---	0.00027 U
Cis-1,3-Dichloropropene	--	0.00022 U	---	0.00019 U	---	0.00015 U	---	0.00014 U	---	0.00013 U	---	---	0.00017 U	---	---	0.00018 U
Cyclohexane	1.3	0.00068 U	---	0.00059 U	---	0.00046 U	---	0.00044 U	---	0.00092	---	---	0.0025 J-	---	---	0.004 J+
Dibromochloromethane	0.00023	0.00022 U	---	0.00019 U	---	0.00015 U	---	0.00014 U	---	0.00013 U	---	---	0.00017 U	---	---	0.00018 U
Dichlorodifluoromethane	0.03	0.00047 U	---	0.00041 U	---	0.00032 U	---	0.00031 U	---	0.00027 U	---	---	0.00035 U	---	---	0.00039 U
Ethylbenzene	0.0017	0.00026 U	---	0.00023 U	---	0.00018 U	---	0.00017 U	---	0.00015 U	---	---	0.00083 J	---	---	0.0011 J
Isopropylbenzene (Cumene)	0.074	0.00025 U	---	0.00022 U	---	0.00018 U	---	0.00016 U	---	0.00014 U	---	---	0.00019 U	---	---	0.00021 U
M,P-Xylene	--	0.00016 U	---	0.00014 U	---	0.00011 U	---	0.00011 U	---	0.00034 J	---	---	0.0024	---	---	0.0026
Methyl Acetate	0.41	0.002 J	---	0.011	---	0.0028 J	---	0.00087 U	---	0.00076 U	---	---	0.00099 U	---	---	0.0011 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0011 U	---	0.00098 U	---	0.00077 U	---	0.00074 U	---	0.0076	---	---	0.011	---	---	0.003 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0033 U	---	0.0028 U	---	0.0022 U	---	0.0021 U	---	0.0019 U	---	---	0.0024 U	---	---	0.0027 U
Methylcyclohexane	--	0.00073 U	---	0.00064 U	---	0.0005 U	---	0.00048 U	---	0.0009	---	---	0.004	---	---	0.006 J+
Methylene Chloride	0.0027	0.00047 U	---	0.00041 U	---	0.00032 U	---	0.00031 U	---	0.00027 U	---	---	0.00035 U	---	---	0.00039 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00023 U	---	0.0002 U	---	0.00016 U	---	0.00015 U	---	0.00013 U	---	---	0.00078 J	---	---	0.00091 J
Styrene	0.13	0.00022 U	---	0.00019 U	---	0.00015 U	---	0.00014 U	---	0.00013 U	---	---	0.00017 U	---	---	0.00018 U
Tert-Butyl Methyl Ether	0.0032	0.00025 U	---	0.00022 U	---	0.00017 U	---	0.00016 U	---	0.00014 U	---	---	0.00019 U	---	---	0.00021 U
Tetrachloroethylene (PCE)	0.0018	0.00041 U	---	0.00036 U	---	0.00028 U	---	0.00027 U	---	0.00024 U	---	---	0.00031 U	---	---	0.00034 U
Toluene	0.076	0.00028 U	---	0.00024 U	---	0.00019 U	---	0.00018 J	---	0.0011	---	---	0.004	---	---	0.0051
Trans-1,2-Dichloroethene	0.011	0.00057 U	---	0.00[illegible]	---	0.00039 U	---	0.00038 U	---	0.00033 U	---	---	0.00043 U	---	---	0.00048 U
Trans-1,3-Dichloropropene	--	0.00015 U	---	0.00[illegible]	---	0.000089 U	---	0.000096 U	---	0.000084 U	---	---	0.00011 U	---	---	0.00012 U
Trichloroethylene (TCE)	0.0001	0.00038 U	---	0.00[illegible]33 U	---	0.00026 U	---	0.00025 U	---	0.00022 U	---	---	0.00029 U	---	---	0.00032 U
Trichlorofluoromethane	0.33	0.0005 U	---	0.00043 U	---	0.00034 U	---	0.00033 U	---	0.00029 U	---	---	0.00037 UJ	---	---	0.00041 U
Vinyl Chloride	0.0000065	0.00057 U	---	0.0005 U	---	0.00039 U	---	0.00038 U	---	0.00033 U	---	---	0.00043 U	---	---	0.00048 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-101	CFSB-102	CFSB-102	CFSB-104	CFSB-104	CFSB-109	CFSB-109	CFSB-110	CFSB-110	CFSB-113	CFSB-113	CFSB-113	CFSB-114	CFSB-114	CFSB-115
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		7/21/2016	7/13/2016	7/13/2016	7/13/2016	7/13/2016	7/13/2016	7/13/2016	7/14/2016	7/14/2016	8/31/2016	8/31/2016	8/31/2016	7/12/2016	7/12/2016	8/31/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	18.5 J+	8.74 J	7.21 J	11.4 J	12.6 J	17.7 J	17.4 J	11.2 J	28.4 J	1.26 J+	2.97 J+	--	10.1 J	3.18 J	1.58 J+
Cyanide	0.0015	0.7	0.33	0.6	0.33	0.4	0.42	0.59	0.34	0.6	0.07 J	0.12 J	--	0.017 U	0.03 J	0.087 J
METALS																
Aluminum	3000	11800	6590	7170	5870	5520	4170	5370	8190	8660	7740	6850	--	8000	6070	2560
Antimony	0.035	0.54 UJ	0.42 UJ	0.49 UJ	0.51 UJ	0.67 UJ	0.65 UJ	0.77 UJ	0.48 UJ	0.91 UJ	0.3 U	0.41 U	--	0.42 U	0.44 U	0.32 U
Arsenic	0.0015	2.4	1.3	1.3	1.8	1.2 J	0.7 U	0.84 U	1.4	1.5 J	1.4	1.2	--	5	3.5	0.66 J
Barium	16	174	65.4	242	181	459	555	653	207	911	178	972	--	119	125	63.6
Beryllium	1.9	0.39 J	0.47	0.51	0.36 J	0.21 U	0.24 J	0.43 J	0.48	0.65 J	0.34 J	0.16 J	--	0.48	0.35 J	0.11 J
Cadmium	0.069	0.41 U	0.32 U	0.37 U	0.39 U	0.51 U	0.49 U	0.58 U	0.37 U	0.69 U	0.32 U	0.43 U	--	0.32 U	0.33 U	0.33 U
Calcium	--	8540	21200	77200	55500	168000	201000	244000	53200	289000	55900	313000	--	8280	8030	13600
Chromium, Total	--	10.2	7.1 J	9.1 J	8.6 J	8.5 J	5 J	5.6 J	8.4 J	10.5 J	8.5	6	--	9.3	6.4	2.9
Cobalt	0.027	5.5	4.3	3.9	3.1	2.5 J	1.5 J	1.4 U	4.8	3.9 J	4.4	2.1 J	--	5.9	4.2	1.8 J
Copper	2.8	39.4	25	14.3	44.8	87.5	118	101	57.3	204	12.1	30.6	--	12.7	8.9	3.3
Iron	35	12600	9270 J	8430 J	7510 J	4030 J	1580 J	1760 J	10700 J	5790 J	11700	4240	--	14000	9640	3350
Lead	400	12.9	7.5	11.5	8.4	14.4	10.3	11.6	9	22.3	6.9	8	6.6	7.9	7.8	2.1
Magnesium	--	8340	8270	6650	5810	5040	3130	3840	7780	7490	10300	7060	--	8850	7060	3750
Manganese	2.8	111	78 J	73.5 J	83.2 J	40.8 J	10.7 J	14.8 J	71.7 J	44.1 J	121	67.2	--	297	340	55.6
Mercury	0.0033	0.034	0.048	0.054	0.1	0.12	0.093	0.11	0.042	0.14	0.016 J	0.024	--	0.026	0.021	0.016 J
Nickel	2.6	15.8	11.5 J	14.7 J	12.8 J	17.5 J	10.7 J	11 J	11 J	17.4 J	10.8	12.3	--	11.2	10.8	4.3
Potassium	--	1080	501	534	432	344	194	238	716	787	518	541	--	765	619	230
Selenium	0.052	0.5 U	0.39 U	0.46 U	0.48 U	0.63 U	0.61 U	0.72 U	0.45 U	0.85 U	0.28 U	0.4 J	--	0.39 U	0.41 U	0.29 U
Silver	0.08	0.98 U	0.76 U	0.9 U	0.94 U	1.2 U	1.2 U	1.4 U	0.89 U	1.7 U	0.59 U	0.8 U	--	0.77 U	0.8 U	0.62 U
Sodium	--	78 J	47.4 J	87 J	74.8 J	180	136 J	150 J	87.4 J	268	43.6 J	120 J	--	39.3 U	40.8 U	42.8 U
Thallium	0.0014	0.2 U	0.16 U	0.19 U	0.19 U	0.25 U	0.24 U	0.29 U	0.18 U	0.34 U	0.12 U	0.16 U	--	0.16 U	0.16 U	0.13 U
Vanadium	8.6	14.2	6.3 J	7.1 J	6.4 J	5.5 J	2.7 J	3.2 J	9.6 J	7.6 J	11.5	5.7	--	14.5	8	2.6
Zinc	37	64.9	54	79.5	68.3	100	75.9	76.6	66.4	131	42.9	40.2	--	37.1	27.7	13.1

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFSB-101**	**CFSB-102**	**CFSB-102**	**CFSB-104**	**CFSB-104**	**CFSB-109**	**CFSB-109**	**CFSB-110**	**CFSB-110**	**CFSB-113**	**CFSB-113**	**CFSB-113**	**CFSB-114**	**CFSB-114**	**CFSB-115**
Sample Depth		**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**
Chemical Name		**7/21/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/14/2016**	**7/14/2016**	**8/31/2016**	**8/31/2016**	**8/31/2016**	**7/12/2016**	**7/12/2016**	**8/31/2016**
PESTICIDES																
Aldrin	0.00015	0.0011 U	---	---	---	0.0013 U	---	---	---	0.0018 U	---	0.001 U	---	---	---	---
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	0.00083 U	---	---	---	0.001 U	---	---	---	0.0014 U	---	0.00076 U	---	---	---	---
Alpha Endosulfan	--	0.0013 U	---	---	---	0.0015 U	---	---	---	0.0021 U	---	0.0012 U	---	---	---	---
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	0.00089 U	---	---	---	0.0011 U	---	---	---	0.0015 U	---	0.00081 U	---	---	---	---
Beta Endosulfan	--	0.0014 U	---	---	---	0.0017 U	---	---	---	0.0024 U	---	0.0013 U	---	---	---	---
cis-Chlordane	--	0.0015 U	---	---	---	0.0018 U	---	---	---	0.0025 U	---	0.0014 U	---	---	---	---
Delta BHC (Delta Hexachlorocyclohexane)	--	0.001 U	---	---	---	0.0012 U	---	---	---	0.0017 U	---	0.00091 U	---	---	---	---
Dieldrin	0.000071	0.0012 U	---	---	---	0.0014 U	---	---	---	0.002 U	---	0.0011 U	---	---	---	---
Endosulfan Sulfate	--	0.0011 U	---	---	---	0.0013 U	---	---	---	0.0018 U	---	0.00098 U	---	---	---	---
Endrin	0.0092	0.0012 U	---	---	---	0.0014 U	---	---	---	0.0019 U	---	0.0011 U	---	---	---	---
Endrin Aldehyde	--	0.0011 U	---	---	---	0.0014 U	---	---	---	0.0019 U	---	0.001 U	---	---	---	---
Endrin Ketone	--	0.0013 U	---	---	---	0.0015 U	---	---	---	0.0021 U	---	0.0012 U	---	---	---	---
Gamma Bhc (Lindane)	0.00024	0.00082 U	---	---	---	0.00099 U	---	---	---	0.0014 U	---	0.00075 U	---	---	---	---
Heptachlor	0.00012	0.0012 U	---	---	---	0.0014 U	---	---	---	0.002 U	---	0.0011 U	---	---	---	---
Heptachlor Epoxide	0.000028	0.0018 U	---	---	---	0.0022 U	---	---	---	0.003 U	---	0.0016 U	---	---	---	---
Methoxychlor	0.2	0.0019 U	---	---	---	0.0023 U	---	---	---	0.0032 U	---	0.0018 U	---	---	---	---
P,P'-DDD	0.0075	0.0012 U	---	---	---	0.0014 U	---	---	---	0.002 U	---	0.0011 U	---	---	---	---
P,P'-DDE	0.011	0.0013 U	---	---	---	0.0016 U	---	---	---	0.0022 U	---	0.0012 U	---	---	---	---
P,P'-DDT	0.077	0.00094 U	---	---	---	0.0011 U	---	---	---	0.0016 U	---	0.00086 U	---	---	---	---
Toxaphene	0.011	0.027 U	---	---	---	0.032 U	---	---	---	0.044 U	---	0.024 U	---	---	---	---
trans-Chlordane	--	0.002 U	---	---	---	0.0024 U	---	---	---	0.0033 U	---	0.0018 U	---	---	---	---
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.012 U	0.01 U	0.012 U	0.013 U	0.015 U	0.014 U	0.018 U	0.012 U	0.02 U	0.0098 U	0.011 U	---	0.0096 U	0.0097 U	0.0094 U
PCB-1221 (Aroclor 1221)	0.00008	0.012 U	0.01 U	0.012 U	0.013 U	0.015 U	0.014 U	0.018 U	0.012 U	0.02 U	0.0098 U	0.011 U	---	0.0096 U	0.0097 U	0.0094 U
PCB-1232 (Aroclor 1232)	0.00008	0.012 U	0.01 U	0.012 U	0.013 U	0.015 U	0.014 U	0.018 U	0.012 U	0.02 U	0.0098 U	0.011 U	---	0.0096 U	0.0097 U	0.0094 U
PCB-1242 (Aroclor 1242)	0.0012	0.012 U	0.01 U	0.012 U	0.013 U	0.015 U	0.014 U	0.018 U	0.012 U	0.02 U	0.0098 U	0.011 U	---	0.0096 U	0.0097 U	0.0094 U
PCB-1248 (Aroclor 1248)	0.0012	0.012 U	0.01 U	0.012 U	0.013 U	0.015 U	0.014 U	0.018 U	0.012 U	0.02 U	0.0098 U	0.011 U	---	0.0096 U	0.0097 U	0.0094 U
PCB-1254 (Aroclor 1254)	0.002	0.013 U	0.01 U	0.012 U	0.014 U	0.015 U	0.015 U	0.019 U	0.012 U	0.021 U	0.01 U	0.012 U	---	0.01 U	0.01 U	0.0097 U
PCB-1260 (Aroclor 1260)	0.0055	0.013 U	0.01 U	0.012 U	0.014 U	0.015 U	0.015 U	0.019 U	0.012 U	0.021 U	0.01 U	0.012 U	---	0.01 U	0.01 U	0.0097 U
PCB-1262 (Aroclor 1262)	--	0.013 U	0.01 U	0.012 U	0.014 U	0.015 U	0.015 U	0.019 U	0.012 U	0.021 U	0.01 U	0.012 U	---	0.01 U	0.01 U	0.0097 U
PCB-1268 (Aroclor 1268)	--	0.013 U	0.01 U	0.012 U	0.014 U	0.015 U	0.015 U	0.019 U	0.012 U	0.021 U	0.01 U	0.012 U	---	0.01 U	0.01 U	0.0097 U
Polychlorinated Biphenyl (PCBs)	--	0.013 U	0.01 U	0.012 U	0.014 U	0.015 U	0.015 U	0.019 U	0.012 U	0.021 U	0.01 U	0.012 U	---	0.01 U	0.01 U	0.0097 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.034 U	0.028 U	0.032 U	0.036 U	0.04 U	0.039 U	0.051 U	0.032 U	0.056 U	0.027 U	0.031 U	---	0.027 U	0.027 U	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	0.12 U	0.1 U	0.11 U	0.13 U	0.15 U	0.14 U	0.18 U	0.11 U	0.2 U	0.097 U	0.11 U	---	0.096 U	0.096 U	0.093 U
2,3,4,6-Tetrachlorophenol	0.018	0.042 U	0.035 U	0.04 U	0.046 U	0.051 U	0.049 U	0.065 U	0.04 U	0.071 U	0.034 U	0.039 U	---	0.034 U	0.034 U	0.033 U
2,4,5-Trichlorophenol	0.4	0.045 U	0.037 U	0.042 U	0.048 U	0.054 U	0.052 U	0.068 U	0.043 U	0.075 U	0.036 U	0.041 U	---	0.036 U	0.036 U	0.035 U
2,4,6-Trichlorophenol	0.0012	0.013 U	0.011 U	0.012 U	0.014 U	0.015 U	0.015 U	0.02 U	0.012 U	0.021 U	0.01 U	0.012 U	---	0.01 U	0.01 U	0.0099 U
2,4-Dichlorophenol	0.0023	0.011 U	0.0088 U	0.01 U	0.011 U	0.013 U	0.012 U	0.016 U	0.01 U	0.018 U	0.0085 U	0.0098 U	---	0.0084 U	0.0084 U	0.0082 U
2,4-Dimethylphenol	0.042	0.098 U	0.082 U	0.094 U	0.11 U	0.12 U	0.12 U	0.15 U	0.094 U	0.17 U	0.08 U	0.091 U	---	0.079 U	0.079 U	0.076 U
2,4-Dinitrophenol	0.0044	0.34 U	0.28 U	0.32 U	0.37 U	0.41 U	0.4 U	0.52 U	0.32 U	0.57 U	0.27 U	0.31 U	---	0.27 U	0.27 U	0.26 U
2,4-Dinitrotoluene	0.00032	0.018 U	0.015 U	0.017 U	0.019 U	0.022 U	0.021 U	0.027 U	0.017 U	0.03 U	0.014 U	0.016 U	---	0.014 U	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.024 U	0.02 U	0.023 U	0.026 U	0.029 U	0.028 U	0.037 U	0.023 U	0.04 U	0.019 U	0.022 U	---	0.019 U	0.019 U	0.018 U
2-Chloronaphthalene	0.39	0.01 U	0.0085 U	0.0097 U	0.011 U	0.012 U	0.012 U	0.016 U	0.0097 U	0.017 U	0.0082 U	0.0094 U	---	0.0081 U	0.0081 U	0.0079 U
2-Chlorophenol	0.0089	0.011 U	0.0095 U	0.011 U	0.012 U	0.014 U	0.013 U	0.017 U	0.011 U	0.019 U	0.0092 U	0.011 U	---	0.0091 U	0.0091 U	0.0089 U
2-Methylnaphthalene	0.019	0.01 J	0.0083 U	0.0095 U	0.011 U	0.012 U	0.012 U	0.015 U	0.0095 U	0.017 U	0.008 U	0.0091 U	---	0.0079 U	0.0079 U	0.0077 U
2-Methylphenol (O-Cresol)	0.075	0.02 U	0.016 U	0.019 U	0.021 U	0.024 U	0.023 U	0.03 U	0.019 U	0.033 U	0.016 U	0.018 U	---	0.016 U	0.016 U	0.015 U
2-Nitroaniline	0.008	0.015 U	0.012 U	0.014 U	0.016 U	0.018 U	0.017 U	0.023 U	0.014 U	0.025 U	0.012 U	0.014 U	---	0.012 U	0.012 U	0.011 U
2-Nitrophenol	--	0.015 U	0.013 U	0.014 U	0.016 U	0.018 U	0.018 U	0.023 U	0.014 U	0.025 U	0.012 U	0.014 U	---	0.012 U	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.012 U	0.01 U	0.011 U	0.013 U	0.014 U	0.014 U	0.018 U	0.011 U	0.02 U	0.0096 U	0.011 U	---	0.0095 U	0.0095 U	0.0092 U
3,3'-Dichlorobenzidine	0.00082	0.05 U	0.042 U	0.048 U	0.054 U	0.061 U	0.058 U	0.077 U	0.048 U	0.084 U	0.04 U	0.046 U	---	0.04 U	0.04 U	0.039 U
3-Nitroaniline	--	0.013 U	0.011 U	0.013 U	0.014 U	0.016 U	0.016 U	0.02 U	0.013 U	0.022 U	0.011 U	0.012 U	---	0.011 U	0.011 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.12 U	0.1 U	0.11 U	0.13 U	0.15 U	0.14 U	0.18 U	0.11 U	0.2 U	0.097 U	0.11 U	---	0.095 U	0.095 U	0.093 U
4-Bromophenyl Phenyl Ether	--	0.014 U	0.012 U	0.013 U	0.015 U	0.017 U	0.016 U	0.022 U	0.013 U	0.024 U	0.011 U	0.013 U	---	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.019 U	0.016 U	0.018 U	0.021 U	0.023 U	0.023 U	0.029 U	0.018 U	0.032 U	0.016 U	0.018 U	---	0.015 U	0.015 U	0.015 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFSB-101**	**CFSB-102**	**CFSB-102**	**CFSB-104**	**CFSB-104**	**CFSB-109**	**CFSB-109**	**CFSB-110**	**CFSB-110**	**CFSB-113**	**CFSB-113**	**CFSB-113**	**CFSB-114**	**CFSB-114**	**CFSB-115**
Sample Depth		**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**
Chemical Name		**7/21/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/14/2016**	**7/14/2016**	**8/31/2016**	**8/31/2016**	**8/31/2016**	**7/12/2016**	**7/12/2016**	**8/31/2016**
4-Chloroaniline	0.00016	0.012 U	0.0096 U	0.011 U	0.012 U	0.014 U	0.019 J	0.018 U	0.011 U	0.019 U	0.0093 U	0.011 U	---	0.0092 U	0.0092 U	0.0089 U
4-Chlorophenyl Phenyl Ether	--	0.014 U	0.011 U	0.013 U	0.015 U	0.016 U	0.016 U	0.021 U	0.013 U	0.022 U	0.011 U	0.012 U	---	0.011 U	0.011 U	0.01 U
4-Nitroaniline	0.0016	0.017 U	0.014 U	0.016 U	0.018 U	0.021 U	0.02 U	0.026 U	0.016 U	0.028 U	0.014 U	0.016 U	---	0.014 U	0.014 U	0.013 U
4-Nitrophenol	--	0.22 U	0.18 U	0.21 U	0.23 U	0.26 U	0.25 U	0.33 U	0.21 U	0.36 U	0.17 U	0.2 U	---	0.17 U	0.17 U	0.17 U
Acenaphthene	0.55	0.011 U	0.0091 U	0.01 U	0.012 U	0.013 U	0.016 J	0.02 J	0.01 U	0.018 U	0.0083 U	0.01 J	---	0.0087 U	0.0087 U	0.0084 U
Acenaphthylene	--	0.012 U	0.0096 U	0.011 U	0.012 U	0.014 U	0.013 U	0.018 U	0.011 U	0.019 U	0.0093 U	0.011 U	---	0.0092 U	0.0092 U	0.0089 U
Acetophenone	0.058	0.0098 U	0.0082 U	0.0093 U	0.013 U	0.012 U	0.011 U	0.015 U	0.0093 U	0.016 U	0.0079 U	0.009 U	---	0.0078 U	0.0078 U	0.0076 U
Anthracene	5.8	0.043 U	0.036 U	0.041 U	0.046 U	0.052 U	0.05 J	0.065 U	0.04 U	0.071 U	0.034 U	0.039 U	---	0.034 U	0.034 U	0.033 U
Atrazine	0.0002	0.02 U	0.017 U	0.019 U	0.022 U	0.024 U	0.023 U	0.031 U	0.019 U	0.033 U	0.016 U	0.018 U	---	0.016 U	0.016 U	0.015 U
Benzaldehyde	0.0041	0.038 J	0.029 U	0.033 U	0.037 U	0.041 U	0.04 U	0.052 U	0.033 U	0.057 U	0.028 U	0.032 U	---	0.027 U	0.027 U	0.026 U
Benzo(A)Anthracene	0.011	0.042 J	0.04	0.11	0.11	0.18	0.17	0.36	0.036 U	0.18	0.047	0.12	---	0.03 U	0.05	0.052
Benzo(A)Pyrene	0.018	0.014 U	0.051	0.13	0.16	0.25	0.22	0.48	0.013 U	0.23	0.054	0.17	---	0.011 U	0.07	0.06
Benzo(B)Fluoranthene	0.18	0.084	0.081	0.22	0.23	0.35	0.32	0.62	0.11	0.29	0.11	0.29	---	0.014 U	0.11	0.13
Benzo(G,H,I)Perylene	--	0.057 J+	0.21 J	0.25 J	0.26 J	0.33 J	1.1	0.36 J	0.16 J	0.9	0.071 J	0.2 J	---	0.021 U	0.076 J	0.087 J
Benzo(K)Fluoranthene	1.8	0.022 J	0.032 J	0.079	0.066	0.15	0.14	0.25	0.036 J	0.12	0.036	0.1	---	0.016 U	0.036	0.049
Benzyl Butyl Phthalate	0.24	0.014 U	0.012 U	0.013 U	0.015 U	0.017 U	0.016 U	0.021 U	0.013 U	0.023 U	0.011 U	0.013 U	---	0.011 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.038 U	0.032 U	0.037 U	0.041 U	0.046 U	0.045 U	0.059 U	0.037 U	0.064 U	0.031 U	0.035 U	---	0.031 U	0.03 U	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.014 U	0.012 U	0.013 U	0.015 U	0.017 U	0.016 U	0.021 U	0.013 U	0.023 U	0.011 U	0.013 U	---	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.011 U	0.0098 U	0.01 U	0.011 U	0.013 U	0.012 U	0.016 U	0.01 U	0.018 U	0.0085 U	0.0098 U	---	0.0094 U	0.0084 U	0.0082 U
Bis(2-Chloroisopropyl) Ether	0.026	0.019 U	0.015 U	0.018 U	0.02 U	0.022 U	0.02 U	0.028 U	0.018 U	0.031 U	0.015 U	0.017 U	---	0.015 U	0.015 U	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.018 U	0.015 U	0.017 U	0.019 U	0.021 U	0.02 U	0.027 U	0.017 U	0.029 U	0.014 U	0.016 U	---	0.014 U	0.014 U	0.014 U
Caprolactam	0.25	0.032 U	0.027 U	0.031 U	0.035 U	0.039 U	0.038 U	0.049 U	0.031 U	0.054 U	0.026 U	0.03 U	---	0.026 U	0.026 U	0.025 U
Carbazole	--	0.011 U	0.011 J	0.021 J	0.029 J	0.04 J	0.1 J	0.073 J	0.013 J	0.059 J	0.009 U	0.016 J	---	0.0089 U	0.0089 J	0.0086 U
Chrysene	9	0.067 J	0.056 J	0.19 J	0.19 J	0.3 J	0.26 J	0.55 J	0.071 J	0.28 J	0.071 J	0.19 J	---	0.0097 U	0.081 J	0.087 J
Dibenz(A,H)Anthracene	0.096	0.023 U	0.019 U	0.043	0.054	0.037 J	0.17	0.036 U	0.022 U	0.14	0.019 U	0.035 J	---	0.019 U	0.019 U	0.018 U
Dibenzofuran	0.015	0.014 U	0.011 U	0.013 U	0.015 U	0.016 U	0.016 U	0.021 U	0.013 U	0.023 U	0.011 U	0.013 U	---	0.011 U	0.011 U	0.011 U
Diethyl Phthalate	0.61	0.013 U	0.011 U	0.012 U	0.014 U	0.015 U	0.015 U	0.02 U	0.012 U	0.021 U	0.01 U	0.012 U	---	0.01 U	0.01 U	0.0099 U
Dimethyl Phthalate	--	0.013 U	0.011 U	0.012 U	0.014 U	0.015 U	0.015 U	0.02 U	0.012 U	0.022 U	0.011 U	0.012 U	---	0.01 U	0.01 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.014 U	0.027 J	0.034 J	0.031 J	0.019 J	0.056 J	0.021 U	0.013 U	0.058 J	0.011 U	0.012 U	---	0.011 U	0.011 U	0.01 U
Di-N-Octylphthalate	5.7	0.023 U	0.019 U	0.022 U	0.025 U	0.028 U	0.027 U	0.035 U	0.022 U	0.039 U	0.018 U	0.021 U	---	0.018 U	0.018 U	0.018 U
Fluoranthene	8.9	0.053 J	0.06 J	0.16 J	0.18 J	0.27 J	0.23 J	0.56 J	0.054 J	0.24 J	0.076 J	0.2 J	---	0.011 U	0.075 J	0.091 J
Fluorene	0.54	0.0098 U	0.0082 U	0.0093 U	0.011 U	0.012 U	0.011 U	0.02 J	0.0093 U	0.016 U	0.0079 U	0.009 U	---	0.0078 U	0.0078 U	0.0076 U
Hexachlorobenzene	0.00012	0.018 U	0.015 U	0.017 U	0.019 U	0.022 U	0.021 U	0.028 U	0.017 U	0.03 U	0.015 U	0.017 U	---	0.014 U	0.014 U	0.014 U
Hexachlorobutadiene	0.00027	0.013 U	0.011 U	0.012 U	0.014 U	0.015 U	0.015 U	0.019 U	0.012 U	0.021 U	0.01 U	0.012 U	---	0.01 U	0.01 U	0.0098 U
Hexachlorocyclopentadiene	0.00013	0.028 U	0.023 U	0.027 U	0.03 U	0.034 U	0.033 U	0.043 U	0.027 U	0.047 U	0.023 U	0.026 U	---	0.022 U	0.022 U	0.022 U
Hexachloroethane	0.0002	0.017 U	0.014 U	0.016 U	0.018 U	0.02 U	0.019 U	0.025 U	0.016 U	0.027 U	0.013 U	0.015 U	---	0.013 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.061 J+	0.14	0.21	0.23	0.33	0.91	0.38	0.13	0.66	0.071	0.2	---	0.024 U	0.075	0.093
Isophorone	0.026	0.0097 U	0.008 U	0.009 U	0.01 U	0.012 U	0.011 U	0.015 U	0.0092 U	0.016 U	0.0078 U	0.024 J	---	0.0077 U	0.0077 U	0.0095 J
Naphthalene	0.00054	0.011 U	0.0095 U	0.01 U	0.012 U	0.014 U	0.013 U	0.017 U	0.011 U	0.019 U	0.0092 U	0.011 U	---	0.0091 U	0.0091 U	0.0088 U
Nitrobenzene	0.000092	0.014 U	0.012 U	0.013 U	0.015 U	0.017 U	0.016 U	0.022 U	0.013 U	0.024 U	0.011 U	0.013 U	---	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.015 U	0.013 U	0.014 U	0.016 U	0.018 U	0.018 U	0.023 U	0.014 U	0.025 U	0.012 U	0.014 U	---	0.012 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.041 U	0.034 U	0.039 U	0.044 U	0.049 U	0.048 U	0.062 U	0.039 U	0.068 U	0.033 U	0.038 U	---	0.032 U	0.032 U	0.032 U
Pentachlorophenol	0.000057	0.055 U	0.045 U	0.052 U	0.059 U	0.066 U	0.063 U	0.083 U	0.052 U	0.091 U	0.044 U	0.05 U	---	0.043 U	0.043 U	0.042 U
Phenanthrene	--	0.037 J	0.028 J	0.075 J	0.092 J	0.14 J	0.12 J	0.27 J	0.033 J	0.12 J	0.047 J	0.1 J	---	0.0095 U	0.044 J	0.053 J
Phenol	0.33	0.015 U	0.012 U	0.014 U	0.016 U	0.018 U	0.017 U	0.022 U	0.014 U	0.025 U	0.012 U	0.014 U	---	0.012 U	0.012 U	0.011 U
Pyrene	1.3	0.058 J	0.07 J	0.18 J	0.22 J	0.32 J	0.21 J	0.57 J	0.061 J	0.23 J	0.076 J	0.22 J	---	0.016 U	0.1 J	0.091 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	---	0.0003 U	---	0.00044 U	---	0.00068 U	---	0.00023 U	---	0.00035 U	---	---	0.00041 U	---	0.00037 U
1,1,2,2-Tetrachloroethane	0.00003	---	0.00014 U	---	0.0002 U	---	0.0003 UJ	---	0.0001 UJ	---	0.00016 U	---	---	0.00018 U	---	0.00016 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	---	0.00035 U	---	0.00051 U	---	0.00079 U	---	0.00026 U	---	0.00041 U	---	---	0.00047 U	---	0.00043 U
1,1,2-Trichloroethane	0.000013	---	0.00022 U	---	0.00033 U	---	0.0005 U	---	0.00017 U	---	0.00026 U	---	---	0.0003 U	---	0.00027 U
1,1-Dichloroethane	0.00078	---	0.00027 U	---	0.0004 U	---	0.00061 U	---	0.0002 U	---	0.00032 U	---	---	0.00037 U	---	0.00033 U
1,1-Dichloroethene	0.01	---	0.00033 U	---	0.00048 U	---	0.00073 U	---	0.00025 U	---	0.00038 U	---	---	0.00044 U	---	0.0004 U
1,2,3-Trichlorobenzene	0.0021	---	0.000088 U	---	0.00013 U	---	0.0002 UJ	---	0.000066 UJ	---	0.0001 U	---	---	0.00012 U	---	0.00011 U
1,2,4-Trichlorobenzene	0.0012	---	0.00026 U	---	0.00037 U	---	0.00057 UJ	---	0.00019 UJ	---	0.0003 U	---	---	0.00035 U	---	0.00031 U
1,2-Dibromo-3-Chloropropane	0.00000014	---	0.00037 U	---	0.00055 U	---	0.00084 UJ	---	0.00028 UJ	---	0.00044 U	---	---	0.00051 U	---	0.00045 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFSB-101**	**CFSB-102**	**CFSB-102**	**CFSB-104**	**CFSB-104**	**CFSB-109**	**CFSB-109**	**CFSB-110**	**CFSB-110**	**CFSB-113**	**CFSB-113**	**CFSB-113**	**CFSB-114**	**CFSB-114**	**CFSB-115**
Sample Depth		**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**
Chemical Name		**7/21/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/13/2016**	**7/14/2016**	**7/14/2016**	**8/31/2016**	**8/31/2016**	**8/31/2016**	**7/12/2016**	**7/12/2016**	**8/31/2016**
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.000096 U	...	0.00014 U	...	0.00021 U	...	0.000072 U	...	0.00011 U	...	...	0.00013 U	...	0.00012 U
1,2-Dichlorobenzene	0.03	...	0.00011 U	...	0.00016 U	...	0.00025 UJ	...	0.000084 UJ	...	0.00013 U	...	...	0.00015 U	...	0.00014 U
1,2-Dichloroethane	0.000048	...	0.000088 U	...	0.00013 U	...	0.0002 U	...	0.000066 U	...	0.0001 U	...	...	0.00012 U	...	0.00011 U
1,2-Dichloropropane	0.000047	...	0.00014 U	...	0.0002 U	...	0.0003 U	...	0.0001 U	...	0.00016 U	...	...	0.00018 U	...	0.00016 U
1,3-Dichlorobenzene	--	...	0.000096 U	...	0.00014 U	...	0.00021 UJ	...	0.000072 UJ	...	0.00011 U	...	...	0.00013 U	...	0.00012 U
1,4-Dichlorobenzene	0.00046	...	0.0001 U	...	0.00015 U	...	0.00023 UJ	...	0.00021 J	...	0.00012 U	...	...	0.00014 U	...	0.00013 U
2-Hexanone	0.00088	...	0.00075 U	...	0.0011 U	...	0.0017 U	...	0.00056 UJ	...	0.00087 UJ	...	...	0.001 U	...	0.00091 UJ
Acetone	0.29	...	0.014	...	0.043	...	0.087	...	0.033	...	0.022	...	...	0.017 J+	...	0.011
Benzene	0.00023	...	0.00027 J	...	0.00037 J	...	0.00036 U	...	0.0002 J	...	0.00023 J	...	...	0.00031 J	...	0.00027 J
Bromochloromethane	0.0021	...	0.00014 U	...	0.0002 U	...	0.0003 U	...	0.0001 U	...	0.00016 U	...	...	0.00018 U	...	0.00016 U
Bromodichloromethane	0.000036	...	0.0003 U	...	0.00044 U	...	0.00068 U	...	0.00023 U	...	0.00035 U	...	...	0.00041 U	...	0.00037 U
Bromoform	0.00087	...	0.0001 U	...	0.00015 U	...	0.00023 U	...	0.000078 U	...	0.00012 U	...	...	0.00014 U	...	0.00013 U
Bromomethane	0.00019	...	0.00026 U	...	0.00037 U	...	0.00057 U	...	0.00019 U	...	0.0003 U	...	...	0.00035 U	...	0.00031 U
Carbon Disulfide	0.024	...	0.0018	...	0.0014	...	0.0018	...	0.00051 J	...	0.0058	...	...	0.00046 U	...	0.0034
Carbon Tetrachloride	0.00018	...	0.00034 U	...	0.0005 U	...	0.00077 U	...	0.00026 U	...	0.0004 UJ	...	...	0.00046 U	...	0.00042 UJ
Chlorobenzene	0.0053	...	0.00011 U	...	0.00016 U	...	0.00025 U	...	0.000084 U	...	0.00013 U	...	...	0.00015 U	...	0.00014 U
Chloroethane	0.59	...	0.00028 U	...	0.00041 U	...	0.00063 U	...	0.00021 U	...	0.00032 U	...	...	0.00038 U	...	0.00034 U
Chloroform	0.000061	...	0.00017 U	...	0.00024 U	...	0.00038 U	...	0.00013 U	...	0.00019 U	...	...	0.00023 U	...	0.0002 U
Chloromethane	0.0049	...	0.0003 U	...	0.00044 U	...	0.00068 U	...	0.00023 U	...	0.00035 U	...	...	0.00041 U	...	0.00037 U
Cis-1,2-Dichloroethylene	0.0011	...	0.00018 U	...	0.00026 U	...	0.00039 U	...	0.00013 U	...	0.0002 U	...	...	0.00024 U	...	0.00021 U
Cis-1,3-Dichloropropene	--	...	0.00012 U	...	0.00017 U	...	0.00027 U	...	0.00009 U	...	0.00014 U	...	...	0.00016 U	...	0.00014 U
Cyclohexane	1.3	...	0.00037 U	...	0.00054 U	...	0.00082 U	...	0.00028 U	...	0.00073 J	...	...	0.0005 U	...	0.00076 J
Dibromochloromethane	0.00023	...	0.00012 U	...	0.00017 U	...	0.00027 U	...	0.00009 U	...	0.00014 U	...	...	0.00016 U	...	0.00014 U
Dichlorodifluoromethane	0.03	...	0.00026 U	...	0.00037 U	...	0.00057 U	...	0.00019 U	...	0.0003 U	...	...	0.00035 U	...	0.00031 U
Ethylbenzene	0.0017	...	0.00014 U	...	0.00023 J	...	0.00032 U	...	0.00012 J	...	0.00018 J	...	...	0.0004 J	...	0.00017 U
Isopropylbenzene (Cumene)	0.074	...	0.00014 U	...	0.0002 U	...	0.0003 U	...	0.0001 U	...	0.00016 U	...	...	0.00018 U	...	0.00016 U
M,P-Xylene	--	...	0.000088 U	...	0.00057 J	...	0.0002 U	...	0.00039 J	...	0.00067 J	...	...	0.0013	...	0.0004 J
Methyl Acetate	0.41	...	0.00072 U	...	0.001 U	...	0.0081 J	...	0.0089	...	0.0043 J	...	...	0.00097 U	...	0.00087 U
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.0026 J	...	0.0052 J	...	0.0078 J	...	0.0034	...	0.0025 J-	...	...	0.00093 U	...	0.0012 J-
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.0018 U	...	0.0026 U	...	0.004 U	...	0.0013 U	...	0.0021 UJ	...	...	0.0024 U	...	0.0021 UJ
Methylcyclohexane	--	...	0.0004 U	...	0.00053 U	...	0.0009 U	...	0.0003 U	...	0.00086 J	...	...	0.00058 J	...	0.00093 J
Methylene Chloride	0.0027	...	0.00026 U	...	0.0003 J	...	0.00057 U	...	0.00019 U	...	0.0003 U	...	...	0.00035 U	...	0.00031 U
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00013 U	...	0.00019 J	...	0.00029 U	...	0.00011 J	...	0.00019 J	...	...	0.00044 J	...	0.00015 U
Styrene	0.13	...	0.00012 U	...	0.00017 U	...	0.00027 U	...	0.00009 U	...	0.00014 U	...	...	0.00016 U	...	0.00014 U
Tert-Butyl Methyl Ether	0.0032	...	0.00014 U	...	0.0002 U	...	0.0003 U	...	0.0001 U	...	0.00016 U	...	...	0.00018 U	...	0.00016 U
Tetrachloroethylene (PCE)	0.0018	...	0.00022 U	...	0.00033 U	...	0.0005 U	...	0.00017 U	...	0.00026 U	...	...	0.0003 U	...	0.00027 U
Toluene	0.076	...	0.00044 J	...	0.001 J	...	0.00034 U	...	0.00068	...	0.00089 J	...	...	0.0014	...	0.00081 J
Trans-1,2-Dichloroethene	0.011	...	0.00031 U	...	0.00045 U	...	0.0007 U	...	0.00023 U	...	0.00036 U	...	...	0.00042 U	...	0.00038 U
Trans-1,3-Dichloropropene	--	...	0.00008 U	...	0.00012 U	...	0.00018 U	...	0.00006 U	...	0.000053 U	...	...	0.00011 U	...	0.000097 U
Trichloroethylene (TCE)	0.0001	...	0.00021 U	...	0.0003 U	...	0.00047 U	...	0.00016 U	...	0.00024 U	...	...	0.00028 U	...	0.00025 U
Trichlorofluoromethane	0.33	...	0.00027 U	...	0.0004 U	...	0.00061 U	...	0.0002 U	...	0.00032 U	...	...	0.00037 U	...	0.00033 U
Vinyl Chloride	0.0000065	...	0.00031 U	...	0.00045 U	...	0.0007 U	...	0.00023 U	...	0.00036 U	...	...	0.00042 U	...	0.00038 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-115	CFSB-116	CFSB-116	CFSB-118	CFSB-118	CFSB-119	CFSB-119	CFISS-030	CFISS-030	CFISS-031	CFISS-031	CFISS-032	CFISS-032	CFISS-032	CFISS-033
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		8/31/2016	7/22/2016	7/22/2016	7/21/2016	7/21/2016	7/12/2016	7/12/2016	7/25/2016	7/25/2016	7/13/2016	7/13/2016	7/12/2016	7/12/2016	7/12/2016	7/12/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	2.4 J+	1.96 J	3.81	1.85 J+	1.8 J+	14.6 J	4.81 J	297 J-	270 J-	96	391	519	59.3	--	152
Cyanide	0.0015	0.31	0.059 J	0.29	0.038 J	0.02 U	0.045 J	0.14	0.18	0.4	0.24	0.8	1.2	0.31	--	0.15
METALS																
Aluminum	3000	2570	7090	8380	5980	7200	6880	8300	16200	22500	17300	29300	20000	23800	--	14600
Antimony	0.035	0.35 U	0.53 U	0.63 U	0.41 U	0.45 UJ	0.45 U	0.42 U	0.12 J-	0.42 J-	0.12 J-	0.39 J-	0.15 J-	0.2 J-	--	0.43 J-
Arsenic	0.0015	0.46 J	2 J+	1.7 J+	1.6	2.5	3.4	4.8	4.7	6.2	4.8	5.5	5.2	6.3	--	5.1
Barium	16	371	43.1	265	55.7	52.3	88.8	79.3	157	127	195	116	161 J+	245 J+	--	128 J+
Beryllium	1.9	0.11 U	0.3 J	0.52 J	0.21 J	0.25 J	0.37 J	0.36 J	0.61	0.8	0.65	1.1	0.85	0.93	--	0.59
Cadmium	0.069	0.38 U	0.4 U	0.48 U	0.32 U	0.34 U	0.34 U	0.32 U	0.16 J	0.39 J	0.14 J	0.59 J	0.14 J	0.28 J	--	0.28 J
Calcium	--	116000	5140 J	57100 J	8040	13700	11500	14300	20800	27500	11900	17300	17500	13300	--	19900
Chromium, Total	--	2.6	8	9.2	6.7	9.2	7.9	8.6	17	18.5	17	20.1	15.9	17.1	--	14.1
Cobalt	0.027	1.2 J	4.9	4.9	3.7	4.7	4.7	5.1	5.8	6.3	6.6	5.8	6.1	7.1	--	6.4
Copper	2.8	10.2	8.1 J+	22.7 J+	7.8	9	11.4	14.4	20.8	26.5	16.8	35.7	30.7	23.3	--	16.9
Iron	35	2550	12500	11200	9750	12200	11400	12300	15200	15500	16800	16900	17100	18900	--	16400
Lead	400	3.4	5.5 J+	8.2 J+	4.4	4.7	6.3	10.7	16.8	33.2	13.3	24.8	11.9	19.2	15.8 J	12.1
Magnesium	--	2510	7790	9060	6810	9630	8400	8100	10300	10700	8910	8230	10100	9530	--	11300
Manganese	2.8	32.8	107	99.6	88	215	261	312	494	461	592	387	413	457	--	431
Mercury	0.0033	0.024	0.014 U	0.018 J	0.015 J	0.025	0.02	0.03	0.016 J	0.031 J	0.017 UJ	0.015 UJ	0.017 U	0.049 J	--	0.014 U
Nickel	2.6	4.4	9.5	12.6	8.3	9.8	9.6	15.7	18.6	41	16.4	47.6	17.5	26.2	--	17.1
Potassium	--	240	448	732	441	490	803	972	1070 J+	1390 J+	1030	1620	1350	1320	--	921
Selenium	0.052	0.33 U	0.5 U	0.59 U	0.4 U	0.42 U	0.42 U	0.4 U	1.4 J	1.4 J	1.2 J	1 J	1.7 J	2.1 J	--	1.8 J
Silver	0.08	0.69 U	0.97 U	1.2 U	0.77 U	0.82 U	0.82 U	0.77 U	0.04 J	0.073 J	0.04 J	0.066 J	0.045 J	0.063 J	--	0.033 J
Sodium	--	54.3 J	49.4 U	59.1 U	39.5 U	42 U	42 U	39.4 U	413	679	193 J	1490	1170	205 J	--	233 J
Thallium	0.0014	0.14 U	0.2 U	0.24 U	0.16 U	0.17 U	0.17 U	0.16 U	0.089 J	0.11 J	0.098 J+	0.12 J+	0.094 J	0.1 J	--	0.079 J
Vanadium	8.6	3.4	10.6	14.8	7.9	10.8	11.3	11.1	14.4	20.6	15.5	21.9	15.4	19.9	--	12.6
Zinc	37	16.3	35.4	44.3	32.5	34.5	31.3	42.6	61.6	99.2	57.3 J	90.8 J	84.9	75.2	--	52

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-115	CFSB-116	CFSB-116	CFSB-118	CFSB-118	CFSB-119	CFSB-119	CFISS-030	CFISS-030	CFISS-031	CFISS-031	CFISS-032	CFISS-032	CFISS-032	CFISS-033
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		8/31/2016	7/22/2016	7/22/2016	7/21/2016	7/21/2016	7/12/2016	7/12/2016	7/25/2016	7/25/2016	7/13/2016	7/13/2016	7/12/2016	7/12/2016	7/12/2016	7/12/2016
PESTICIDES																
Aldrin	0.00015	---	---	0.0013 U	---	0.001 U	---	---	---	0.00079 U	---	0.00082 U	---	0.0008 U	---	---
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	---	---	0.00059 U	---	0.00077 U	---	---	---	0.00059 U	---	0.00062 U	---	0.0006 U	---	---
Alpha Endosulfan	--	---	---	0.0015 U	---	0.0012 U	---	---	---	0.001 U	---	0.00095 U	---	0.00092 U	---	---
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	---	---	0.0011 U	---	0.00082 U	---	---	---	0.00063 U	---	0.00066 U	---	0.00064 U	---	---
Beta Endosulfan	--	---	---	0.0017 U	---	0.0013 U	---	---	---	0.001 U	---	0.0011 U	---	0.001 U	---	---
cis-Chlordane	--	---	---	0.0018 U	---	0.0014 U	---	---	---	0.0011 U	---	0.0011 U	---	0.0011 U	---	---
Delta BHC (Delta Hexachlorocyclohexane)	--	---	---	0.0012 U	---	0.00092 U	---	---	---	0.00071 U	---	0.00074 U	---	0.00072 U	---	---
Dieldrin	0.000071	---	---	0.0014 U	---	0.0011 U	---	---	---	0.00085 U	---	0.00088 U	---	0.00086 U	---	---
Endosulfan Sulfate	--	---	---	0.0013 U	---	0.00098 U	---	---	---	0.00076 U	---	0.00079 U	---	0.00077 U	---	---
Endrin	0.0092	---	---	0.0014 U	---	0.0011 U	---	---	---	0.00083 U	---	0.00086 U	---	0.00084 U	---	---
Endrin Aldehyde	--	---	---	0.0013 U	---	0.001 U	---	---	---	0.00081 U	---	0.00084 U	---	0.00082 U	---	---
Endrin Ketone	--	---	---	0.0015 U	---	0.0012 U	---	---	---	0.00091 U	---	0.00095 U	---	0.00092 U	---	---
Gamma Bhc (Lindane)	0.00024	---	---	0.00097 U	---	0.00075 U	---	---	---	0.00058 U	---	0.00061 U	---	0.00059 U	---	---
Heptachlor	0.00012	---	---	0.0014 U	---	0.0011 U	---	---	---	0.00084 U	---	0.00087 U	---	0.00085 U	---	---
Heptachlor Epoxide	0.000028	---	---	0.0021 U	---	0.0016 U	---	---	---	0.0013 U	---	0.0013 U	---	0.0013 U	---	---
Methoxychlor	0.2	---	---	0.0023 U	---	0.0018 U	---	---	---	0.0014 U	---	0.0014 U	---	0.0014 U	---	---
P,P'-DDD	0.0075	---	---	0.0014 U	---	0.0011 U	---	---	---	0.00086 U	---	0.00089 U	---	0.00087 U	---	---
P,P'-DDE	0.011	---	---	0.0016 U	---	0.0012 U	---	---	---	0.00095 U	---	0.00099 U	---	0.00096 U	---	---
P,P'-DDT	0.077	---	---	0.0011 U	---	0.00087 U	---	---	---	0.00067 U	---	0.0007 U	---	0.00068 U	---	---
Toxaphene	0.011	---	---	0.032 U	---	0.025 U	---	---	---	0.019 U	---	0.02 U	---	0.019 U	---	---
trans-Chlordane	--	---	---	0.0023 U	---	0.0018 U	---	---	---	0.0014 U	---	0.0015 U	---	0.0014 U	---	---
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.01 U	0.012 U	0.014 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0088 U	0.0087 U	0.009 U	0.009 U	0.0088 U	0.0088 U	---	0.0089 U
PCB-1221 (Aroclor 1221)	0.00008	0.01 U	0.012 U	0.014 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0088 U	0.0087 U	0.009 U	0.009 U	0.0088 U	0.0088 U	---	0.0089 U
PCB-1232 (Aroclor 1232)	0.00008	0.01 U	0.012 U	0.014 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0088 U	0.0087 U	0.009 U	0.009 U	0.0088 U	0.0088 U	---	0.0089 U
PCB-1242 (Aroclor 1242)	0.0012	0.01 U	0.012 U	0.014 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0088 U	0.0087 U	0.009 U	0.009 U	0.0088 U	0.0088 U	---	0.0089 U
PCB-1248 (Aroclor 1248)	0.0012	0.01 U	0.012 U	0.014 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0088 U	0.0087 U	0.009 U	0.009 U	0.0088 U	0.0088 U	---	0.0089 U
PCB-1254 (Aroclor 1254)	0.002	0.011 U	0.012 U	0.015 U	0.011 U	0.012 U	0.011 U	0.011 U	0.0091 U	0.009 U	0.0093 U	0.0094 U	0.0091 U	0.0091 U	---	0.0092 U
PCB-1260 (Aroclor 1260)	0.0055	0.011 U	0.012 U	0.015 U	0.011 U	0.012 U	0.011 U	0.011 U	0.0091 U	0.009 U	0.0093 U	0.0094 U	0.0091 U	0.0091 U	---	0.0092 U
PCB-1262 (Aroclor 1262)	--	0.011 U	0.012 U	0.015 U	0.011 U	0.012 U	0.011 U	0.011 U	0.0091 U	0.009 U	0.0093 U	0.0094 U	0.0091 U	0.0091 U	---	0.0092 U
PCB-1268 (Aroclor 1268)	--	0.011 U	0.012 U	0.015 U	0.011 U	0.012 U	0.011 U	0.011 U	0.0091 U	0.009 U	0.0093 U	0.0094 U	0.0091 U	0.0091 U	---	0.0092 U
Polychlorinated Biphenyl (PCBs)	--	0.011 U	0.012 U	0.015 U	0.011 U	0.012 U	0.011 U	0.011 U	0.0091 U	0.009 U	0.0093 U	0.0094 U	0.0091 U	0.0091 U	---	0.0092 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.029 U	0.032 U	0.04 U	0.028 U	0.031 U	0.029 U	0.029 U	0.024 U	0.048 U	0.05 U	0.024 U	0.024 U	0.025 U	---	0.024 U
1,4-Dioxane (P-Dioxane)	0.000094	0.1 U	0.12 U	0.14 U	0.1 U	0.11 U	0.1 U	0.1 U	0.085 U	0.17 U	0.18 U	0.088 U	0.087 U	0.088 U	---	0.088 U
2,3,4,6-Tetrachlorophenol	0.018	0.037 U	0.041 U	0.05 U	0.036 U	0.039 U	0.036 UJ	0.036 UJ	0.03 U	0.061 U	0.064 U	0.031 U	0.031 U	0.031 U	---	0.031 U
2,4,5-Trichlorophenol	0.4	0.039 U	0.043 U	0.05 U	0.038 U	0.041 U	0.038 U	0.038 U	0.032 U	0.064 U	0.067 U	0.033 U	0.032 U	0.033 U	---	0.033 U
2,4,6-Trichlorophenol	0.0012	0.011 U	0.012 U	0.015 U	0.011 U	0.012 U	0.011 U	0.011 U	0.0091 U	0.018 U	0.019 U	0.0094 U	0.0093 U	0.0094 U	---	0.0093 U
2,4-Dichlorophenol	0.0023	0.0092 U	0.01 U	0.013 U	0.009 U	0.0098 U	0.009 U	0.0091 U	0.0075 U	0.015 U	0.016 U	0.0078 U	0.0077 U	0.0078 U	---	0.0077 U
2,4-Dimethylphenol	0.042	0.086 U	0.095 U	0.12 U	0.084 U	0.091 U	0.084 U	0.085 U	0.07 U	0.14 U	0.15 U	0.072 U	0.072 U	0.073 U	---	0.072 U
2,4-Dinitrophenol	0.0044	0.29 U	0.33 U	0.4 U	0.29 U	0.31 U	0.29 U	0.29 U	0.24 U	0.49 U	0.51 U	0.25 UJ	0.25 UJ	0.25 UJ	---	0.25 U
2,4-Dinitrotoluene	0.00032	0.015 U	0.017 U	0.021 U	0.015 U	0.016 U	0.015 U	0.015 U	0.013 U	0.025 U	0.027 U	0.013 U	0.013 U	0.013 U	---	0.013 U
2,6-Dinitrotoluene	0.000067	0.021 U	0.023 U	0.028 U	0.02 U	0.022 U	0.02 U	0.021 U	0.017 U	0.034 U	0.036 U	0.018 U	0.017 U	0.018 U	---	0.017 U
2-Chloronaphthalene	0.39	0.0088 U	0.0098 U	0.012 U	0.0086 U	0.0094 U	0.0087 U	0.0088 U	0.0072 U	0.015 U	0.015 U	0.0075 U	0.0074 U	0.0075 U	---	0.0074 U
2-Chlorophenol	0.0089	0.0099 U	0.011 U	0.014 U	0.0097 U	0.011 U	0.0097 U	0.0098 U	0.0081 U	0.016 U	0.017 U	0.0084 U	0.0083 U	0.0084 U	---	0.0083 U
2-Methylnaphthalene	0.019	0.0086 U	0.0096 U	0.012 U	0.013 J	0.0092 U	0.0085 U	0.0085 U	0.0098 J	0.031 J	0.015 U	0.011 J	0.012 J	0.013 J	---	0.0072 U
2-Methylphenol (O-Cresol)	0.075	0.017 U	0.019 U	0.023 U	0.017 U	0.018 U	0.017 U	0.017 U	0.014 U	0.028 U	0.03 U	0.014 U	0.014 U	0.014 U	---	0.014 U
2-Nitroaniline	0.008	0.013 U	0.014 U	0.018 U	0.013 U	0.014 U	0.013 U	0.013 U	0.011 U	0.021 U	0.022 U	0.011 U	0.011 U	0.011 U	---	0.011 U
2-Nitrophenol	--	0.013 U	0.015 U	0.018 U	0.013 U	0.014 U	0.013 U	0.013 U	0.011 U	0.022 U	0.023 U	0.011 U	0.011 U	0.011 U	---	0.011 U
3- And 4- Methylphenol (Total)	--	0.01 U	0.012 U	0.014 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0085 U	0.017 U	0.018 U	0.0088 U	0.0087 U	0.0088 U	---	0.0087 U
3,3'-Dichlorobenzidine	0.00082	0.043 U	0.048 U	0.06 U	0.042 U	0.046 U	0.043 U	0.043 U	0.036 U	0.072 U	0.076 U	0.037 U	0.036 U	0.037 U	---	0.037 U
3-Nitroaniline	--	0.012 U	0.013 U	0.016 U	0.011 U	0.012 U	0.011 U	0.011 U	0.0094 U	0.019 U	0.02 U	0.0098 U	0.0097 U	0.0098 U	---	0.0097 U
4,6-Dinitro-2-Methylphenol	0.00026	0.1 U	0.12 U	0.14 U	0.1 U	0.11 U	0.1 U	0.1 U	0.085 U	0.17 U	0.18 U	0.088 U	0.087 U	0.088 U	---	0.087 U
4-Bromophenyl Phenyl Ether	--	0.012 U	0.014 U	0.017 U	0.012 U	0.013 U	0.012 U	0.012 U	0.01 U	0.02 U	0.021 U	0.01 U	0.01 U	0.01 U	---	0.01 U
4-Chloro-3-Methylphenol	0.17	0.017 U	0.019 U	0.023 U	0.016 U	0.018 U	0.016 U	0.017 U	0.014 U	0.028 U	0.029 U	0.014 U	0.014 U	0.014 U	---	0.014 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-115	CFSB-116	CFSB-116	CFSB-118	CFSB-118	CFSB-119	CFSB-119	CFISS-030	CFISS-030	CFISS-031	CFISS-031	CFISS-032	CFISS-032	CFISS-032	CFISS-033
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		8/31/2016	7/22/2016	7/22/2016	7/21/2016	7/21/2016	7/12/2016	7/12/2016	7/25/2016	7/25/2016	7/13/2016	7/13/2016	7/12/2016	7/12/2016	7/12/2016	7/12/2016
4-Chloroaniline	0.00016	0.01 U	0.011 U	0.014 U	0.0098 U	0.011 U	0.0099 U	0.0098 U	0.0082 U	0.017 U	0.017 U	0.0085 U	0.0084 U	0.0085 U	...	0.0084 U
4-Chlorophenyl Phenyl Ether	--	0.012 U	0.013 U	0.016 U	0.011 U	0.012 U	0.011 U	0.012 U	0.0095 U	0.019 U	0.02 U	0.0099 U	0.0098 U	0.0099 U	...	0.0098 U
4-Nitroaniline	0.0016	0.015 U	0.016 U	0.02 U	0.014 U	0.016 U	0.014 U	0.015 U	0.012 U	0.024 U	0.026 U	0.012 U	0.012 U	0.012 U	...	0.012 U
4-Nitrophenol	--	0.18 U	0.21 U	0.26 U	0.18 U	0.2 U	0.18 U	0.19 U	0.15 U	0.31 U	0.33 U	0.16 U	0.16 U	0.16 U	...	0.16 U
Acenaphthene	0.55	0.0094 U	0.01 U	0.013 U	0.0092 U	0.01 U	0.0093 U	0.0093 U	0.05 J	0.28 J	0.04 J	0.04 J	0.067 J	0.12 J	...	0.12 J
Acenaphthylene	--	0.01 U	0.011 U	0.014 U	0.0098 U	0.011 U	0.0099 U	0.0098 U	0.0082 U	0.017 U	0.017 U	0.0085 U	0.0084 U	0.0085 U	...	0.0084 U
Acetophenone	0.058	0.0085 U	0.0094 U	0.012 U	0.0083 U	0.009 U	0.0083 U	0.011 J	0.0069 U	0.014 U	0.015 U	0.0072 U	0.0071 U	0.0072 U	...	0.0071 U
Anthracene	5.8	0.037 U	0.041 U	0.051 U	0.036 U	0.039 U	0.036 U	0.037 U	0.1 J	0.66	0.12 J	0.13 J	0.17 J	0.25 J	...	0.36
Atrazine	0.0002	0.017 U	0.019 U	0.024 U	0.017 U	0.018 U	0.017 U	0.017 U	0.014 U	0.029 U	0.03 U	0.015 U	0.015 U	0.015 U	...	0.015 U
Benzaldehyde	0.0041	0.03 U	0.033 U	0.041 U	0.029 U	0.032 U	0.029 U	0.088 J	0.024 U	0.049 U	0.052 U	0.025 U	0.025 U	0.025 U	...	0.025 U
Benzo(A)Anthracene	0.011	0.059	0.036 U	0.11	0.032 U	0.035 U	0.032 U	0.13	0.64	4.5	0.57	0.6	1.1	1.6	...	2.6
Benzo(A)Pyrene	0.018	0.084	0.013 U	0.15	0.018 J	0.013 U	0.024 J	0.18	0.88	5.5	0.57	0.59	1.2	1.9	...	3.3
Benzo(B)Fluoranthene	0.18	0.17	0.017 U	0.25	0.029 J	0.016 U	0.036 J	0.35	1.2	6.5	1	1	1.3	2.3	...	3.5
Benzo(G,H,I)Perylene	--	0.11 J	0.025 U	0.2 J	0.022 U	0.024 U	0.022 U	0.24 J	0.86	7.2	0.64 J+	0.75 J+	0.98 J-	1.6 J-	...	2.9 J-
Benzo(K)Fluoranthene	1.8	0.06	0.019 U	0.083	0.017 U	0.018 U	0.017 U	0.1	0.38	2.4	0.35	0.31	0.61	0.88	...	1.5
Benzyl Butyl Phthalate	0.24	0.012 U	0.013 U	0.016 U	0.012 U	0.013 U	0.012 U	0.012 U	0.0098 U	0.048 J	0.021 U	0.01 U	0.01 U	0.01 U	...	0.01 U
Biphenyl (Diphenyl)	0.00087	0.033 U	0.037 U	0.046 U	0.032 U	0.035 U	0.033 U	0.033 U	0.027 U	0.055 U	0.058 U	0.028 U	0.028 U	0.028 U	...	0.028 U
Bis(2-Chloroethoxy) Methane	0.0013	0.012 U	0.013 U	0.017 U	0.012 U	0.013 U	0.012 U	0.012 U	0.0099 U	0.02 U	0.021 U	0.01 U	0.01 U	0.01 U	...	0.01 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0092 U	0.01 U	0.017 J	0.009 U	0.0098 U	0.009 U	0.0091 U	0.0075 U	0.015 U	0.016 U	0.0078 U	0.0077 U	0.0078 U	...	0.0077 U
Bis(2-Chloroisopropyl) Ether	0.026	0.016 U	0.018 U	0.022 U	0.016 U	0.017 U	0.016 U	0.016 UJ	0.013 U	0.026 U	0.028 U	0.014 U	0.013 U	0.014 U	...	0.013 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.015 U	0.017 U	0.021 U	0.015 U	0.016 U	0.015 U	0.015 U	0.012 U	0.058 J	0.026 U	0.013 U	0.013 U	0.013 U	...	0.013 U
Caprolactam	0.25	0.028 U	0.031 U	0.038 U	0.027 U	0.03 U	0.046 J	0.028 U	0.023 U	0.046 U	0.049 U	0.024 U	0.023 U	0.024 U	...	0.024 U
Carbazole	--	0.0097 U	0.011 U	0.016 J	0.0094 U	0.01 U	0.0095 U	0.024 J	0.087 J	0.52 J	0.13 J	0.13 J	0.13 J	0.23 J	...	0.23 J
Chrysene	9	0.1 J	0.012 U	0.17 J	0.026 J	0.011 U	0.026 J	0.23 J	0.84	5.6	0.92	0.98	1.2	2	...	2.8
Dibenz(A,H)Anthracene	0.096	0.02 U	0.023 U	0.05 J	0.02 U	0.022 U	0.02 U	0.051	0.19	1.8	0.13 J+	0.19 J+	0.27 J-	0.44 J-	...	0.74 J-
Dibenzofuran	0.015	0.012 U	0.013 U	0.016 U	0.012 U	0.013 U	0.012 U	0.012 U	0.021 J	0.085 J	0.035 J	0.036 J	0.027 J	0.037 J	...	0.018 J
Diethyl Phthalate	0.61	0.011 U	0.012 U	0.015 U	0.011 U	0.012 U	0.011 U	0.011 U	0.0091 U	0.018 U	0.019 U	0.0094 U	0.0093 U	0.0094 U	...	0.0093 U
Dimethyl Phthalate	--	0.011 U	0.013 U	0.015 U	0.011 U	0.012 U	0.011 U	0.011 U	0.0093 U	0.019 U	0.02 U	0.0096 U	0.0095 U	0.0096 U	...	0.0095 U
Di-N-Butyl Phthalate	0.23	0.012 U	0.013 U	0.016 U	0.011 U	0.012 U	0.034 J	0.012 U	0.0095 U	0.019 U	0.02 U	0.0099 U	0.023 J	0.018 J	...	0.025 J
Di-N-Octylphthalate	5.7	0.02 U	0.022 U	0.027 U	0.019 U	0.021 U	0.019 U	0.02 U	0.016 U	0.033 U	0.034 U	0.017 U	0.017 U	0.017 U	...	0.017 U
Fluoranthene	8.9	0.089 J	0.013 U	0.16 J	0.033 J	0.012 U	0.026 J	0.21 J	1	6.6	1.4	1.6	1.2	2.3	...	2.7
Fluorene	0.54	0.0085 U	0.0094 U	0.012 U	0.0083 U	0.009 U	0.0083 U	0.0084 U	0.039 J	0.17 J	0.035 J	0.038 J	0.048 J-	0.079 J-	...	0.045 J-
Hexachlorobenzene	0.00012	0.016 U	0.018 U	0.022 U	0.015 U	0.017 U	0.016 UJ	0.016 UJ	0.013 U	0.026 U	0.027 U	0.013 U	0.013 U	0.013 U	...	0.013 U
Hexachlorobutadiene	0.00027	0.011 U	0.012 U	0.015 U	0.011 U	0.012 U	0.011 UJ	0.011 UJ	0.009 U	0.018 U	0.019 U	0.0093 U	0.0092 U	0.0093 U	...	0.0092 U
Hexachlorocyclopentadiene	0.00013	0.024 U	0.027 U	0.033 U	0.024 U	0.026 U	0.024 U	0.024 U	0.02 U	0.04 U	0.042 U	0.021 U	0.02 U	0.021 U	...	0.02 U
Hexachloroethane	0.0002	0.014 U	0.016 U	0.02 U	0.014 U	0.015 U	0.014 U	0.014 U	0.012 U	0.024 U	0.025 U	0.012 U	0.012 U	0.012 U	...	0.012 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.12	0.029 U	0.23	0.025 U	0.028 U	0.025 U	0.22	0.88	6.9	0.57 J+	0.71 J+	1 J-	1.7 J-	...	3 J-
Isophorone	0.026	0.02 J	0.0093 U	0.01 U	0.0082 U	0.0089 U	0.0082 U	0.0083 U	0.0068 U	0.014 U	0.015 U	0.0071 U	0.007 U	0.0071 U	...	0.007 U
Naphthalene	0.00054	0.0098 U	0.011 U	0.015 J	0.0097 U	0.011 U	0.0097 U	0.0098 U	0.02 J	0.063 J	0.018 J	0.018 J	0.035 J	0.018 J	...	0.0083 U
Nitrobenzene	0.000092	0.012 U	0.014 U	0.017 U	0.012 U	0.013 U	0.012 U	0.012 U	0.01 U	0.02 U	0.021 U	0.01 U	0.01 U	0.01 U	...	0.01 U
N-Nitrosodi-N-Propylamine	0.0000081	0.013 U	0.015 U	0.018 UJ	0.013 U	0.014 U	0.013 U	0.013 U	0.011 U	0.022 U	0.023 U	0.011 U	0.011 U	0.011 U	...	0.011 U
N-Nitrosodiphenylamine	0.067	0.035 U	0.039 U	0.048 U	0.035 U	0.038 U	0.035 U	0.035 U	0.029 U	0.058 U	0.061 U	0.03 U	0.03 U	0.03 U	...	0.03 U
Pentachlorophenol	0.000057	0.047 U	0.052 U	0.065 U	0.046 U	0.05 U	0.046 UJ	0.047 UJ	0.039 U	0.078 U	0.082 U	0.04 U	0.039 U	0.04 U	...	0.04 U
Phenanthrene	--	0.044 J	0.012 U	0.089 J	0.013 J	0.011 U	0.021 J	0.1 J	0.56	3.1	0.99	1	0.78	1.5	...	1.3
Phenol	0.33	0.013 U	0.014 U	0.017 U	0.012 U	0.014 U	0.013 U	0.013 U	0.01 U	0.021 U	0.022 U	0.011 U	0.011 U	0.011 U	...	0.011 U
Pyrene	1.3	0.096 J	0.02 U	0.17 J	0.032 J	0.019 U	0.033 J+	0.29 J+	1.2	7.1	1.3	1.1	1.7	2.9	...	3.2
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	...	0.00045 U	...	0.00039 U	...	0.00046 U	...	...	...	...	...	...	...	...	...
1,1,2,2-Tetrachloroethane	0.00003	...	0.0002 U	...	0.00018 U	...	0.0002 U	...	...	...	...	...	...	...	...	...
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	...	0.00052 U	...	0.00046 U	...	0.00053 UJ	...	...	...	...	...	...	...	...	...
1,1,2-Trichloroethane	0.000013	...	0.00033 U	...	0.00029 U	...	0.00034 U	...	...	...	...	...	...	...	...	...
1,1-Dichloroethane	0.00078	...	0.00041 U	...	0.00035 U	...	0.00041 U	...	...	...	...	...	...	...	...	...
1,1-Dichloroethene	0.01	...	0.00049 U	...	0.00042 U	...	0.00049 U	...	...	...	...	...	...	...	...	...
1,2,3-Trichlorobenzene	0.0021	...	0.00013 U	...	0.00011 U	...	0.00013 U	...	...	...	...	...	...	...	...	...
1,2,4-Trichlorobenzene	0.0012	...	0.00038 U	...	0.00033 U	...	0.00038 U	...	...	...	...	...	...	...	...	...
1,2-Dibromo-3-Chloropropane	0.00000014	...	0.00056 UJ	...	0.00049 U	...	0.00056 U	...	...	...	...	...	...	...	...	...

Preliminary - Under EPA and NDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFSB-115	CFSB-116	CFSB-116	CFSB-118	CFSB-118	CFSB-119	CFSB-119	CFISS-030	CFISS-030	CFISS-031	CFISS-031	CFISS-032	CFISS-032	CFISS-032	CFISS-033
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft
Chemical Name		8/31/2016	7/22/2016	7/22/2016	7/21/2016	7/21/2016	7/12/2016	7/12/2016	7/25/2016	7/25/2016	7/13/2016	7/13/2016	7/12/2016	7/12/2016	7/12/2016	7/12/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	0.00014 U	...	0.00012 U	...	0.00014 U	...	...	...	...	...	...	...	...	...
1,2-Dichlorobenzene	0.03	...	0.00017 U	...	0.00015 U	...	0.00017 U	...	...	...	...	...	...	...	...	...
1,2-Dichloroethane	0.000048	...	0.00013 U	...	0.00011 U	...	0.00013 U	...	...	...	...	...	...	...	...	...
1,2-Dichloropropane	0.000047	...	0.0002 U	...	0.00018 U	...	0.0002 U	...	...	...	...	...	...	...	...	...
1,3-Dichlorobenzene	--	...	0.00014 U	...	0.00012 U	...	0.00014 U	...	...	...	...	...	...	...	...	...
1,4-Dichlorobenzene	0.00046	...	0.00016 U	...	0.00013 U	...	0.00016 U	...	...	...	...	...	...	...	...	...
2-Hexanone	0.00088	...	0.0011 U	...	0.00097 U	...	0.0011 U	...	...	...	...	...	...	...	...	...
Acetone	0.29	...	0.012	...	0.011	...	0.16	...	...	...	...	...	...	...	...	...
Benzene	0.00023	...	0.00047 J	...	0.00024 J	...	0.0022	...	...	...	...	...	...	...	...	...
Bromochloromethane	0.0021	...	0.0002 U	...	0.00018 U	...	0.0002 U	...	...	...	...	...	...	...	...	...
Bromodichloromethane	0.000036	...	0.00045 U	...	0.00039 U	...	0.00046 U	...	...	...	...	...	...	...	...	...
Bromoform	0.00087	...	0.00016 U	...	0.00013 U	...	0.00016 U	...	...	...	...	...	...	...	...	...
Bromomethane	0.00019	...	0.00088 U	...	0.00033 U	...	0.00038 UJ	...	...	...	...	...	...	...	...	...
Carbon Disulfide	0.024	...	0.00075 J	...	0.0077	...	0.00099 J-	...	...	...	...	...	...	...	...	...
Carbon Tetrachloride	0.00018	...	0.00051 U	...	0.00045 U	...	0.00052 U	...	...	...	...	...	...	...	...	...
Chlorobenzene	0.0053	...	0.00017 U	...	0.00015 U	...	0.00017 U	...	...	...	...	...	...	...	...	...
Chloroethane	0.59	...	0.00042 U	...	0.00036 U	...	0.00042 U	...	...	...	...	...	...	...	...	...
Chloroform	0.000061	...	0.00025 U	...	0.00022 U	...	0.00025 U	...	...	...	...	...	...	...	...	...
Chloromethane	0.0049	...	0.00045 U	...	0.00039 U	...	0.00046 U	...	...	...	...	...	...	...	...	...
Cis-1,2-Dichloroethylene	0.0011	...	0.00026 U	...	0.00023 U	...	0.00026 U	...	...	...	...	...	...	...	...	...
Cis-1,3-Dichloropropene	--	...	0.00018 U	...	0.00016 U	...	0.00018 U	...	...	...	...	...	...	...	...	...
Cyclohexane	1.3	...	0.00055 U	...	0.00048 U	...	0.0032 J-	...	...	...	...	...	...	...	...	...
Dibromochloromethane	0.00023	...	0.00018 U	...	0.00016 U	...	0.00018 U	...	...	...	...	...	...	...	...	...
Dichlorodifluoromethane	0.03	...	0.00038 U	...	0.00033 U	...	0.00038 U	...	...	...	...	...	...	...	...	...
Ethylbenzene	0.0017	...	0.00021 U	...	0.00019 U	...	0.0012	...	...	...	...	...	...	...	...	...
Isopropylbenzene (Cumene)	0.074	...	0.0002 U	...	0.00018 U	...	0.0002 U	...	...	...	...	...	...	...	...	...
M,P-Xylene	--	...	0.00013 U	...	0.00035 J	...	0.0033	...	...	...	...	...	...	...	...	...
Methyl Acetate	0.41	...	0.0011 U	...	0.00093 U	...	0.36	...	...	...	...	...	...	...	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	0.00092 U	...	0.0008 U	...	0.01	...	...	...	...	...	...	...	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	0.0026 U	...	0.0023 U	...	0.0027 U	...	...	...	...	...	...	...	...	...
Methylcyclohexane	--	...	0.0006 U	...	0.00056 J+	...	0.0056	...	...	...	...	...	...	...	...	...
Methylene Chloride	0.0027	...	0.00088 U	...	0.0008[illegible]	...	0.00088 U	...	...	...	...	...	...	...	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	0.00019 U	...	0.00[illegible]	...	0.0011 J	...	...	...	...	...	...	...	...	...
Styrene	0.13	...	0.00018 U	...	0.00016 U	...	0.00018 U	...	...	...	...	...	...	...	...	...
Tert-Butyl Methyl Ether	0.0032	...	0.0002 U	...	0.00018 U	...	0.0002 U	...	...	...	...	...	...	...	...	...
Tetrachloroethylene (PCE)	0.0018	...	0.00033 U	...	0.00029 U	...	0.00034 U	...	...	...	...	...	...	...	...	...
Toluene	0.076	...	0.00069 J	...	0.00061 J	...	0.0069	...	...	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	0.011	...	0.00047 U	...	0.0004 U	...	0.00047 U	...	...	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	--	...	0.00012 U	...	0.0001 U	...	0.00012 U	...	...	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.0001	...	0.00031 U	...	0.00027 U	...	0.00031 U	...	...	...	...	...	...	...	...	...
Trichlorofluoromethane	0.33	...	0.00041 U	...	0.00035 U	...	0.00041 UJ	...	...	...	...	...	...	...	...	...
Vinyl Chloride	0.0000065	...	0.00047 U	...	0.0004 U	...	0.00047 U	...	...	...	...	...	...	...	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-033	CFISS-034	CFISS-034	CFISS-035	CFISS-035	CFISS-036	CFISS-036	CFISS-037	CFISS-037	CFISS-037	CFISS-038	CFISS-038	CFISS-039	CFISS-039	CFISS-040
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		7/12/2016	7/11/2016	7/11/2016	7/11/2016	7/11/2016	7/15/2016	7/15/2016	7/15/2016	7/15/2016	7/15/2016	7/14/2016	7/14/2016	7/14/2016	7/14/2016	7/13/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	544	709	301	232	92.8	87.3	56.3	87.3	83.4	--	207	507	503	60.9	136
Cyanide	0.0015	0.81	0.68	0.5	0.51	0.49	0.11	0.13	0.35	0.45	--	0.73	0.021 J	0.29	0.048 J	0.082 J
METALS																
Aluminum	3000	36200	20300	29900	15800	20100	23100	15100	18400	17200	--	14900	26800	23000	14900	15000
Antimony	0.035	1 J-	0.22 J-	2 J-	0.15 J	0.16 J-	0.18 J-	0.24 J-	0.87 J-	4.4 J-	--	0.48 J-	8.6 J-	0.82 J-	0.11 J-	0.14 J-
Arsenic	0.0015	8.6	5.3	6.2	5.6	4.8	4.7	5.3	8.2	19.6	--	6.2	31.3	6.2	4.5	4.4
Barium	16	262 J+	121 J+	286 J+	123 J+	194 J+	302	156	230	190	--	158	221	116	158	139
Beryllium	1.9	1.5	0.82	1.4	0.75	0.87	0.65	0.48 J	0.64	0.61	--	0.59	0.97	0.79	0.6	0.55 J
Cadmium	0.069	1.6	0.12 J	0.31 J	0.1 J	0.26 J	0.18 J	0.26 J	0.23 J	0.68 J	--	0.3 J	0.82 J	0.46 J	0.082 J	0.12 J
Calcium	--	9200	23400	9730	23700	15000	7350	16200	11500	32500	--	23200	45700	23600	13200	12100
Chromium, Total	--	33.8	16.7	16.7	14.9	14.5	13.9	15.6	23	35.9	--	17.4	36.8	20.5	12.9	27.6
Cobalt	0.027	8.2	5.7	6.5	6.1	6	6.7	6.8	6.8	10.5	--	6	13.5	6.2	6.3	6.4
Copper	2.8	93.3	16.9	23.1	16.9	22.3	17.7	26.1	73.1	477	--	47.7	887	42.9	15.8	15.4
Iron	35	23100	15200	17500	15700	15900	17600	17500	20200	40700	--	16700	66700	17400	16100	16500
Lead	400	84.6	11.3	50	10.3	15.8	12.4	19.8	23.2	88.3	68 J	29.3	144	52.6	12	14.1
Magnesium	--	9350	11300	10500	11700	10400	6830	8140	8190	9120	--	9630	8830	8670	8960	9410
Manganese	2.8	534	363	425	415	403	686	558	564	634	--	474	731	364	480	451
Mercury	0.0033	0.017 U	0.016 U	0.017 U	0.058 J	0.026 J	0.015 UJ	0.016 UJ	0.019 J-	0.034 J-	--	0.016 UJ	0.015 UJ	0.017 UJ	0.013 J-	0.016 UJ
Nickel	2.6	62.8	17.5	21.6	14.9	18.1	14.2	19.9	20.1	46.4	--	18.4	51.6	35.3	13.4	22.5
Potassium	--	1920	1880	1830	1260	1220	1010	873	1100	1430	--	1040	2110	1540	875	1110
Selenium	0.052	2.6 J	1.6 J	2.5 J	1.9 J	1.8 J	1.1 J	1.1 J	1.1 J	1.2 J	--	1.1 J	1.1 J	0.95 J	1.1 J	0.97 J
Silver	0.08	0.16 J	0.038 J	0.25 J	0.037 J	0.054 J	0.042 J	0.066 J	0.17 J	0.69 J	--	0.27 J	1.3	0.26 J	0.036 J	0.029 J
Sodium	--	3050	3350	1360	471	166 J	106 J	92.2 J	226 J	364	--	352	1970	1420	143 J	195 J
Thallium	0.0014	0.18 J	0.11 J	0.22 J	0.094 J	0.11 J	0.14 J+	0.099 J+	0.12 J+	0.17 J+	--	0.11 J+	0.22 J+	0.12 J+	0.087 J+	0.091 J+
Vanadium	8.6	44.5	15.1	19.8	13.6	13.5	17.2	13.4	17.1	27.6	--	12.7	38.6	18.8	12.3	13.5
Zinc	37	158	44.8	72.3	47.6	63	65 J	76.8 J	204 J	888 J	--	123 J	1720 J	145 J	48.2 J	50.9 J

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-033	CFISS-034	CFISS-034	CFISS-035	CFISS-035	CFISS-036	CFISS-036	CFISS-037	CFISS-037	CFISS-037	CFISS-038	CFISS-038	CFISS-039	CFISS-039	CFISS-040
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		7/12/2016	7/11/2016	7/11/2016	7/11/2016	7/11/2016	7/15/2016	7/15/2016	7/15/2016	7/15/2016	7/15/2016	7/14/2016	7/14/2016	7/14/2016	7/14/2016	7/13/2016
PESTICIDES																
Aldrin	0.00015	0.00079 U	---	0.00081 U	---	0.00078 U	---	0.00081 U	---	0.00078 U	---	---	0.00079 U	---	0.00081 U	---
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	0.0006 U	---	0.00061 U	---	0.00059 U	---	0.00061 U	---	0.00059 U	---	---	0.0006 U	---	0.00061 U	---
Alpha Endosulfan	--	0.00091 U	---	0.00093 U	---	0.0009 U	---	0.00093 U	---	0.0009 U	---	---	0.00091 U	---	0.00093 U	---
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	0.00063 U	---	0.00065 U	---	0.00063 U	---	0.00065 U	---	0.00063 U	---	---	0.00064 U	---	0.00065 U	---
Beta Endosulfan	--	0.001 U	---	0.001 U	---	0.001 U	---	0.0011 U	---	0.001 U	---	---	0.001 U	---	0.0011 U	---
cis-Chlordane	--	0.0011 U	---	0.0011 U	---	0.0011 U	---	0.0011 U	---	0.0011 U	---	---	0.0011 U	---	0.0011 U	---
Delta BHC (Delta Hexachlorocyclohexane)	--	0.00071 U	---	0.00073 U	---	0.00071 U	---	0.00073 U	---	0.0007 U	---	---	0.00072 U	---	0.00073 U	---
Dieldrin	0.000071	0.00085 U	---	0.00087 U	---	0.00084 U	---	0.00087 U	---	0.00084 U	---	---	0.00085 U	---	0.00087 U	---
Endosulfan Sulfate	--	0.00076 U	---	0.00078 U	---	0.00075 U	---	0.00078 U	---	0.00075 U	---	---	0.00076 U	---	0.00078 U	---
Endrin	0.0092	0.00083 U	---	0.00085 U	---	0.00082 U	---	0.00085 U	---	0.00082 U	---	---	0.00083 U	---	0.00085 U	---
Endrin Aldehyde	--	0.00081 U	---	0.00083 U	---	0.0008 U	---	0.00083 U	---	0.0008 U	---	---	0.00081 U	---	0.00083 U	---
Endrin Ketone	--	0.00091 U	---	0.00093 U	---	0.0009 U	---	0.00093 U	---	0.0009 U	---	---	0.00091 U	---	0.00093 U	---
Gamma Bhc (Lindane)	0.00024	0.00059 U	---	0.0006 U	---	0.00058 U	---	0.0006 U	---	0.00058 U	---	---	0.00059 U	---	0.0006 U	---
Heptachlor	0.00012	0.00084 U	---	0.00086 U	---	0.00083 U	---	0.00086 U	---	0.00083 U	---	---	0.00084 U	---	0.00086 U	---
Heptachlor Epoxide	0.000028	0.0013 U	---	0.0013 U	---	0.0013 U	---	0.0013 U	---	0.0013 U	---	---	0.0013 U	---	0.0013 U	---
Methoxychlor	0.2	0.0014 U	---	0.0014 U	---	0.0014 U	---	0.0014 U	---	0.0014 U	---	---	0.0014 U	---	0.0014 U	---
P,P'-DDD	0.0075	0.00086 U	---	0.00088 U	---	0.00085 U	---	0.00088 U	---	0.00085 U	---	---	0.00086 U	---	0.00088 U	---
P,P'-DDE	0.011	0.00095 U	---	0.00097 U	---	0.00094 U	---	0.00097 U	---	0.00094 U	---	---	0.00095 U	---	0.00097 U	---
P,P'-DDT	0.077	0.00067 U	---	0.00069 U	---	0.00067 U	---	0.00069 U	---	0.00067 U	---	---	0.00068 U	---	0.00069 U	---
Toxaphene	0.011	0.019 U	---	0.019 U	---	0.019 U	---	0.02 U	---	0.019 U	---	---	0.019 U	---	0.02 U	---
trans-Chlordane	--	0.0014 U	---	0.0014 U	---	0.0014 U	---	0.0015 U	---	0.0014 U	---	---	0.0014 U	---	0.0015 U	---
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0087 U	0.0087 U	0.0089 U	0.0088 U	0.0086 U	0.0094 U	0.0089 U	0.0091 U	0.0086 U	---	0.0088 U	0.0087 U	0.009 U	0.0089 U	0.009 U
PCB-1221 (Aroclor 1221)	0.00008	0.0087 U	0.0087 U	0.0089 U	0.0088 U	0.0086 U	0.0094 U	0.0089 U	0.0091 U	0.0086 U	---	0.0088 U	0.0087 U	0.009 U	0.0089 U	0.009 U
PCB-1232 (Aroclor 1232)	0.00008	0.0087 U	0.0087 U	0.0089 U	0.0088 U	0.0086 U	0.0094 U	0.0089 U	0.0091 U	0.0086 U	---	0.0088 U	0.0087 U	0.009 U	0.0089 U	0.009 U
PCB-1242 (Aroclor 1242)	0.0012	0.0087 U	0.0087 U	0.0089 U	0.0088 U	0.0086 U	0.0094 U	0.0089 U	0.0091 U	0.0086 U	---	0.0088 U	0.0087 U	0.009 U	0.0089 U	0.009 U
PCB-1248 (Aroclor 1248)	0.0012	0.0087 U	0.0087 U	0.0089 U	0.0088 U	0.0086 U	0.0094 U	0.0089 U	0.0091 U	0.0086 U	---	0.0088 U	0.0087 U	0.009 U	0.0089 U	0.009 U
PCB-1254 (Aroclor 1254)	0.002	0.009 U	0.009 U	0.0092 U	0.0091 U	0.0089 U	0.0098 U	0.0092 U	0.0094 U	0.0089 U	---	0.0091 U	0.009 U	0.0093 U	0.0092 U	0.0093 U
PCB-1260 (Aroclor 1260)	0.0055	0.009 U	0.009 U	0.0092 U	0.0091 U	0.0089 U	0.0098 U	0.0092 U	0.0094 U	0.0089 U	---	0.0091 U	0.009 U	0.0093 U	0.0092 U	0.0093 U
PCB-1262 (Aroclor 1262)	--	0.009 U	0.009 U	0.0092 U	0.0091 U	0.0089 U	0.0098 U	0.0092 U	0.0094 U	0.0089 U	---	0.0091 U	0.009 U	0.0093 U	0.0092 U	0.0093 U
PCB-1268 (Aroclor 1268)	--	0.009 U	0.009 U	0.0092 U	0.0091 U	0.0089 U	0.0098 U	0.0092 U	0.0094 U	0.0089 U	---	0.0091 U	0.009 U	0.0093 U	0.0092 U	0.0093 U
Polychlorinated Biphenyl (PCBs)	--	0.009 U	0.009 U	0.0092 U	0.0091 U	0.0089 U	0.0098 U	0.0092 U	0.0094 U	0.0089 U	---	0.0091 U	0.009 U	0.0093 U	0.0092 U	0.0093 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.5 U	0.024 U	0.61 U	0.025 U	0.12 U	0.027 U	0.025 U	0.025 U	0.025 U	---	0.025 U	0.024 U	0.048 U	0.024 U	0.024 U
1,4-Dioxane (P-Dioxane)	0.000094	1.8 U	0.086 U	2.2 U	0.089 U	0.45 U	0.095 U	0.09 U	0.089 U	0.089 U	---	0.089 U	0.088 U	0.17 U	0.087 U	0.087 U
2,3,4,6-Tetrachlorophenol	0.018	0.63 U	0.03 U	0.77 U	0.031 U	0.16 U	0.034 U	0.032 U	0.031 U	0.031 U	---	0.031 U	0.031 U	0.06 U	0.031 U	0.031 U
2,4,5-Trichlorophenol	0.4	0.67 U	0.032 U	0.8 U	0.033 U	0.17 U	0.036 U	0.033 U	0.033 U	0.033 U	---	0.033 U	0.033 U	0.064 U	0.032 U	0.032 U
2,4,6-Trichlorophenol	0.0012	0.19 U	0.0092 U	0.23 U	0.0095 U	0.047 U	0.01 U	0.0095 U	0.0095 U	0.0094 U	---	0.0095 U	0.0093 U	0.018 U	0.0092 U	0.0092 U
2,4-Dichlorophenol	0.0023	0.16 U	0.0076 U	0.19 U	0.0079 U	0.039 U	0.0084 U	0.0079 U	0.0079 U	0.0078 U	---	0.0079 U	0.0077 U	0.015 U	0.0077 U	0.0077 U
2,4-Dimethylphenol	0.042	1.5 U	0.071 U	1.8 U	0.073 U	0.37 U	0.079 U	0.074 U	0.073 U	0.073 U	---	0.073 U	0.072 U	0.14 U	0.071 U	0.072 U
2,4-Dinitrophenol	0.0044	5.1 UJ	0.24 U	6.2 UJ	0.25 UJ	1.3 U	0.27 U	0.25 U	0.25 U	0.25 U	---	0.25 UJ	0.25 UJ	0.48 U	0.25 UJ	0.25 UJ
2,4-Dinitrotoluene	0.00032	0.27 U	0.013 U	0.32 U	0.013 U	0.066 U	0.014 U	0.013 U	0.013 U	0.013 U	---	0.013 U	0.013 U	0.025 U	0.013 U	0.013 U
2,6-Dinitrotoluene	0.000067	0.36 U	0.017 U	0.43 U	0.018 U	0.089 U	0.019 U	0.018 U	0.018 U	0.018 U	---	0.018 U	0.017 U	0.034 U	0.017 U	0.017 U
2-Chloronaphthalene	0.39	0.15 U	0.0073 U	0.18 U	0.0075 U	0.038 U	0.0081 U	0.0076 U	0.0076 U	0.0075 U	---	0.0076 U	0.0074 U	0.015 U	0.0074 U	0.0074 U
2-Chlorophenol	0.0089	0.17 U	0.0082 U	0.21 U	0.0085 U	0.042 U	0.0091 U	0.0085 U	0.0085 U	0.0084 U	---	0.0085 U	0.0083 U	0.016 U	0.0083 U	0.0083 U
2-Methylnaphthalene	0.019	0.15 U	0.0086 J	0.18 U	0.0073 U	0.037 U	0.0079 U	0.09 J	0.011 J	0.078 J	---	0.097 J	0.044 J	0.08 J	0.0092 J	0.096 J
2-Methylphenol (O-Cresol)	0.075	0.29 U	0.014 U	0.36 U	0.014 U	0.073 U	0.016 U	0.015 U	0.015 U	0.014 U	---	0.015 U	0.014 U	0.028 U	0.014 U	0.014 U
2-Nitroaniline	0.008	0.22 U	0.011 U	0.27 U	0.011 U	0.055 U	0.012 U	0.011 U	0.011 U	0.011 U	---	0.011 U	0.011 U	0.021 U	0.011 U	0.011 U
2-Nitrophenol	--	0.23 U	0.011 U	0.27 U	0.011 U	0.056 U	0.012 U	0.011 U	0.011 U	0.011 U	---	0.011 U	0.011 U	0.021 U	0.011 U	0.011 U
3- And 4- Methylphenol (Total)	--	0.18 U	0.0086 U	0.22 U	0.0089 U	0.044 U	0.0095 U	0.0089 U	0.0089 U	0.0088 U	---	0.017 J	0.0087 U	0.017 U	0.0087 U	0.0087 U
3,3'-Dichlorobenzidine	0.00082	0.75 U	0.036 U	0.91 U	0.037 U	0.19 U	0.04 U	0.037 U	0.037 U	0.037 U	---	0.037 U	0.037 U	0.071 U	0.036 U	0.036 U
3-Nitroaniline	--	0.2 U	0.0096 U	0.24 U	0.0099 U	0.049 U	0.011 U	0.01 U	0.0099 U	0.0098 U	---	0.0099 U	0.0097 U	0.019 U	0.0096 U	0.0096 U
4,6-Dinitro-2-Methylphenol	0.00026	1.8 U	0.086 U	2.2 U	0.089 U	0.45 U	0.095 U	0.09 U	0.089 U	0.089 U	---	0.089 U	0.088 U	0.17 U	0.087 U	0.087 U
4-Bromophenyl Phenyl Ether	--	0.21 U	0.01 U	0.26 U	0.01 U	0.053 U	0.011 U	0.011 U	0.01 U	0.01 U	---	0.01 U	0.01 U	0.02 U	0.01 U	0.01 U
4-Chloro-3-Methylphenol	0.17	0.29 U	0.014 U	0.35 U	0.014 U	0.072 U	0.015 U	0.014 U	0.014 U	0.014 U	---	0.014 U	0.014 U	0.027 U	0.014 U	0.014 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-033	CFISS-034	CFISS-034	CFISS-035	CFISS-035	CFISS-036	CFISS-036	CFISS-037	CFISS-037	CFISS-037	CFISS-038	CFISS-038	CFISS-039	CFISS-039	CFISS-040
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		7/12/2016	7/11/2016	7/11/2016	7/11/2016	7/11/2016	7/15/2016	7/15/2016	7/15/2016	7/15/2016	7/15/2016	7/14/2016	7/14/2016	7/14/2016	7/14/2016	7/13/2016
4-Chloroaniline	0.00016	0.17 U	0.0083 U	0.21 U	0.0086 U	0.043 U	0.0092 U	0.0086 U	0.0086 U	0.0085 U	...	0.0086 U	0.0084 U	0.016 U	0.0084 U	0.0084 U
4-Chlorophenyl Phenyl Ether	--	0.2 U	0.0097 U	0.24 U	0.01 U	0.05 U	0.011 U	0.01 U	0.01 U	0.0099 U	...	0.01 U	0.0098 U	0.019 U	0.0097 U	0.0097 U
4-Nitroaniline	0.0016	0.25 U	0.012 U	0.31 U	0.013 U	0.063 U	0.013 U	0.013 U	0.013 U	0.012 U	...	0.013 U	0.012 U	0.024 U	0.012 U	0.012 U
4-Nitrophenol	--	3.2 U	0.16 U	3.9 U	0.16 U	0.8 U	0.17 U	0.16 U	0.16 U	0.16 U	...	0.16 U	0.16 U	0.31 U	0.16 U	0.16 U
Acenaphthene	0.55	1.5 J	0.043 J	4.6 J	0.018 J	0.7 J	0.025 J	0.26 J	0.05 J	0.37	...	0.4	0.26 J	0.71	0.036 J	0.86
Acenaphthylene	--	0.17 U	0.0083 U	0.21 U	0.0086 U	0.043 U	0.0092 U	0.01 J	0.0086 U	0.011 J	...	0.0086 U	0.033 J	0.029 J	0.0084 U	0.015 J
Acetophenone	0.058	0.15 U	0.007 U	0.18 U	0.0072 U	0.036 U	0.0078 U	0.0073 U	0.0073 U	0.0072 U	...	0.0073 U	0.0071 U	0.014 U	0.0071 U	0.0071 U
Anthracene	5.8	4.6 J	0.12 J	15	0.051 J	3.9	0.036 J	0.41	0.093 J	0.54	...	0.44	0.54	1.2	0.058 J	1.4
Atrazine	0.0002	0.3 U	0.014 U	0.36 U	0.015 U	0.074 U	0.016 U	0.015 U	0.015 U	0.015 U	...	0.015 U	0.015 U	0.028 U	0.014 U	0.014 U
Benzaldehyde	0.0041	0.51 U	0.025 U	0.62 U	0.025 U	0.13 U	0.027 U	0.026 U	0.025 U	0.025 U	...	0.025 U	0.025 U	0.049 U	0.025 U	0.025 U
Benzo(A)Anthracene	0.011	37	0.71	100	0.32	18	0.12	0.95	0.35	4.1	...	1.9	3.5	6.7	0.26	3.9
Benzo(A)Pyrene	0.018	44	0.89	110	0.4	21	0.12	1.1	0.39	4.5	...	2.1	4.2	8.2	0.34	4.4
Benzo(B)Fluoranthene	0.18	50	1.1	130	0.48	23	0.17	1.8	0.57	7.2	...	2.7	7.2	10	0.42	5
Benzo(G,H,I)Perylene	--	37 J-	0.83 J-	90 J-	0.35 J-	18 J-	0.082 J	0.78	0.48	3.4	...	2.8	5.7 J+	12 J+	0.42 J+	4.8
Benzo(K)Fluoranthene	1.8	21	0.42	47	0.23	8.9	0.057	0.63	0.24	2.5	...	1.1	2.6	3.5	0.16	2
Benzyl Butyl Phthalate	0.24	0.59 J	0.01 U	0.25 U	0.01 U	0.052 U	0.011 U	0.01 U	0.019 J	0.019 J	...	0.01 U	0.14 J	0.088 J	0.01 U	0.01 U
Biphenyl (Diphenyl)	0.00087	0.57 U	0.028 U	0.7 U	0.028 U	0.14 U	0.03 U	0.029 U	0.028 U	0.028 U	...	0.028 U	0.028 U	0.055 U	0.028 U	0.037 J
Bis(2-Chloroethoxy) Methane	0.0013	0.21 U	0.01 U	0.25 U	0.01 U	0.052 U	0.011 U	0.01 U	0.01 U	0.01 U	...	0.01 U	0.01 U	0.02 U	0.01 U	0.01 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.16 U	0.0076 U	0.19 U	0.0079 U	0.039 U	0.0084 U	0.0079 U	0.0079 U	0.0078 U	...	0.0079 U	0.0077 U	0.015 U	0.0077 U	0.0077 U
Bis(2-Chloroisopropyl) Ether	0.026	0.28 U	0.013 U	0.34 U	0.014 U	0.069 U	0.015 U	0.014 U	0.014 U	0.014 U	...	0.014 U	0.013 U	0.026 U	0.013 U	0.013 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.26 U	0.013 U	0.32 U	0.013 U	0.065 U	0.014 U	0.013 U	0.013 U	0.059 J	...	0.013 U	0.064 J	0.025 U	0.013 U	0.013 U
Caprolactam	0.25	0.48 U	0.023 U	0.59 U	0.024 U	0.12 U	0.026 U	0.024 U	0.024 U	0.024 U	...	0.024 U	0.024 U	0.046 U	0.023 U	0.023 U
Carbazole	--	3.2 J	0.091 J	11	0.037 J	1.9	0.016 J	0.21 J	0.06 J	0.6	...	0.29 J	0.48	0.88	0.037 J	0.76
Chrysene	9	39	0.91	100	0.37	18	0.13 J	1.6	0.53	5.9	...	2.5	6	8.4	0.36	4.3
Dibenz(A,H)Anthracene	0.096	9.1 J-	0.23 J-	26 J-	0.096 J-	4.9 J-	0.028 J	0.24	0.12	1	...	0.58	1.3	2.6 J+	0.095 J+	0.94
Dibenzofuran	0.015	0.23 J	0.018 J	0.59 J	0.01 U	0.1 J	0.011 U	0.15 J	0.027 J	0.13 J	...	0.11 J	0.095 J	0.23 J	0.013 J	0.36
Diethyl Phthalate	0.61	0.19 U	0.0092 U	0.23 U	0.0095 U	0.048 U	0.01 U	0.0095 U	0.0095 U	0.0094 U	...	0.0095 U	0.0093 U	0.018 U	0.0092 U	0.0092 U
Dimethyl Phthalate	--	0.2 U	0.0094 U	0.24 U	0.0097 U	0.048 U	0.01 U	0.0098 U	0.0097 U	0.0096 U	...	0.0097 U	0.0095 U	0.019 U	0.0094 U	0.0094 U
Di-N-Butyl Phthalate	0.23	0.2 U	0.025 J	0.24 U	0.021 J	0.05 U	0.011 U	0.01 U	0.011 J	0.034 J	...	0.01 U	0.045 J	0.019 U	0.0097 U	0.0097 U
Di-N-Octylphthalate	5.7	0.34 U	0.016 U	0.41 U	0.017 U	0.085 U	0.018 U	0.017 U	0.017 U	0.017 U	...	0.017 U	0.017 U	0.032 U	0.017 U	0.017 U
Fluoranthene	8.9	42	0.91	120	0.41	22	0.21 J	2.2	0.75	7.4	...	3.7	6.3	10	0.46	7.1
Fluorene	0.54	0.67 J-	0.035 J-	1.8 J-	0.0095 J-	0.29 J-	0.022 J	0.26 J	0.039 J	0.16 J	...	0.18 J	0.14 J	0.45 J	0.024 J	0.69
Hexachlorobenzene	0.00012	0.27 U	0.013 U	0.33 U	0.014 U	0.068 U	0.014 U	0.014 U	0.014 U	0.013 U	...	0.013 U	0.013 U	0.026 U	0.013 U	0.013 U
Hexachlorobutadiene	0.00027	0.19 U	0.0091 U	0.23 U	0.0094 U	0.047 U	0.01 U	0.0094 U	0.0094 U	0.0093 U	...	0.0094 U	0.0092 U	0.018 U	0.0091 U	0.0091 U
Hexachlorocyclopentadiene	0.00013	0.42 U	0.02 U	0.51 U	0.021 U	0.1 U	0.022 U	0.021 U	0.021 U	0.021 U	...	0.021 U	0.02 U	0.04 U	0.02 U	0.02 U
Hexachloroethane	0.0002	0.25 U	0.012 U	0.3 U	0.012 U	0.061 U	0.013 U	0.012 U	0.012 U	0.012 U	...	0.012 U	0.012 U	0.023 U	0.012 U	0.012 U
Indeno(1,2,3-C,D)Pyrene	0.98	40 J-	0.83 J-	100 J-	0.33 J-	19 J-	0.096	0.86	0.45	3.7	...	2.6 J+	5.7	11 J+	0.38 J+	4.7 J+
Isophorone	0.026	0.14 U	0.0069 U	0.17 U	0.0071 U	0.036 U	0.0077 U	0.0072 U	0.0072 U	0.0071 U	...	0.0072 U	0.007 U	0.014 U	0.007 U	0.007 U
Naphthalene	0.00054	0.17 U	0.016 J	0.21 U	0.0085 U	0.042 U	0.0096 J	0.31 J	0.015 J	0.098 J	...	0.087 J	0.083 J	0.2 J	0.013 J	0.32
Nitrobenzene	0.000092	0.21 U	0.01 U	0.26 U	0.01 U	0.053 U	0.011 U	0.011 U	0.01 U	0.01 U	...	0.01 U	0.01 U	0.02 U	0.01 U	0.01 U
N-Nitrosodi-N-Propylamine	0.0000081	0.23 U	0.011 U	0.27 U	0.011 U	0.056 U	0.012 U	0.011 U	0.011 U	0.011 U	...	0.011 U	0.011 U	0.021 U	0.011 U	0.011 U
N-Nitrosodiphenylamine	0.067	0.61 U	0.029 U	0.74 U	0.03 U	0.15 U	0.032 U	0.03 U	0.03 U	0.03 U	...	0.03 U	0.03 U	0.058 U	0.029 U	0.03 U
Pentachlorophenol	0.000057	0.81 U	0.039 U	0.99 U	0.04 U	0.2 U	0.043 U	0.1 J	0.04 U	0.04 U	...	0.04 U	0.04 U	0.077 U	0.039 U	0.039 U
Phenanthrene	--	18	0.61	52	0.22 J	8.8	0.15 J	1.7	0.61	3.7	...	2.7	3	6.1	0.3 J	6.5
Phenol	0.33	0.22 U	0.011 U	0.27 U	0.011 U	0.055 U	0.012 U	0.011 U	0.011 U	0.016 J	...	0.027 J	0.011 U	0.021 U	0.011 U	0.011 U
Pyrene	1.3	48	1.3	120	0.54	21	0.25 J	1.4	0.93	5.7	...	3.7	4.3	9.8	0.44	6.4
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2,2-Tetrachloroethane	0.00003	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2-Trichloroethane	0.000013	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1-Dichloroethane	0.00078	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1-Dichloroethene	0.01	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2,3-Trichlorobenzene	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2,4-Trichlorobenzene	0.0012	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dibromo-3-Chloropropane	0.00000014	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-033	CFISS-034	CFISS-034	CFISS-035	CFISS-035	CFISS-036	CFISS-036	CFISS-037	CFISS-037	CFISS-037	CFISS-038	CFISS-038	CFISS-039	CFISS-039	CFISS-040
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		7/12/2016	7/11/2016	7/11/2016	7/11/2016	7/11/2016	7/15/2016	7/15/2016	7/15/2016	7/15/2016	7/15/2016	7/14/2016	7/14/2016	7/14/2016	7/14/2016	7/13/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichlorobenzene	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloroethane	0.000048	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloropropane	0.000047	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,3-Dichlorobenzene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,4-Dichlorobenzene	0.00046	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2-Hexanone	0.00088	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acetone	0.29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benzene	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromochloromethane	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromodichloromethane	0.000036	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromoform	0.00087	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromomethane	0.00019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Disulfide	0.024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Tetrachloride	0.00018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chlorobenzene	0.0053	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroethane	0.59	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroform	0.000061	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloromethane	0.0049	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,2-Dichloroethylene	0.0011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cyclohexane	1.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dibromochloromethane	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dichlorodifluoromethane	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ethylbenzene	0.0017	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Isopropylbenzene (Cumene)	0.074	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
M,P-Xylene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Acetate	0.41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylcyclohexane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylene Chloride	0.0027	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Styrene	0.13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tert-Butyl Methyl Ether	0.0032	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetrachloroethylene (PCE)	0.0018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toluene	0.076	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.0001	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichlorofluoromethane	0.33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vinyl Chloride	0.0000065	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-040	CFISS-040	CFISS-041	CFISS-041	CFISS-042	CFISS-042	CFISS-043	CFISS-043	CFISS-001	CFISS-001	CFISS-002	CFISS-002	CFISS-002	CFISS-002	CFISS-003
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		7/13/2016	7/13/2016	7/16/2016	7/16/2016	7/18/2016	7/18/2016	7/18/2016	7/18/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	7/19/2016	7/19/2016	6/15/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	349	--	79.1	84.3	99.2	632	225	534	35.5 J	10.4 J	53.3 J	18.6 J	647	976	270 J-
Cyanide	0.0015	0.23	--	0.14	0.19	0.26	0.03 J	0.13	0.27	6.3	8.5	12.3	29	3.9 J-	18.2 J-	2
METALS																
Aluminum	3000	22000	--	21200	15500	18500	24100	17300	32300	11900	26100	24500	44900	22000	37700	16600
Antimony	0.035	0.54 J-	--	0.25 J-	0.53 J	0.13 J-	3.6 J-	0.15 J-	1.3 J-	0.35 UJ	0.36 UJ	0.38 UJ	0.38 UJ	0.11 J-	0.21 J-	0.36 UJ
Arsenic	0.0015	5.7	--	5.2	5.9	4.4	14.9	4.1	7.2	3.4	8.4	7	6.7	6.4	4.6	6.2
Barium	16	120	--	270	147	256	153	206	136	66.8	199	182	170	164	220	184
Beryllium	1.9	0.75	--	0.71	0.51 J	0.79 J	1 J	0.84 J	0.98 J	0.44	1.1	0.71	3	1.1 J	3.7 J	0.53
Cadmium	0.069	0.63 J	--	0.17 J	0.51 J	0.23 J	0.89 J	0.19 J	0.53 J	0.26 U	0.27 U	0.29 U	0.29 U	0.08 J	0.25 J	0.27 U
Calcium	--	23500	--	10200	15600	18300	28800	18500	22200	5230	6420	6530	21300	6100	22000	9800
Chromium, Total	--	28.9	--	15.2	20.4	15.2	29.5	19.7	23.8	7.5	12	11.6	13.3	18.2	18.6	14
Cobalt	0.027	6.5	--	6.6	7.1	6.2	7.5	6	6.4	4.8	5	4.8	4.1	5.9	5.4	6.1
Copper	2.8	29.9	--	30.7	45.7	20.7	345	29.3	104	11 J+	10.4 J+	10.8 J+	14 J+	15	16.9	12.3 J+
Iron	35	17700	--	18400	19400	15800	30300	14800	20000	10300	20800	19400	15400	19500	15000	16800
Lead	400	45.4	33.4 J	14.8	36.1	17.1	83.1	15.5	46.2	5.8 J+	15.8 J+	12.2 J+	14.2 J+	12.1	17.3	10.9 J+
Magnesium	--	10500	--	7480	7680	7610	7240	9150	8210	8090	11100	15300	11100	11800	10100	13200
Manganese	2.8	405	--	658	523	654	470	560	422	226 J	597 J	644 J	413 J	629	502	598 J
Mercury	0.0033	0.017 UJ	--	0.017 UJ	0.016 UJ	0.026 J	0.021 J	0.027 J	0.023 J	0.021	0.013 U	0.023	0.013 U	0.026 J	0.019 J	0.016 J
Nickel	2.6	42.8	--	15.3	31.1	16.5	55.7	20.4	44.7	8.3	18.5	12.2	25.8	15.8	44.5	12.5
Potassium	--	1750	--	1010	990	974	1530	1030	1510	704	1640	1720	2430	1440	3080	1120
Selenium	0.052	1.1 J	--	1.1 J	1.1 J	0.82 J	0.86 J	0.8 J	0.73 J	0.33 U	0.34 U	0.35 U	0.35 U	0.85 J	0.74 J	0.33 U
Silver	0.08	0.55 J	--	0.059 J	0.12 J	0.13 J	0.69 J	0.086 J	1.1 J	0.64 U	0.68 U	0.69 U	0.69 U	0.035 J	0.056 J	0.65 U
Sodium	--	1240	--	175 J	136 J	339	2470	537	2100	935	1890	1550	10500	2090	9000	443
Thallium	0.0014	0.13 J+	--	0.11 J+	0.096 J+	0.098 J	0.14 J	0.09 J	0.14 J	0.13 U	0.14 U	0.15 J	0.15 J	0.13 J	0.17 J	0.13 U
Vanadium	8.6	20.1	--	17.1	13.9	15	21.5	13.6	20.9	8	19.8	17.6	24.3	21.5	35.8	13.1
Zinc	37	101 J	--	92.1 J	137 J	69.7 J+	751 J+	69.9 J+	284 J+	29.3	47.4	56.1	46.4	56.6 J+	59.2 J+	45.9

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-040	CFISS-040	CFISS-041	CFISS-041	CFISS-042	CFISS-042	CFISS-043	CFISS-043	CFISS-001	CFISS-001	CFISS-002	CFISS-002	CFISS-002	CFISS-002	CFISS-003
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		7/13/2016	7/13/2016	7/16/2016	7/16/2016	7/18/2016	7/18/2016	7/18/2016	7/18/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	7/19/2016	7/19/2016	6/15/2016
PESTICIDES																
Aldrin	0.00015	0.00079 U	---	---	0.0008 U	---	0.00082 U	---	0.00079 U	---	0.0009 U	---	0.00091 U	---	0.00079 U	---
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	0.0006 U	---	---	0.00061 U	---	0.00061 U	---	0.0006 U	---	0.00068 U	---	0.00069 U	---	0.00059 U	---
Alpha Endosulfan	--	0.00091 U	---	---	0.00092 U	---	0.00094 U	---	0.00091 U	---	0.001 U	---	0.001 U	---	0.0009 U	---
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	0.00064 U	---	---	0.00065 U	---	0.00066 U	---	0.00064 U	---	0.00073 U	---	0.00073 U	---	0.00063 U	---
Beta Endosulfan	--	0.001 U	---	---	0.001 U	---	0.0011 U	---	0.001 U	---	0.0012 U	---	0.0012 U	---	0.001 U	---
cis-Chlordane	--	0.0011 U	---	---	0.0013 U	---	0.0011 U	---	0.0011 U	---	0.0012 U	---	0.0012 U	---	0.0011 U	---
Delta BHC (Delta Hexachlorocyclohexane)	--	0.00072 U	---	---	0.00073 U	---	0.00074 U	---	0.00[illegible]	---	0.00082 U	---	0.00082 U	---	0.00071 U	---
Dieldrin	0.000071	0.00085 U	---	---	0.00086 U	---	0.00088 U	---	0.000[illegible] U	---	0.00097 U	---	0.00098 U	---	0.00085 U	---
Endosulfan Sulfate	--	0.00076 U	---	---	0.00077 U	---	0.00079 U	---	0.00076 U	---	0.00087 U	---	0.00088 U	---	0.00076 U	---
Endrin	0.0092	0.00083 U	---	---	0.00084 U	---	0.00086 U	---	0.00083 U	---	0.00095 U	---	0.00096 U	---	0.00083 U	---
Endrin Aldehyde	--	0.00081 U	---	---	0.00082 U	---	0.00084 U	---	0.00081 U	---	0.00093 U	---	0.00094 U	---	0.00081 U	---
Endrin Ketone	--	0.00091 U	---	---	0.00092 U	---	0.00094 U	---	0.00091 U	---	0.001 U	---	0.001 U	---	0.0009 U	---
Gamma Bhc (Lindane)	0.00024	0.00059 U	---	---	0.0006 U	---	0.0006 U	---	0.00059 U	---	0.00067 U	---	0.00068 U	---	0.00058 U	---
Heptachlor	0.00012	0.00084 U	---	---	0.00085 U	---	0.00087 U	---	0.00084 U	---	0.00096 U	---	0.00097 U	---	0.00084 U	---
Heptachlor Epoxide	0.000028	0.0013 U	---	---	0.0013 U	---	0.0013 U	---	0.0013 U	---	0.0015 U	---	0.0015 U	---	0.0013 U	---
Methoxychlor	0.2	0.0014 U	---	---	0.0014 U	---	0.0014 U	---	0.0014 U	---	0.0016 U	---	0.0016 U	---	0.0014 U	---
P,P'-DDD	0.0075	0.00086 U	---	---	0.00087 U	---	0.00089 U	---	0.00086 U	---	0.00098 U	---	0.00099 U	---	0.00086 U	---
P,P'-DDE	0.011	0.00095 U	---	---	0.00096 U	---	0.00098 U	---	0.00095 U	---	0.0011 U	---	0.0011 U	---	0.00094 U	---
P,P'-DDT	0.077	0.00068 U	---	---	0.00069 U	---	0.000[illegible]	---	0.00068 U	---	0.00077 U	---	0.00078 U	---	0.00067 U	---
Toxaphene	0.011	0.019 U	---	---	0.019 U	---	0.02[illegible] U	---	0.019 U	---	0.022 U	---	0.022 U	---	0.019 U	---
trans-Chlordane	--	0.0014 U	---	---	0.0014 U	---	0.0015 U	---	0.0014 U	---	0.0016 U	---	0.0016 U	---	0.0014 U	---
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0087 U	---	0.0092 U	0.0088 U	0.0089 U	0.009 U	0.009 U	0.0087 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0087 U	0.0097 U
PCB-1221 (Aroclor 1221)	0.00008	0.0087 U	---	0.0092 U	0.0088 U	0.0089 U	0.009 U	0.009 U	0.0087 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0087 U	0.0097 U
PCB-1232 (Aroclor 1232)	0.00008	0.0087 U	---	0.0092 U	0.0088 U	0.0089 U	0.009 U	0.009 U	0.0087 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0087 U	0.0097 U
PCB-1242 (Aroclor 1242)	0.0012	0.0087 U	---	0.0092 U	0.0088 U	0.0089 U	0.009 U	0.009 U	0.0087 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0087 U	0.0097 U
PCB-1248 (Aroclor 1248)	0.0012	0.0087 U	---	0.0092 U	0.0088 U	0.0089 U	0.009 U	0.009 U	0.0087 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0087 U	0.0097 U
PCB-1254 (Aroclor 1254)	0.002	0.009 U	---	0.0096 U	0.0091 U	0.0092 U	0.0093 U	0.0093 U	0.009 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0093 U	0.009 U	0.01 U
PCB-1260 (Aroclor 1260)	0.0055	0.009 U	---	0.0096 U	0.0091 U	0.0092 U	0.0093 U	0.0093 U	0.009 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0093 U	0.009 U	0.01 U
PCB-1262 (Aroclor 1262)	--	0.009 U	---	0.0096 U	0.0091 U	0.0092 U	0.0093 U	0.0093 U	0.009 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0093 U	0.009 U	0.01 U
PCB-1268 (Aroclor 1268)	--	0.009 U	---	0.0096 U	0.0091 U	0.0092 U	0.0093 U	0.0093 U	0.009 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0093 U	0.009 U	0.01 U
Polychlorinated Biphenyl (PCBs)	--	0.009 U	---	0.0096 U	0.0091 U	0.0092 U	0.0093 U	0.0093 U	0.009 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0093 U	0.009 U	0.01 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.25 U	---	0.025 U	0.024 U	0.025 U	0.049 U	0.025 U	0.049 U	0.028 U	0.027 U	0.028 U	0.028 U	0.025 U	0.025 UJ	0.027 U
1,4-Dioxane (P-Dioxane)	0.000094	0.89 U	---	0.091 U	0.086 U	0.091 U	0.18 U	0.098 U	0.17 U	0.1 U	0.099 U	0.099 U	0.1 U	0.089 U	0.089 UJ	0.096 U
2,3,4,6-Tetrachlorophenol	0.018	0.31 U	---	0.032 U	0.03 U	0.032 U	0.062 U	0.031 U	0.061 U	0.035 U	0.035 U	0.035 U	0.035 U	0.031 U	0.031 UJ	0.034 U
2,4,5-Trichlorophenol	0.4	0.33 U	---	0.03[illegible] U	0.032 U	0.034 U	0.066 U	0.033 U	0.065 U	0.039 U	0.037 U	0.037 U	0.037 U	0.033 U	0.033 UJ	0.036 U
2,4,6-Trichlorophenol	0.0012	0.094 U	---	0.0[illegible] U	0.0092 U	0.0096 U	0.019 U	0.0094 U	0.019 U	0.011 U	0.01 U	0.011 U	0.011 U	0.0095 U	0.0095 UJ	0.01 U
2,4-Dichlorophenol	0.0023	0.078 U	---	0.008 U	0.0076 U	0.008 U	0.016 U	0.0078 U	0.015 U	0.0089 U	0.0087 U	0.0088 U	0.0088 U	0.0079 U	0.0078 UJ	0.0085 U
2,4-Dimethylphenol	0.042	0.73 U	---	0.075 U	0.071 U	0.075 U	0.15 U	0.073 U	0.14 U	0.083 U	0.081 U	0.082 U	0.082 U	0.074 U	0.073 UJ	0.079 U
2,4-Dinitrophenol	0.0044	2.5 U	---	0.26 U	0.24 U	0.26 U	0.5 U	0.25 U	0.49 U	0.28 U	0.28 UJ	0.28 U	0.28 U	0.25 U	0.25 UJ	0.27 U
2,4-Dinitrotoluene	0.00032	0.13 U	---	0.013 U	0.013 U	0.013 U	0.026 U	0.013 U	0.026 U	0.015 U	0.015 U	0.015 U	0.015 U	0.013 U	0.013 UJ	0.014 U
2,6-Dinitrotoluene	0.000067	0.18 U	---	0.018 U	0.017 U	0.018 U	0.035 U	0.018 U	0.035 U	0.02 U	0.02 U	0.02 U	0.02 U	0.018 U	0.018 UJ	0.019 U
2-Chloronaphthalene	0.39	0.075 U	---	0.0077 U	0.0073 U	0.0077 U	0.015 U	0.0075 U	0.015 U	0.0085 U	0.0084 U	0.0084 U	0.0084 U	0.0076 U	0.0075 UJ	0.0082 U
2-Chlorophenol	0.0089	0.084 U	---	0.0086 U	0.0082 U	0.0086 U	0.017 U	0.0084 U	0.017 U	0.0096 U	0.0094 U	0.0094 U	0.0095 U	0.0085 U	0.0085 UJ	0.0091 U
2-Methylnaphthalene	0.019	0.46 J	---	0.0079 J	0.093 J	0.031 J	0.098 J	0.03 J	0.047 J	0.0083 U	0.0081 U	0.0082 U	0.011 J	0.0074 U	0.011 J-	0.04 J
2-Methylphenol (O-Cresol)	0.075	0.14 U	---	0.015 U	0.014 U	0.015 U	0.029 U	0.014 U	0.028 U	0.016 U	0.016 U	0.016 U	0.016 U	0.015 U	0.014 UJ	0.016 U
2-Nitroaniline	0.008	0.11 U	---	0.011 U	0.011 U	0.011 U	0.022 U	0.011 U	0.022 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.011 UJ	0.012 U
2-Nitrophenol	--	0.11 U	---	0.011 U	0.011 U	0.011 UJ	0.022 UJ	0.011 UJ	0.022 UJ	0.013 U	0.012 U	0.012 U	0.013 U	0.011 UJ	0.011 UJ	0.012 U
3- And 4- Methylphenol (Total)	--	0.088 U	---	0.009 U	0.0086 U	0.009 U	0.018 U	0.0088 U	0.017 U	0.01 U	0.0098 U	0.0099 U	0.0099 U	0.0089 U	0.0089 UJ	0.0096 U
3,3'-Dichlorobenzidine	0.00082	0.37 U	---	0.038 U	0.036 U	0.038 U	0.074 U	0.037 U	0.073 U	0.042 U	0.041 U	0.041 U	0.042 U	0.037 U	0.037 UJ	0.04 U
3-Nitroaniline	--	0.098 U	---	0.01 U	0.0096 U	0.01 U	0.02 U	0.0098 U	0.019 U	0.011 U	0.011 U	0.011 U	0.011 U	0.0099 U	0.0099 UJ	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	0.88 U	---	0.09 U	0.086 U	0.09 U	0.18 U	0.098 U	0.17 U	0.1 U	0.098 UJ	0.099 U	0.099 U	0.089 U	0.089 UJ	0.096 U
4-Bromophenyl Phenyl Ether	--	0.1 U	---	0.011 U	0.01 U	0.011 U	0.021 U	0.01 U	0.021 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.01 UJ	0.011 U
4-Chloro-3-Methylphenol	0.17	0.14 U	---	0.015 U	0.014 U	0.015 U	0.028 U	0.014 U	0.028 U	0.016 U	0.016 U	0.016 U	0.016 U	0.014 U	0.014 UJ	0.015 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFISS-040**	**CFISS-040**	**CFISS-041**	**CFISS-041**	**CFISS-042**	**CFISS-042**	**CFISS-043**	**CFISS-043**	**CFISS-001**	**CFISS-001**	**CFISS-002**	**CFISS-002**	**CFISS-002**	**CFISS-002**	**CFISS-003**
Sample Depth		**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**
Chemical Name		**7/13/2016**	**7/13/2016**	**7/16/2016**	**7/16/2016**	**7/18/2016**	**7/18/2016**	**7/18/2016**	**7/18/2016**	**6/14/2016**	**6/14/2016**	**6/14/2016**	**6/14/2016**	**7/19/2016**	**7/19/2016**	**6/15/2016**
4-Chloroaniline	0.00016	0.085 U	---	0.0087 U	0.0083 U	0.0087 U	0.017 U	0.0085 U	0.017 U	0.0097 U	0.0095 U	0.0096 U	0.0096 U	0.0086 U	0.0086 UJ	0.0093 U
4-Chlorophenyl Phenyl Ether	--	0.099 U	---	0.01 U	0.0097 U	0.01 U	0.02 U	0.0099 U	0.02 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 UJ	0.011 U
4-Nitroaniline	0.0016	0.13 U	---	0.013 U	0.012 U	0.013 U	0.025 U	0.012 U	0.025 U	0.014 U	0.014 U	0.014 U	0.014 U	0.013 U	0.013 UJ	0.014 U
4-Nitrophenol	--	1.6 U	---	0.16 U	0.16 U	0.16 U	0.32 U	0.16 U	0.31 U	0.18 U	0.18 U	0.18 U	0.18 U	0.16 U	0.16 UJ	0.17 U
Acenaphthene	0.55	3.8	---	0.022 J	0.31 J	0.16 J	0.3 J	0.14 J	0.37 J	0.0091 U	0.051 J	0.009 U	0.045 J	0.0081 U	0.04 J-	0.077 J
Acenaphthylene	--	0.085 U	---	0.0087 U	0.0083 U	0.0087 U	0.017 U	0.0085 U	0.017 U	0.0097 U	0.0095 U	0.0096 U	0.0096 U	0.0086 U	0.0086 UJ	0.0093 U
Acetophenone	0.058	0.072 U	---	0.0074 U	0.007 U	0.012 J	0.014 U	0.0076 J	0.014 U	0.0082 U	0.009 U	0.0081 U	0.0081 U	0.0073 U	0.0072 UJ	0.0078 U
Anthracene	5.8	5	---	0.032 U	0.59	0.21 J	0.5 J	0.28 J	0.07 U	0.036 U	0.09 J	0.035 U	0.083 J	0.032 U	0.083 J-	0.11 J
Atrazine	0.0002	0.15 U	---	0.015 U	0.014 U	0.015 U	0.029 U	0.015 U	0.03 U	0.017 U	0.016 U	0.017 U	0.017 U	0.015 U	0.015 UJ	0.016 U
Benzaldehyde	0.0041	0.25 U	---	0.026 U	0.025 U	0.026 U	0.05 U	0.025 U	0.05 U	0.029 U	0.028 UJ	0.028 U	0.028 U	0.025 U	0.025 UJ	0.027 U
Benzo(A)Anthracene	0.011	19	---	0.16	3	1.2	3.1	1.1	6.8	0.031 U	0.41 J-	0.057	0.41	0.028 U	0.37 J-	0.32
Benzo(A)Pyrene	0.018	23	---	0.18	3.5	1.5	4.1	1.3	8.5	0.011 U	0.44	0.064	0.45	0.01 U	0.38 J-	0.37
Benzo(B)Fluoranthene	0.18	30	---	0.28	4.4	1.8	5.4	1.8	9.8	0.019 J	0.8 J-	0.14	0.8	0.039	0.75 J-	0.53
Benzo(G,H,I)Perylene	--	26	---	0.13 J	3.9	1.3	6.3	1.2	11	0.022 U	0.43	0.057 J	0.37	0.019 U	0.34 J-	0.37
Benzo(K)Fluoranthene	1.8	9.9	---	0.091	1.9	0.78	2.2	0.63	3.9	0.016 U	0.28 J-	0.052	0.33	0.015 U	0.26 J-	0.22
Benzyl Butyl Phthalate	0.24	0.1 U	---	0.01 U	0.029 J	0.01 U	0.037 J	0.01 U	0.73	0.012 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 UJ	0.011 U
Biphenyl (Diphenyl)	0.00087	0.28 U	---	0.029 U	0.028 U	0.029 U	0.056 U	0.028 U	0.056 U	0.032 U	0.031 U	0.032 U	0.032 U	0.029 U	0.028 UJ	0.031 U
Bis(2-Chloroethoxy) Methane	0.0013	0.1 U	---	0.011 U	0.01 U	0.011 U	0.021 U	0.01 U	0.02 U	0.012 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 UJ	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.078 U	---	0.008 U	0.0076 U	0.008 U	0.016 U	0.0078 U	0.015 U	0.0089 U	0.0087 U	0.0088 U	0.0088 U	0.0079 U	0.0078 UJ	0.0085 U
Bis(2-Chloroisopropyl) Ether	0.026	0.14 U	---	0.014 UJ	0.013 U	0.014 U	0.02 U	0.014 U	0.027 U	0.016 U	0.015 U	0.015 U	0.015 U	0.014 U	0.014 UJ	0.015 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.13 U	---	0.013 U	0.013 U	0.013 U	0.026 U	0.013 U	0.025 U	0.015 U	0.014 U	0.015 U	0.015 U	0.013 U	0.013 UJ	0.014 U
Caprolactam	0.25	0.24 U	---	0.024 U	0.023 U	0.024 U	0.048 U	0.024 U	0.047 U	0.027 U	0.027 UJ	0.027 U	0.027 U	0.024 U	0.024 UJ	0.026 U
Carbazole	--	3.2 J	---	0.022 J	0.44	0.2 J	0.57 J	0.19 J	0.82	0.0093 U	0.072 J	0.0092 U	0.075 J	0.0083 U	0.065 J-	0.063 J
Chrysene	9	25	---	0.21 J	3.9	1.6	4.8	1.5	10	0.013 J	0.61 J-	0.1 J	0.68	0.023 J	0.65 J-	0.42
Dibenz(A,H)Anthracene	0.096	5.7 J+	---	0.018 U	1	0.32	1.4	0.25	2.5	0.02 U	0.13	0.019 U	0.08	0.017 U	0.092 J-	0.098
Dibenzofuran	0.015	1.3 J	---	0.01 U	0.17 J	0.042 J	0.097 J	0.065 J	0.12 J	0.011 U	0.022 J	0.011 U	0.019 J	0.01 U	0.026 J-	0.036 J
Diethyl Phthalate	0.61	0.094 U	---	0.0096 U	0.0092 U	0.0098 U	0.019 U	0.0094 U	0.019 U	0.011 U	0.01 U	0.011 U	0.011 U	0.0095 U	0.0095 UJ	0.01 U
Dimethyl Phthalate	--	0.096 U	---	0.0098 U	0.0094 U	0.0098 U	0.019 U	0.0096 U	0.019 U	0.011 U	0.011 U	0.011 U	0.011 U	0.0097 U	0.0097 UJ	0.01 U
Di-N-Butyl Phthalate	0.23	0.099 U	---	0.01 U	0.019 J	0.014 J	0.02 U	0.018 J	0.052 J	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 UJ	0.011 U
Di-N-Octylphthalate	5.7	0.17 U	---	0.017 U	0.016 U	0.017 U	0.034 U	0.017 U	0.033 U	0.019 U	0.019 U	0.019 U	0.019 U	0.017 U	0.017 UJ	0.018 U
Fluoranthene	8.9	35	---	0.28 J	4.5	2.4	6.6	2.2	10	0.014 J	0.87	0.11 J	0.87	0.021 J	0.86 J-	0.63
Fluorene	0.54	2.5 J	---	0.012 J	0.26 J	0.086 J	0.13 J	0.12 J	0.25 J	0.0082 U	0.031 J	0.0081 U	0.028 J	0.0073 U	0.037 J-	0.067 J
Hexachlorobenzene	0.00012	0.13 U	---	0.014 U	0.013 U	0.014 U	0.027 U	0.013 U	0.026 U	0.015 U	0.015 U	0.015 U	0.015 U	0.014 U	0.013 UJ	0.015 U
Hexachlorobutadiene	0.00027	0.093 U	---	0.0095 U	0.0091 U	0.0095 UJ	0.019 UJ	0.0093 UJ	0.018 UJ	0.011 U	0.01 U	0.01 U	0.01 U	0.0094 UJ	0.0094 UJ	0.01 U
Hexachlorocyclopentadiene	0.00013	0.21 U	---	0.021 U	0.02 U	0.021 U	0.041 U	0.021 U	0.041 U	0.023 U	0.023 U	0.023 U	0.023 U	0.021 U	0.021 UJ	0.022 U
Hexachloroethane	0.0002	0.12 U	---	0.012 U	0.012 U	0.012 UJ	0.024 UJ	0.012 UJ	0.024 UJ	0.014 U	0.013 UJ	0.014 U	0.014 U	0.012 UJ	0.012 UJ	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	25 J+	---	0.14	3.8	1.3	5.5	1.3	9.5	0.025 U	0.44	0.056	0.38	0.022 U	0.38 J-	0.34
Isophorone	0.026	0.071 U	---	0.007 U	0.0069 U	0.0073 U	0.014 U	0.0071 U	0.014 U	0.0081 U	0.0079 U	0.008 U	0.008 U	0.0072 U	0.0072 J-	0.0077 U
Naphthalene	0.00054	1.3 J	---	0.01 U	0.28 J	0.041 J-	0.17 J-	0.067 J-	0.094 J-	0.0096 U	0.0094 U	0.0094 U	0.025 J	0.0085 UJ	0.022 J-	0.064 J
Nitrobenzene	0.000092	0.1 U	---	0.011 U	0.01 U	0.011 U	0.021 U	0.01 U	0.021 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.01 UJ	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.11 U	---	0.011 U	0.011 U	0.011 U	0.022 U	0.011 U	0.022 U	0.013 U	0.012 U	0.012 U	0.013 U	0.011 U	0.011 UJ	0.012 U
N-Nitrosodiphenylamine	0.067	0.3 U	---	0.031 U	0.029 U	0.031 U	0.06 U	0.03 U	0.059 U	0.034 U	0.033 UJ	0.034 U	0.034 U	0.03 U	0.03 UJ	0.033 U
Pentachlorophenol	0.000057	0.4 U	---	0.041 U	0.039 U	0.041 U	0.08 U	0.04 U	0.079 U	0.046 U	0.045 UJ	0.045 U	0.045 U	0.04 U	0.04 UJ	0.044 U
Phenanthrene	--	27	---	0.18 J	3.1	1.3	3.5	1.4	4.3	0.01 U	0.47 J-	0.056 J	0.48	0.011 J	0.49 J-	0.42
Phenol	0.33	0.11 U	---	0.011 U	0.011 U	0.011 U	0.033 J	0.011 U	0.021 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.011 UJ	0.012 U
Pyrene	1.3	38	---	0.3 J	5.6	2.6	5.9	2.1	9.7	0.017 U	0.79 J-	0.093 J	0.86	0.017 J	0.7 J-	0.5
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1,2,2-Tetrachloroethane	0.00003	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1,2-Trichloroethane	0.000013	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1-Dichloroethane	0.00078	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1-Dichloroethene	0.01	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2,3-Trichlorobenzene	0.0021	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2,4-Trichlorobenzene	0.0012	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dibromo-3-Chloropropane	0.00000014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 1 MAIN PLANT AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	CFISS-040	CFISS-040	CFISS-041	CFISS-041	CFISS-042	CFISS-042	CFISS-043	CFISS-043	CFISS-001	CFISS-001	CFISS-002	CFISS-002	CFISS-002	CFISS-002	CFISS-003
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		7/13/2016	7/13/2016	7/16/2016	7/16/2016	7/18/2016	7/18/2016	7/18/2016	7/18/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	7/19/2016	7/19/2016	6/15/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichlorobenzene	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloroethane	0.000048	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloropropane	0.000047	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,3-Dichlorobenzene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,4-Dichlorobenzene	0.00046	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2-Hexanone	0.00088	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acetone	0.29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benzene	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromochloromethane	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromodichloromethane	0.000036	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromoform	0.00087	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromomethane	0.00019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Disulfide	0.024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Tetrachloride	0.00018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chlorobenzene	0.0053	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroethane	0.59	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroform	0.000061	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloromethane	0.0049	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,2-Dichloroethylene	0.0011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cyclohexane	1.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dibromochloromethane	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dichlorodifluoromethane	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ethylbenzene	0.0017	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Isopropylbenzene (Cumene)	0.074	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
M,P-Xylene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Acetate	0.41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylcyclohexane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylene Chloride	0.0027	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Styrene	0.13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tert-Butyl Methyl Ether	0.0032	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetrachloroethylene (PCE)	0.0018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toluene	0.076	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.0001	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichlorofluoromethane	0.33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vinyl Chloride	0.0000065	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-003	CFISS-004	CFISS-004	CFISS-004	CFISS-005	CFISS-005	CFISS-006	CFISS-006	CFISS-006	CFISS-006	CFISS-006-DUP	CFISS-006-DUP	CFISS-007	CFISS-007	CFISS-008
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/15/2016	6/15/2016	6/15/2016	6/15/2016	6/16/2016	6/16/2016	6/17/2016	6/17/2016	7/19/2016	7/19/2016	6/17/2016	7/19/2016	6/17/2016	6/17/2016	6/18/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	680 J-	81.4 J-	86.7 J-	--	61.8 J-	54.9 J-	76 J-	59	85.4	70.2	78.1 J-	73.2	141 J-	189 J-	320 J-
Cyanide	0.0015	19.8	0.21	0.67	--	0.21	0.24	0.069 J	0.26 J	0.15 J-	0.15 J-	0.096 J	0.21 J-	0.11	0.29	2
METALS																
Aluminum	3000	28000	19100	20500	--	17300	15300	14700	13600	15100	17300	14900	17100	14200	20000	15000
Antimony	0.035	0.36 UJ	0.37 UJ	0.33 UJ	--	0.35 UJ	0.36 UJ	0.45 UJ	0.47 UJ	1.9 J-	0.23 J-	0.44 UJ	0.21 J-	0.4 UJ	0.47 UJ	0.4 UJ
Arsenic	0.0015	6	8.6	7.3	--	6.7	4.9	5.2	4.2	4.7	4.9	4.8	5	7.5	4.4	5.5
Barium	16	201	126	181	--	114	122	109	105	162	136	123	138	115	91.5	107
Beryllium	1.9	1.8	0.58	0.74	--	0.53	0.51	0.48	0.48	0.67	0.8 J	0.52	0.77 J	0.57	0.83	0.67
Cadmium	0.069	0.28 U	0.28 U	0.25 U	--	0.26 U	0.29 U	0.34 U	0.36 U	0.11 J	0.22 J	0.33 U	0.26 J	0.3 U	0.35 U	0.3 U
Calcium	--	16700	2890	4160	--	12400	26400	5820 J	13300 J	10600	20900	11600 J	20300	17300 J	13000 J	25000 J
Chromium, Total	--	14.7	11.1	10.6	--	11.8	10.7	10	9.7	17.9	16.7	9.5	17.7	11.8	29	10.9
Cobalt	0.027	5.2	7	6.3	--	5.7	5.8	5.1 J+	4.8 J+	5.9	6.1	4.9 J+	6.1	6.2 J+	5.5 J+	5.8 J+
Copper	2.8	12 J+	13.1 J+	11.3 J+	--	15.2 J+	28 J+	23.2 J	22.8 J	721	38.8	22 J	42.1	17.6 J	46.2 J	14.1 J
Iron	35	16100	18200	17700	--	18000	15000	15700	12100	15900	15000	11800	15100	16100	18300	15200
Lead	400	12.1 J+	14.3 J+	15.9 J+	20.1	12.1 J+	15.3 J+	11.3	13	28.3	406 J	17.1	21.7 J	16.8	15.1	10.3
Magnesium	--	10400	11400	11000	--	13900	10400	9720	9940	9580	10000	8860	9940	11600	8620	12500
Manganese	2.8	544 J	674 J	682 J	--	465 J	460 J	381	372	562	498	372	537	467	406	404
Mercury	0.0033	0.013 U	0.027	0.013 U	--	0.017 J	0.016 J	0.015 J	0.021	0.025 J	0.038 J	0.017 J	0.033 J	0.023	0.02	0.049
Nickel	2.6	24.8	12.7	13.9	--	12.8	16.8	13.8 J-	19.9 J-	15.1	30.9	21.5 J-	31.2	12.5 J-	24.6 J-	13.5 J-
Potassium	--	2560	1050	1460	--	1210	1100	899	1000	1050	1400	1130	1390	939	971	1190
Selenium	0.052	0.34 U	0.35 J	0.31 U	--	0.35 J	0.34 U	0.42 U	0.44 U	0.82 J	0.75 J	0.41 U	0.78 J	0.37 U	0.44 U	0.37 U
Silver	0.08	0.67 U	0.69 U	0.61 U	--	0.64 U	0.67 U	0.82 U	0.86 U	0.086 J	0.089 J	0.8 U	0.092 J	0.73 U	0.85 U	0.73 U
Sodium	--	5280	103	264	--	62.7 J	41.5 J	41.9 J	69.3 J	74.4 J	120 J	76.8 J	118 J	244	317	1460
Thallium	0.0014	0.14 U	0.14 U	0.13 U	--	0.13 U	0.14 U	0.17 U	0.18 U	0.11 J	0.12 J	0.17 U	0.12 J	0.15 U	0.18 U	0.15 U
Vanadium	8.6	25.6	13.5	19	--	12.8	13.5	12.3	11.3	12.5	17.4	12.5	17.7	10.9	14	10.4
Zinc	37	56.3	48.6	51.8	--	46.5	54.2	51.6	44.1	214 J+	66.1 J+	51.6	65 J+	306	51.8	39.8

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-003	CFISS-004	CFISS-004	CFISS-004	CFISS-005	CFISS-005	CFISS-006	CFISS-006	CFISS-006	CFISS-006	CFISS-006-DUP	CFISS-006-DUP	CFISS-007	CFISS-007	CFISS-008
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/15/2016	6/15/2016	6/15/2016	6/15/2016	6/16/2016	6/16/2016	6/17/2016	6/17/2016	7/19/2016	7/19/2016	6/17/2016	7/19/2016	6/17/2016	6/17/2016	6/18/2016
PESTICIDES																
Aldrin	0.00015	0.0009 U	--	0.00091 U	--	--	0.0009 U	--	0.00094 U	--	0.00081 U	0.00093 U	0.00082 U	--	0.00092 U	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	0.00068 U	--	0.00068 U	--	--	0.00068 U	--	0.00071 U	--	0.00061 U	0.0007 U	0.00062 U	--	0.00069 U	--
Alpha Endosulfan	--	0.001 U	--	0.001 U	--	--	0.001 U	--	0.0011 U	--	0.00093 U	0.0011 U	0.00095 U	--	0.0011 U	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	0.00072 U	--	0.00073 U	--	--	0.00072 U	--	0.00075 U	--	0.00065 U	0.00075 U	0.00066 U	--	0.00074 U	--
Beta Endosulfan	--	0.0012 U	--	0.0012 U	--	--	0.0012 U	--	0.0012 U	--	0.0011 U	0.0012 U	0.0011 U	--	0.0012 U	--
cis-Chlordane	--	0.0012 U	--	0.0012 U	--	--	0.0012 U	--	0.0013 U	--	0.0011 U	0.0013 U	0.0011 U	--	0.0012 U	--
Delta BHC (Delta Hexachlorocyclohexane)	--	0.00081 U	--	0.00082 U	--	--	0.00081 U	--	0.00[illegible]	--	0.00073 U	0.00084 U	0.00074 U	--	0.00083 U	--
Dieldrin	0.000071	0.00096 U	--	0.00097 U	--	--	0.00096 U	--	0.0[illegible] U	--	0.00087 U	0.001 U	0.00088 U	--	0.00099 U	--
Endosulfan Sulfate	--	0.00087 U	--	0.00087 U	--	--	0.00086 U	--	0.0009 U	--	0.00078 U	0.0009 U	0.00079 U	--	0.00088 U	--
Endrin	0.0092	0.00094 U	--	0.00095 U	--	--	0.00094 U	--	0.0098 U	--	0.00085 U	0.00098 U	0.00086 U	--	0.00096 U	--
Endrin Aldehyde	--	0.00092 U	--	0.00093 U	--	--	0.00092 U	--	0.00096 U	--	0.00083 U	0.00096 U	0.00084 U	--	0.00094 U	--
Endrin Ketone	--	0.001 U	--	0.001 U	--	--	0.001 U	--	0.0011 U	--	0.00093 U	0.0011 U	0.00095 U	--	0.0011 U	--
Gamma Bhc (Lindane)	0.00024	0.00067 U	--	0.00067 U	--	--	0.00066 U	--	0.0007 U	--	0.0006 U	0.00069 U	0.00061 U	--	0.00068 U	--
Heptachlor	0.00012	0.00095 U	--	0.00096 U	--	--	0.00095 U	--	0.001 U	--	0.00086 U	0.00099 U	0.00087 U	--	0.00097 U	--
Heptachlor Epoxide	0.000028	0.0015 U	--	0.0015 U	--	--	0.0015 U	--	0.0015 U	--	0.0013 U	0.0015 U	0.0013 U	--	0.0015 U	--
Methoxychlor	0.2	0.0016 U	--	0.0016 U	--	--	0.0016 U	--	0.0016 U	--	0.0014 U	0.0016 U	0.0014 U	--	0.0016 U	--
P,P'-DDD	0.0075	0.00098 U	--	0.00099 U	--	--	0.00097 U	--	0.001 U	--	0.00088 U	0.001 U	0.00089 U	--	0.001 U	--
P,P'-DDE	0.011	0.0011 U	--	0.0011 U	--	--	0.0011 U	--	0.0011 U	--	0.00097 U	0.0011 U	0.00099 U	--	0.0011 U	--
P,P'-DDT	0.077	0.00077 U	--	0.00077 U	--	--	0.00076 U	--	0.0008 U	--	0.00069 U	0.0008 U	0.0007 U	--	0.00078 U	--
Toxaphene	0.011	0.022 U	--	0.022 U	--	--	0.02[illegible] U	--	0.023 U	--	0.02 U	0.023 U	0.02 U	--	0.022 U	--
trans-Chlordane	--	0.0016 U	--	0.0016 U	--	--	0.0016 U	--	0.0017 U	--	0.0015 U	0.0017 U	0.0015 U	--	0.0016 U	--
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0099 U	0.01 U	0.01 U	--	0.0099 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0089 U	0.01 U	0.009 U	0.0098 U	0.01 U	0.0095 U
PCB-1221 (Aroclor 1221)	0.00008	0.0099 U	0.01 U	0.01 U	--	0.0099 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0089 U	0.01 U	0.009 U	0.0098 U	0.01 U	0.0095 U
PCB-1232 (Aroclor 1232)	0.00008	0.0099 U	0.01 U	0.01 U	--	0.0099 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0089 U	0.01 U	0.009 U	0.0098 U	0.01 U	0.0095 U
PCB-1242 (Aroclor 1242)	0.0012	0.0099 U	0.01 U	0.01 U	--	0.0099 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0089 U	0.01 U	0.009 U	0.0098 U	0.01 U	0.0095 U
PCB-1248 (Aroclor 1248)	0.0012	0.0099 U	0.01 U	0.01 U	--	0.0099 U	0.0099 U	0.01 U	0.01 U	0.009 U	0.0089 U	0.01 U	0.009 U	0.0098 U	0.01 U	0.0095 U
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0092 U	0.011 U	0.0093 U	0.057 J	0.01 U	0.0099 U
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0092 U	0.011 U	0.0093 U	0.01 U	0.01 U	0.0099 U
PCB-1262 (Aroclor 1262)	--	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0092 U	0.011 U	0.0093 U	0.01 U	0.01 U	0.0099 U
PCB-1268 (Aroclor 1268)	--	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0092 U	0.011 U	0.0093 U	0.01 U	0.01 U	0.0099 U
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.01 U	0.01 U		0.01 U	0.01 U	0.011 U	0.011 U	0.0093 U	0.0092 U	0.011 U	0.0093 U	0.057 J	0.01 U	0.0099 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.028 U	0.028 U	--	0.027 U	0.027 U	0.029 U	1.4 U	0.12 U	0.025 U	0.23 U	0.025 U	0.027 U	0.028 U	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	0.098 U	0.1 U	0.099 U	--	0.098 U	0.098 U	0.1 UJ	5.1 U	0.44 U	0.089 U	1 U	0.088 U	0.097 U	0.1 U	0.095 U
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.035 U	0.035 U	--	0.034 U	0.034 U	0.036 U	1.8 U	0.15 U	0.031 U	0.36 U	0.031 U	0.034 U	0.035 U	0.033 U
2,4,5-Trichlorophenol	0.4	0.036 U	0.037 U	0.037 U	--	0.036 U	0.036 U	0.038 UJ	1.9 U	0.16 U	0.033 U	0.38 U	0.033 U	0.036 U	0.037 U	0.035 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.011 U	0.011 U	--	0.01 U	0.01 U	0.011 UJ	0.54 U	0.047 U	0.0095 U	0.11 U	0.0094 U	0.01 U	0.011 U	0.01 U
2,4-Dichlorophenol	0.0023	0.0086 U	0.0088 U	0.0087 U	--	0.0086 U	0.0086 U	0.0091 UJ	0.45 U	0.039 U	0.0079 U	0.09 U	0.0078 U	0.0086 U	0.0088 U	0.0084 U
2,4-Dimethylphenol	0.042	0.081 U	0.082 U	0.081 U	--	0.081 U	0.08 U	0.085 UJ	4.2 U	0.36 U	0.074 U	0.84 U	0.073 U	0.08 U	0.082 U	0.078 U
2,4-Dinitrophenol	0.0044	0.28 U	0.28 U	0.28 U	--	0.28 U	0.28 U	0.29 UJ	14 U	1.2 UJ	0.25 U	2.9 U	0.25 U	0.27 U	0.28 U	0.27 U
2,4-Dinitrotoluene	0.00032	0.015 U	0.015 U	0.015 U	--	0.015 U	0.014 U	0.015 U	0.76 U	0.065 U	0.013 U	0.15 U	0.013 U	0.014 U	0.015 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.02 U	0.02 U	--	0.019 U	0.019 U	0.021 U	1 U	0.087 U	0.018 U	0.2 U	0.018 U	0.019 U	0.02 U	0.019 U
2-Chloronaphthalene	0.39	0.0083 U	0.0085 U	0.0084 U	--	0.0083 U	0.0083 U	0.0088 UJ	0.43 U	0.037 U	0.0076 U	0.086 U	0.0075 U	0.0082 U	0.0085 U	0.008 U
2-Chlorophenol	0.0089	0.0093 U	0.0095 U	0.0094 U	--	0.0093 U	0.0093 U	0.0098 UJ	0.49 U	0.042 U	0.0085 U	0.097 U	0.0084 U	0.0092 U	0.0095 U	0.009 U
2-Methylnaphthalene	0.019	0.066 J	0.0082 U	0.073 J	--	0.076 J	0.022 J	0.034 J-	0.85 J	0.067 J	0.018 J	0.44 J	0.017 J	0.22 J	0.066 J	0.0078 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.016 U	0.016 U	--	0.016 U	0.016 U	0.017 UJ	0.83 U	0.072 U	0.015 U	0.17 U	0.014 U	0.016 U	0.016 U	0.015 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.012 U	--	0.012 U	0.012 U	0.013 U	0.63 U	0.054 U	0.011 U	0.13 U	0.011 U	0.012 U	0.012 U	0.012 U
2-Nitrophenol	--	0.012 U	0.013 U	0.012 U	--	0.012 U	0.012 U	0.013 UJ	0.64 U	0.055 UJ	0.011 UJ	0.13 U	0.011 UJ	0.012 U	0.013 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.0097 U	0.0099 U	0.0098 U	--	0.0097 U	0.0097 U	0.01 UJ	0.51 U	0.044 U	0.0089 U	0.1 U	0.0088 U	0.0097 U	0.01 U	0.0094 U
3,3'-Dichlorobenzidine	0.00082	0.041 U	0.042 U	0.041 U	--	0.041 U	0.041 U	0.043 U	2.1 U	0.18 U	0.037 U	0.43 U	0.037 U	0.041 U	0.042 U	0.04 U
3-Nitroaniline	--	0.011 U	0.011 U	0.011 U	--	0.011 U	0.011 U	0.011 U	0.57 U	0.049 U	0.0099 U	0.11 U	0.0098 U	0.011 U	0.011 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.098 U	0.1 U	0.099 U	--	0.098 U	0.098 U	0.1 UJ	5.1 U	0.44 U	0.089 U	1 U	0.088 U	0.097 U	0.1 U	0.094 U
4-Bromophenyl Phenyl Ether	--	0.012 U	0.012 U	0.012 U	--	0.012 U	0.012 U	0.012 UJ	0.6 U	0.052 U	0.011 U	0.12 U	0.01 U	0.011 U	0.012 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.016 U	0.016 U	0.016 U	--	0.016 U	0.016 U	0.017 U	0.82 U	0.071 U	0.014 U	0.16 U	0.014 U	0.016 U	0.016 U	0.015 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFISS-003**	**CFISS-004**	**CFISS-004**	**CFISS-004**	**CFISS-005**	**CFISS-005**	**CFISS-006**	**CFISS-006**	**CFISS-006**	**CFISS-006**	**CFISS-006-DUP**	**CFISS-006-DUP**	**CFISS-007**	**CFISS-007**	**CFISS-008**
Sample Depth		**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**
Chemical Name		**6/15/2016**	**6/15/2016**	**6/15/2016**	**6/15/2016**	**6/16/2016**	**6/16/2016**	**6/17/2016**	**6/17/2016**	**7/19/2016**	**7/19/2016**	**6/17/2016**	**7/19/2016**	**6/17/2016**	**6/17/2016**	**6/18/2016**
4-Chloroaniline	0.00016	0.0094 U	0.0096 U	0.0095 U	--	0.0094 U	0.0094 U	0.0098 U	0.49 U	0.042 U	0.0086 U	0.098 U	0.0085 U	0.0093 U	0.0096 U	0.0091 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	--	0.011 U	0.011 U	0.012 UJ	0.57 U	0.049 U	0.01 U	0.11 U	0.0099 U	0.011 U	0.011 U	0.011 U
4-Nitroaniline	0.0016	0.014 U	0.014 U	0.014 U	--	0.014 U	0.014 U	0.015 U	0.72 U	0.062 UJ	0.013 U	0.14 U	0.012 U	0.014 U	0.014 U	0.013 U
4-Nitrophenol	--	0.18 U	0.18 U	0.18 U	--	0.18 U	0.18 U	0.19 U	9.2 U	0.79 U	0.16 U	1.8 U	0.16 U	0.17 U	0.18 U	0.17 U
Acenaphthene	0.55	0.25 J	0.027 J	0.45	--	0.34 J	0.13 J	0.26 J	7.4 J	0.63 J	0.14 J	2.9 J	0.16 J	0.5	0.21 J	0.019 J
Acenaphthylene	--	0.0094 U	0.0096 U	0.0095 U	--	0.0094 U	0.0094 U	0.0098 UJ	0.79 J	0.042 U	0.0086 U	0.098 UJ	0.0085 U	0.029 J	0.0096 U	0.0091 U
Acetophenone	0.058	0.008 U	0.0081 U	0.0081 U	--	0.008 U	0.008 U	0.0084 U	0.42 U	0.036 U	0.0073 U	0.083 U	0.0072 U	0.0079 U	0.0082 U	0.0077 U
Anthracene	5.8	0.36 J	0.044 J	1.1	--	0.58	0.2 J	0.65 J-	26 J	2	0.53	7.6 J	0.52	0.93	0.4	0.034 U
Atrazine	0.0002	0.016 U	0.017 U	0.016 U	--	0.016 U	0.016 U	0.017 U	0.9 U	0.073 U	0.015 U	0.17 U	0.015 U	0.016 U	0.017 U	0.016 U
Benzaldehyde	0.0041	0.028 U	0.028 U	0.028 U	--	0.028 U	0.028 U	0.029 UJ	1.5 U	0.13 U	0.025 U	0.29 U	0.025 U	0.028 U	0.029 U	0.027 U
Benzo(A)Anthracene	0.011	1.2	0.16	2.8	--	1.4	0.7	1.8 J-	77 J	5.9	1.7	22 J	1.7	2.8	1.9	0.11
Benzo(A)Pyrene	0.018	1.4	0.18	2.6	--	1.6	0.82	1.9 J-	75 J	6.5	2	23 J	2	2.6	2.2	0.12
Benzo(B)Fluoranthene	0.18	2.3	0.27	3.4	--	2.2	1.4	2.4 J-	100 J	7.9	2.6	30 J	2.5	3.1	3.1	0.2
Benzo(G,H,I)Perylene	--	1.4	0.16 J	1.8	--	1.2	0.83	1.5	49 J	6.1 J+	1.8	19 J	1.6	1.8	2.2	0.097 J
Benzo(K)Fluoranthene	1.8	0.92	0.082	1.6	--	0.82	0.45	0.93	36 J	2.8	0.85	13 J	0.99	1.3	1.3	0.085
Benzyl Butyl Phthalate	0.24	0.011 U	0.012 U	0.011 U	--	0.011 U	0.011 U	0.012 UJ	0.59 U	0.051 U	0.01 U	0.12 U	0.01 U	0.011 U	0.012 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.031 U	0.032 U	0.032 U	--	0.031 U	0.031 U	0.033 UJ	1.6 U	0.14 U	0.029 U	0.33 U	0.028 U	0.031 U	0.032 U	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.012 U	0.012 U	--	0.011 U	0.011 U	0.012 UJ	0.6 U	0.051 U	0.01 U	0.12 U	0.01 U	0.011 U	0.012 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0086 U	0.0088 U	0.0087 U	--	0.0086 U	0.0086 U	0.0091 UJ	0.45 U	0.039 U	0.0079 U	0.09 U	0.0078 U	0.0086 U	0.0088 U	0.0084 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.015 U	0.015 U	--	0.015 U	0.015 U	0.016 U	0.79 U	0.068 U	0.014 U	0.16 U	0.014 U	0.015 U	0.015 U	0.015 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.015 U	0.014 U	--	0.014 U	0.014 U	0.015 UJ	0.75 U	0.064 U	0.013 U	0.15 U	0.013 U	0.014 U	0.015 U	0.014 U
Caprolactam	0.25	0.026 U	0.027 U	0.027 U	--	0.026 U	0.026 U	0.028 UJ	1.4 U	0.12 U	0.024 U	0.27 U	0.024 U	0.026 U	0.027 U	0.025 U
Carbazole	--	0.23 J	0.029 J	0.8	--	0.33 J	0.13 J	0.44	15 J	1 J	0.31 J	4.4 J	0.3 J	0.58	0.3 J	0.021 J
Chrysene	9	1.9	0.2 J	3.1	--	1.8	1.1	2 J-	88 J	6.5	1.9	25 J	1.9	2.9	2.6	0.18 J
Dibenz(A,H)Anthracene	0.096	0.4	0.043	0.59	--	0.34	0.21	0.35 J	13 J	1.6	0.46	4.4 J	0.39	0.5	0.59	0.024 J
Dibenzofuran	0.015	0.13 J	0.012 J	0.19 J	--	0.21 J	0.062 J	0.17 J-	4.5 J	0.45 J	0.1 J	2.1 J	0.11 J	0.17 J	0.11 J	0.011 U
Diethyl Phthalate	0.61	0.01 U	0.011 U	0.011 U	--	0.01 U	0.01 U	0.011 U	0.54 U	0.047 U	0.0095 U	0.11 U	0.0094 U	0.01 U	0.011 U	0.01 U
Dimethyl Phthalate	--	0.011 U	0.011 U	0.011 U	--	0.011 U	0.011 U	0.011 UJ	0.56 U	0.048 U	0.0097 U	0.11 U	0.0096 U	0.011 U	0.011 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.011 U	0.011 U	--	0.011 U	0.011 U	0.012 U	0.57 U	0.049 U	0.01 U	0.11 U	0.0099 U	0.055 J	0.07 J	0.011 U
Di-N-Octylphthalate	5.7	0.019 U	0.019 U	0.019 U	--	0.019 U	0.019 U	0.02 U	0.97 U	0.083 U	0.017 U	0.19 U	0.017 U	0.018 U	0.019 U	0.018 U
Fluoranthene	8.9	2.6	0.33 J	6.8	--	3	1.4	4 J-	130 J	10	3.6	40 J	3.7	5.5	3.6	0.25 J
Fluorene	0.54	0.21 J	0.022 J	0.39	--	0.31 J	0.1 J	0.28 J-	7.9 J	0.68 J	0.17 J	2.9 J	0.17 J	0.4	0.15 J	0.014 J
Hexachlorobenzene	0.00012	0.015 U	0.015 U	0.015 U	--	0.015 U	0.015 U	0.016 UJ	0.78 U	0.067 U	0.014 U	0.15 U	0.013 U	0.015 U	0.015 U	0.014 U
Hexachlorobutadiene	0.00027	0.01 U	0.011 U	0.01 U	--	0.01 U	0.01 U	0.011 UJ	0.54 U	0.046 UJ	0.0094 UJ	0.11 U	0.0093 UJ	0.01 U	0.011 U	0.01 U
Hexachlorocyclopentadiene	0.00013	0.023 U	0.023 U	0.023 U	--	0.023 U	0.023 U	0.024 U	1.2 U	0.1 U	0.021 U	0.24 U	0.021 U	0.023 U	0.023 U	0.022 U
Hexachloroethane	0.0002	0.013 U	0.014 U	0.014 U	--	0.013 U	0.013 U	0.014 UJ	0.7 U	0.06 UJ	0.012 UJ	0.14 U	0.012 UJ	0.013 U	0.014 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	1.4	0.17	2.1	--	1.3	0.89	1.5	54 J	6.4	1.9	20 J	1.7	2.1	2.3	0.098
Isophorone	0.026	0.0079 U	0.008 U	0.0079 U	--	0.0079 U	0.0079 U	0.0083 UJ	0.41 U	0.035 U	0.0072 U	0.082 U	0.0071 U	0.0078 U	0.008 U	0.0076 U
Naphthalene	0.00054	0.16 J	0.0095 U	0.012 J	--	0.16 J	0.047 J	0.17 J-	2.5 J	0.18 J-	0.037 J-	1.7 J	0.035 J-	0.19 J	0.096 J	0.009 U
Nitrobenzene	0.000092	0.012 U	0.012 U	0.012 U	--	0.012 U	0.012 U	0.012 UJ	0.6 U	0.052 U	0.011 U	0.12 U	0.01 U	0.011 U	0.012 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.013 U	0.012 U	--	0.012 U	0.012 U	0.013 U	0.64 U	0.055 U	0.011 U	0.13 U	0.011 U	0.012 U	0.013 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.033 U	0.034 U	0.034 U	--	0.033 U	0.033 U	0.035 UJ	1.7 UJ	0.15 U	0.03 U	0.35 UJ	0.03 U	0.033 UJ	0.034 UJ	0.032 UJ
Pentachlorophenol	0.000057	0.044 U	0.045 U	0.045 U	--	0.044 U	0.044 U	0.047 UJ	2.3 U	0.2 U	0.04 U	0.46 U	0.04 U	0.044 U	0.045 U	0.043 U
Phenanthrene	--	1.6	0.2 J	4.3	--	2	0.82	2.8 J-	110 J	8.3	2.2	33 J	2.3	3.8	2.1	0.18 J
Phenol	0.33	0.012 U	0.012 U	0.012 U	--	0.012 U	0.012 U	0.013 UJ	0.63 U	0.054 U	0.011 U	0.12 U	0.011 U	0.012 U	0.012 U	0.012 U
Pyrene	1.3	1.8	0.25 J	4.3	--	1.9	1.1	2.8 J-	140 J	12	3.2	44 J	3.3	4.5	3.1	0.25 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.00003	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	0.000013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	0.00078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	0.0021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	0.0012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-Chloropropane	0.00000014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFISS-003**	**CFISS-004**	**CFISS-004**	**CFISS-004**	**CFISS-005**	**CFISS-005**	**CFISS-006**	**CFISS-006**	**CFISS-006**	**CFISS-006**	**CFISS-006-DUP**	**CFISS-006-DUP**	**CFISS-007**	**CFISS-007**	**CFISS-008**
Sample Depth		**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**
Chemical Name		**6/15/2016**	**6/15/2016**	**6/15/2016**	**6/15/2016**	**6/16/2016**	**6/16/2016**	**6/17/2016**	**6/17/2016**	**7/19/2016**	**7/19/2016**	**6/17/2016**	**7/19/2016**	**6/17/2016**	**6/17/2016**	**6/18/2016**
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichlorobenzene	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloroethane	0.000048	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloropropane	0.000047	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,3-Dichlorobenzene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,4-Dichlorobenzene	0.00046	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2-Hexanone	0.00088	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acetone	0.29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benzene	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromochloromethane	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromodichloromethane	0.000036	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromoform	0.00087	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromomethane	0.00019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Disulfide	0.024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Tetrachloride	0.00018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chlorobenzene	0.0053	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroethane	0.59	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroform	0.000061	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloromethane	0.0049	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,2-Dichloroethylene	0.0011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cyclohexane	1.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dibromochloromethane	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dichlorodifluoromethane	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ethylbenzene	0.0017	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Isopropylbenzene (Cumene)	0.074	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
M,P-Xylene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Acetate	0.41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylcyclohexane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylene Chloride	0.0027	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Styrene	0.13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tert-Butyl Methyl Ether	0.0032	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetrachloroethylene (PCE)	0.0018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toluene	0.076	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.0001	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichlorofluoromethane	0.33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vinyl Chloride	0.0000065	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-008	CFISS-008	CFISS-008	CFISS-009	CFISS-009	CFISS-010	CFISS-010	CFISS-011	CFISS-011	CFISS-011	CFISS-012	CFISS-012	CFISS-013	CFISS-013	CFISS-013
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		6/18/2016	7/26/2016	7/26/2016	6/22/2016	6/22/2016	6/22/2016	6/22/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/20/2016	6/20/2016	6/20/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	328 J-	508 J-	662 J-	53.8 J+	218 J+	28.3 J+	33.8 J+	60.9 J	41.2 J	--	52.9 J	45.5 J	337 J	254 J	--
Cyanide	0.0015	0.66	1.6	0.97	0.022 J	0.07 J	0.043 J	0.063 J	0.033 J	0.04 J	--	0.083 J	0.096 J	0.18	0.14	--
METALS																
Aluminum	3000	22700	19000	32700	15600	14800	15200	14300	11900	10600	--	10500	9720	14400	17100	--
Antimony	0.035	0.39 UJ	0.14 J-	0.24 J-	0.46 U	0.46 U	0.46 U	0.45 U	0.44 UJ	0.62 J	--	0.4 UJ	0.44 UJ	0.43 UJ	0.38 UJ	--
Arsenic	0.0015	5.2	5.8	6	7.2	5.8	5.7	4.5	5.1	4.6	--	4.3	4.5	5.8	4.6	--
Barium	16	102	118	120	100	118	107	112	92.9 J	69.6 J	--	90.9 J	75 J	121 J	86 J	--
Beryllium	1.9	0.8	0.8	0.92	0.53	0.53	0.49	0.47	0.47	0.4	--	0.36 J	0.41 J	0.66	0.55	--
Cadmium	0.069	0.3 U	0.13 J	0.27 J	0.35 U	0.35 U	0.35 U	0.34 U	0.33 U	0.31 U	--	0.3 U	0.33 U	0.32 U	0.33 J	--
Calcium	--	18400 J	22600	21400	12400	14800	11100	15200	29300 J	44200 J	--	37300 J	33500 J	31300 J	26400 J	--
Chromium, Total	--	80.3	20	25.2	11.7	11.2	10.8	10.6	11.3 J	10.8 J	--	11.1 J	10.1 J	21 J	17.5 J	--
Cobalt	0.027	6.7 J+	6.2	6.2	5.7	5.9	5.4	5.7	5.7	5.3	--	5.1	4.7	7.9	5.2	--
Copper	2.8	18.8 J	17.1	21.1	13.3 J	13.7 J	14.4 J	17.5 J	12.6	18.1	--	17	15.9	26.4	23.2	--
Iron	35	16300	16600	16500	19100	16500	16800	15800	15900	14500	--	14400	13300	22900	18800	--
Lead	400	13.9	13.5	16.9	12.6	12	11.4	13.7	10.1 J	13.6 J	17.2	8.1 J	14.9 J	14.4 J	17.7 J	29.4
Magnesium	--	12000	12700	11100	13100	11200	11100	10400	12500	11300	--	11500	9310	13400	10900	--
Manganese	2.8	397	501	448	494	525	417	497	438	394	--	419	471	528	356	--
Mercury	0.0033	0.02	0.023 J	0.016 J	0.027	0.017 J	0.02	0.056	0.018	0.016 J	--	0.023	0.023	0.017	0.019	--
Nickel	2.6	96.2 J-	21.5	39.9	13	15.6	11.8	19.3	12	17.2	--	12.1	17.6	15.8	26.4	--
Potassium	--	1490	1530 J+	2040 J+	835	856	828	847	1010	956	--	761	781	1220	1090	--
Selenium	0.052	0.37 U	1.6 J	1.5 J	0.43 U	0.43 U	0.43 U	0.42 U	0.41 U	0.38 U	--	0.37 U	0.41 U	0.4 U	0.36 U	--
Silver	0.08	0.71 U	0.042 J	0.052 J	0.84 U	0.84 U	0.84 U	0.83 U	0.81 U	0.74 U	--	0.72 U	0.8 U	0.78 U	0.7 U	--
Sodium	--	1600	1550	3780	43 U	42.9 U	42.7 U	42.4 U	41.2 U	43.4 J	--	37 U	41.1 U	487	342	--
Thallium	0.0014	0.15 U	0.091 J	0.11 J	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.15 U	--	0.15 U	0.17 U	0.16 U	0.14 U	--
Vanadium	8.6	16.1	14.4	18.9	12.9 J	13.1 J	11.8 J	13.3 J	10.8	11.5	--	9.2	10.4	19.7	16.6	--
Zinc	37	51.5	51.7	56.6	49.9	51	46.2	56.6	47.9	59.1	--	47.2	49.2	72.5	53.4	--

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-008	CFISS-008	CFISS-008	CFISS-009	CFISS-009	CFISS-010	CFISS-010	CFISS-011	CFISS-011	CFISS-011	CFISS-012	CFISS-012	CFISS-013	CFISS-013	CFISS-013
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		6/18/2016	7/26/2016	7/26/2016	6/22/2016	6/22/2016	6/22/2016	6/22/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/20/2016	6/20/2016	6/20/2016
PESTICIDES																
Aldrin	0.00015	0.0009 U	...	0.00082 U	...	0.00093 U	...	0.0009 U	...	0.00089 U	...	...	0.00087 U	...	0.00086 U	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	0.00068 U	...	0.00062 U	...	0.0007 U	...	0.00068 U	...	0.00067 U	...	...	0.00066 U	...	0.00065 U	...
Alpha Endosulfan	--	0.001 U	...	0.00094 U	...	0.0011 U	...	0.001 U	...	0.001 U	...	...	0.001 U	...	0.00099 U	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	0.00072 U	...	0.00066 U	...	0.00075 U	...	0.00072 U	...	0.00071 U	...	...	0.0007 U	...	0.00069 U	...
Beta Endosulfan	--	0.0012 U	...	0.0011 U	...	0.0012 U	...	0.0012 U	...	0.0011 U	...	...	0.0011 U	...	0.0011 U	...
cis-Chlordane	--	0.0012 U	...	0.0011 U	...	0.0013 U	...	0.0012 U	...	0.0012 U	...	...	0.0012 U	...	0.0012 U	...
Delta BHC (Delta Hexachlorocyclohexane)	--	0.00081 U	...	0.00074 U	...	0.00084 U	...	0.00081 U	...	0.0008 U	...	...	0.00079 U	...	0.00078 U	...
Dieldrin	0.000071	0.00097 U	...	0.00088 U	...	0.001 U	...	0.00097 U	...	0.00095 U	...	...	0.00094 U	...	0.00093 U	...
Endosulfan Sulfate	--	0.00087 U	...	0.00079 U	...	0.0009 U	...	0.00087 U	...	0.00085 U	...	...	0.00084 U	...	0.00083 U	...
Endrin	0.0092	0.00094 U	...	0.00086 U	...	0.00098 U	...	0.00094 U	...	0.00093 U	...	...	0.00092 U	...	0.00091 U	...
Endrin Aldehyde	--	0.00092 U	...	0.00084 U	...	0.00095 U	...	0.00092 U	...	0.00091 U	...	...	0.0009 U	...	0.00088 U	...
Endrin Ketone	--	0.001 U	...	0.00094 U	...	0.0011 U	...	0.001 U	...	0.001 U	...	...	0.001 U	...	0.00099 U	...
Gamma Bhc (Lindane)	0.00024	0.00067 U	...	0.00061 U	...	0.00069 U	...	0.00067 U	...	0.00066 U	...	...	0.00065 U	...	0.00064 U	...
Heptachlor	0.00012	0.00095 U	...	0.00087 U	...	0.00099 U	...	0.00095 U	...	0.00094 U	...	...	0.00093 U	...	0.00092 U	...
Heptachlor Epoxide	0.000028	0.0015 U	...	0.0013 U	...	0.0015 U	...	0.0015 U	...	0.0014 U	...	...	0.0014 U	...	0.0014 U	...
Methoxychlor	0.2	0.0016 U	...	0.0014 U	...	0.0016 U	...	0.0016 U	...	0.0016 U	...	...	0.0015 U	...	0.0015 U	...
P,P'-DDD	0.0075	0.00098 U	...	0.00089 U	...	0.001 U	...	0.00098 U	...	0.00096 U	...	...	0.00095 U	...	0.00094 U	...
P,P'-DDE	0.011	0.0011 U	...	0.00098 U	...	0.0011 U	...	0.0011 U	...	0.0011 U	...	...	0.001 U	...	0.001 U	...
P,P'-DDT	0.077	0.00077 U	...	0.0007 U	...	0.00079 U	...	0.00077 U	...	0.00076 U	...	...	0.00075 U	...	0.00073 U	...
Toxaphene	0.011	0.022 U	...	0.02 U	...	0.022 U	...	0.022 U	...	0.021 U	...	...	0.021 U	...	0.021 U	...
trans-Chlordane	--	0.0016 U	...	0.0015 U	...	0.0017 U	...	0.0016 U	...	0.0016 U	...	...	0.0016 U	...	0.0015 U	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0099 U	0.0088 U	0.009 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.0099 U	0.0097 U	...	0.0096 U	0.0096 U	0.0096 U	0.0095 U	...
PCB-1221 (Aroclor 1221)	0.00008	0.0099 U	0.0088 U	0.009 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.0099 U	0.0097 U	...	0.0096 U	0.0096 U	0.0096 U	0.0095 U	...
PCB-1232 (Aroclor 1232)	0.00008	0.0099 U	0.0088 U	0.009 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.0099 U	0.0097 U	...	0.0096 U	0.0096 U	0.0096 U	0.0095 U	...
PCB-1242 (Aroclor 1242)	0.0012	0.0099 U	0.0088 U	0.009 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.0099 U	0.0097 U	...	0.0096 U	0.0096 U	0.0096 U	0.0095 U	...
PCB-1248 (Aroclor 1248)	0.0012	0.0099 U	0.0088 U	0.009 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.0099 U	0.0097 U	...	0.0096 U	0.0096 U	0.0096 U	0.0095 U	...
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.0091 U	0.0093 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	...	0.0099 U	0.0099 U	0.07 J	0.21	...
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.0091 U	0.0093 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	...	0.0099 U	0.0099 U	0.01 U	0.0098 U	...
PCB-1262 (Aroclor 1262)	--	0.01 U	0.0091 U	0.0093 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	...	0.0099 U	0.0099 U	0.01 U	0.0098 U	...
PCB-1268 (Aroclor 1268)	--	0.01 U	0.0091 U	0.0093 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	...	0.0099 U	0.0099 U	0.01 U	0.0098 U	...
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.0091 U	0.0093 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	...	0.0099 U	0.0099 U	0.07 J	0.21	...
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.024 U	0.024 U	0.028 U	0.028 U	0.028 U	0.027 U	0.027 U	0.027 U	...	0.53 U	0.027 U	0.27 U	0.52 U	...
1,4-Dioxane (P-Dioxane)	0.000094	0.098 U	0.088 U	0.087 U	0.099 U	0.1 U	0.1 U	0.098 U	0.099 U	0.097 U	...	1.9 U	0.095 U	0.96 U	1.9 U	...
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.031 U	0.031 U	0.035 U	0.036 U	0.036 U	0.035 U	0.035 U	0.034 U	...	0.67 U	0.034 U	0.34 U	0.66 U	...
2,4,5-Trichlorophenol	0.4	0.036 U	0.033 U	0.033 U	0.037 U	0.038 U	0.038 U	0.037 U	0.037 U	0.036 U	...	0.71 U	0.036 U	0.36 U	0.7 U	...
2,4,6-Trichlorophenol	0.0012	0.01 U	0.0093 U	0.009 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	...	0.2 U	0.01 U	0.1 U	0.2 U	...
2,4-Dichlorophenol	0.0023	0.0086 U	0.0077 U	0.0077 U	0.0087 U	0.009 U	0.0089 U	0.0087 U	0.0087 U	0.0085 U	...	0.17 U	0.0084 U	0.084 U	0.17 U	...
2,4-Dimethylphenol	0.042	0.081 U	0.072 U	0.071 U	0.081 U	0.083 U	0.083 U	0.081 U	0.081 U	0.08 U	...	1.6 U	0.078 U	0.78 U	1.5 U	...
2,4-Dinitrophenol	0.0044	0.28 U	0.25 UJ	0.25 U	0.28 U	0.29 U	0.29 U	0.28 U	0.28 U	0.27 U	...	5.4 U	0.27 U	2.7 U	5.3 U	...
2,4-Dinitrotoluene	0.00032	0.015 U	0.013 U	0.013 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.014 U	...	0.28 U	0.014 U	0.14 U	0.28 U	...
2,6-Dinitrotoluene	0.000067	0.02 U	0.017 U	0.017 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.019 U	...	0.38 U	0.019 U	0.19 U	0.37 U	...
2-Chloronaphthalene	0.39	0.0083 U	0.0074 U	0.0074 U	0.0084 U	0.0086 U	0.0086 U	0.0083 U	0.0084 U	0.0082 U	...	0.16 U	0.0081 U	0.081 U	0.16 U	...
2-Chlorophenol	0.0089	0.0093 U	0.0083 U	0.0083 U	0.0094 U	0.0096 U	0.0096 U	0.0093 U	0.0094 U	0.0092 U	...	0.18 U	0.0091 U	0.091 U	0.18 U	...
2-Methylnaphthalene	0.019	0.015 J	0.0082 J	0.0079 J	0.0082 U	0.0084 U	0.0083 U	0.012 J	0.018 J	0.06 J	...	2.7 J	0.12 J	0.7 J	3.7 J	...
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.014 U	0.014 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U	...	0.31 U	0.016 U	0.16 U	0.31 U	...
2-Nitroaniline	0.008	0.012 U	0.011 U	0.011 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	...	0.24 U	0.012 U	0.12 U	0.23 U	...
2-Nitrophenol	--	0.012 U	0.011 U	0.011 U	0.012 U	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	...	0.24 U	0.012 U	0.12 U	0.24 U	...
3- And 4- Methylphenol (Total)	--	0.0098 U	0.0087 U	0.0086 U	0.0098 U	0.01 U	0.01 U	0.0098 U	0.0098 U	0.0096 U	...	0.19 U	0.0095 U	0.095 U	0.19 U	...
3,3'-Dichlorobenzidine	0.00082	0.041 U	0.037 U	0.036 U	0.041 U	0.042 U	0.042 U	0.041 U	0.041 U	0.04 U	...	0.8 U	0.04 U	0.4 U	0.79 U	...
3-Nitroaniline	--	0.011 U	0.0097 U	0.0096 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	...	0.21 U	0.011 U	0.11 U	0.21 U	...
4,6-Dinitro-2-Methylphenol	0.00026	0.098 U	0.088 U	0.087 U	0.099 U	0.1 U	0.1 U	0.098 U	0.098 U	0.097 U	...	1.9 U	0.095 U	0.95 U	1.9 U	...
4-Bromophenyl Phenyl Ether	--	0.012 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	...	0.22 U	0.011 U	0.11 U	0.22 U	...
4-Chloro-3-Methylphenol	0.17	0.016 U	0.014 U	0.014 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	...	0.31 U	0.015 U	0.15 U	0.3 U	...

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFISS-008**	**CFISS-008**	**CFISS-008**	**CFISS-009**	**CFISS-009**	**CFISS-010**	**CFISS-010**	**CFISS-011**	**CFISS-011**	**CFISS-011**	**CFISS-012**	**CFISS-012**	**CFISS-013**	**CFISS-013**	**CFISS-013**
Sample Depth		**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**
Chemical Name		**6/18/2016**	**7/26/2016**	**7/26/2016**	**6/22/2016**	**6/22/2016**	**6/22/2016**	**6/22/2016**	**6/21/2016**	**6/21/2016**	**6/21/2016**	**6/21/2016**	**6/21/2016**	**6/20/2016**	**6/20/2016**	**6/20/2016**
4-Chloroaniline	0.00016	0.0094 U	0.0084 U	0.0084 U	0.0095 U	0.0098 U	0.0097 U	0.0095 U	0.0095 U	0.0093 U	...	0.18 U	0.0092 U	0.092 U	0.18 U	...
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.0098 U	0.0097 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	...	0.21 U	0.011 U	0.11 U	0.21 U	...
4-Nitroaniline	0.0016	0.014 U	0.012 U	0.012 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	...	0.27 U	0.013 U	0.14 U	0.27 U	...
4-Nitrophenol	--	0.18 U	0.16 U	0.16 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.17 U	...	3.4 U	0.17 U	1.7 U	3.4 U	...
Acenaphthene	0.55	0.16 J	0.074 J	0.067 J	0.009 U	0.036 J	0.0091 U	0.055 J	0.057 J	0.17 J	...	25	0.51	3.9	7.1	...
Acenaphthylene	--	0.0094 U	0.0084 U	0.0084 U	0.0095 U	0.0098 U	0.0097 U	0.0095 U	0.0095 U	0.0093 U	...	0.18 U	0.013 J	0.092 U	0.18 U	...
Acetophenone	0.058	0.008 U	0.0071 U	0.0071 U	0.0081 U	0.0083 U	0.0082 U	0.008 U	0.008 U	0.0079 U	...	0.16 U	0.0078 U	0.078 U	0.15 U	...
Anthracene	5.8	0.22 J	0.094 J	0.089 J	0.035 U	0.075 J	0.036 U	0.12 J	0.097 J	0.29 J	...	34	1	8.7	14	...
Atrazine	0.0002	0.016 U	0.015 U	0.014 U	0.016 U	0.017 U	0.017 U	0.016 U	0.017 U	0.016 U	...	0.32 U	0.016 U	0.16 U	0.31 U	...
Benzaldehyde	0.0041	0.028 U	0.025 U	0.025 U	0.028 U	0.029 U	0.029 U	0.028 U	0.028 U	0.028 U	...	0.54 U	0.027 U	0.27 U	0.54 U	...
Benzo(A)Anthracene	0.011	0.79	0.26	0.32	0.047	0.68	0.089	0.66	0.25	1.2	...	48	3.9	19	34	...
Benzo(A)Pyrene	0.018	0.96	0.3	0.38	0.045	0.67	0.091	0.75	0.27	1.3	...	46	4.3	16	30	...
Benzo(B)Fluoranthene	0.18	1.3	0.41	0.53	0.068	1.4	0.14	1.3	0.37	1.8	...	56	5.7	24	39	...
Benzo(G,H,I)Perylene	--	1	0.23 J+	0.36	0.051 J	0.6	0.058 J	0.87	0.24 J	1.8	...	29	5.4	12	21	...
Benzo(K)Fluoranthene	1.8	0.63	0.18	0.16	0.031 J	0.55	0.063	0.44	0.15	0.67	...	20	2	8.7	18	...
Benzyl Butyl Phthalate	0.24	0.011 U	0.01 U	0.01 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	...	0.22 U	0.011 U	0.11 U	0.22 U	...
Biphenyl (Diphenyl)	0.00087	0.031 U	0.028 U	0.028 U	0.032 U	0.032 U	0.032 U	0.031 U	0.031 U	0.031 U	...	0.61 U	0.03 U	0.3 U	0.6 U	...
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	...	0.22 U	0.011 U	0.11 U	0.22 U	...
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0086 U	0.0077 U	0.0077 U	0.0087 U	0.009 U	0.0089 U	0.0087 U	0.0087 U	0.0085 U	...	0.17 U	0.0084 U	0.084 U	0.17 U	...
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.013 U	0.013 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	...	0.29 U	0.015 U	0.15 U	0.29 U	...
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.013 U	0.013 U	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.018 J	...	0.28 U	0.014 U	0.14 U	0.27 U	...
Caprolactam	0.25	0.026 U	0.024 U	0.023 U	0.027 U	0.027 U	0.027 U	0.026 U	0.027 U	0.026 U	...	0.51 U	0.026 U	0.26 U	0.51 U	...
Carbazole	--	0.15 J	0.05 J	0.059 J	0.0092 U	0.15 J	0.012 J	0.13 J	0.055 J	0.23 J	...	21	0.62	5.2	8.9	...
Chrysene	9	1.1	0.36	0.42	0.054 J	1.1	0.1 J	0.91	0.27 J	1.5	...	51	4.5	20	36	...
Dibenz(A,H)Anthracene	0.096	0.019 U	0.064	0.069	0.019 U	0.17	0.02 U	0.24	0.078	0.48	...	7.9	1.4	3.6	6.3	...
Dibenzofuran	0.015	0.046 J	0.027 J	0.022 J	0.011 U	0.013 J	0.011 U	0.023 J	0.036 J	0.086 J	...	9.2	0.26 J	2.1 J	3.9 J	...
Diethyl Phthalate	0.61	0.01 U	0.0093 U	0.0092 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	...	0.2 U	0.01 U	0.1 U	0.2 U	...
Dimethyl Phthalate	--	0.011 U	0.0095 U	0.0094 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	...	0.21 U	0.01 U	0.1 U	0.2 U	...
Di-N-Butyl Phthalate	0.23	0.059 J	0.0098 U	0.0097 U	0.011 U	0.011 U	0.042 J	0.011 U	0.042 J	0.043 J	...	0.21 U	0.095 J	0.11 U	0.21 U	...
Di-N-Octylphthalate	5.7	0.019 U	0.017 U	0.017 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	...	0.36 U	0.018 U	0.18 U	0.36 U	...
Fluoranthene	8.9	1.6	0.56	0.66	0.088 J	1.2	0.15 J	1.3	0.4	1.9	...	110	6.4	39	70	...
Fluorene	0.54	0.1 J	0.054 J	0.048 J	0.0083 U	0.0083 U	0.0082 U	0.04 J	0.049 J	0.13 J	...	20	0.0078 U	3.3 J	5.8 J	...
Hexachlorobenzene	0.00012	0.015 U	0.013 U	0.013 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	...	0.29 U	0.014 U	0.14 U	0.29 U	...
Hexachlorobutadiene	0.00027	0.01 U	0.0092 U	0.0091 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	...	0.2 U	0.01 U	0.1 U	0.2 U	...
Hexachlorocyclopentadiene	0.00013	0.023 U	0.02 U	0.02 U	0.023 U	0.024 U	0.024 U	0.023 U	0.023 U	0.023 U	...	0.44 U	0.022 U	0.22 U	0.44 U	...
Hexachloroethane	0.0002	0.013 U	0.012 U	0.012 U	0.014 U	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	...	0.26 U	0.013 U	0.13 U	0.26 U	...
Indeno(1,2,3-C,D)Pyrene	0.98	1	0.26	0.41	0.048	0.61	0.066	0.88	0.26	1.6	...	32	5.3	13	24	...
Isophorone	0.026	0.0079 U	0.007 U	0.007 U	0.0079 U	0.0082 U	0.0081 U	0.0079 U	0.0079 U	0.0078 U	...	1.5 J	0.0077 U	0.45 J	0.38 J	...
Naphthalene	0.00054	0.028 J	0.016 J	0.014 J	0.0094 U	0.0096 U	0.0096 U	0.031 J	0.038 J	0.075 J	...	5.6 J	0.21 J	0.92 J	3 J	...
Nitrobenzene	0.000092	0.012 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	...	0.22 U	0.011 U	0.11 U	0.22 U	...
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.011 U	0.011 U	0.012 U	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	...	0.24 U	0.012 U	0.12 U	0.24 U	...
N-Nitrosodiphenylamine	0.067	0.033 UJ	0.03 U	0.029 U	0.034 U	0.034 U	0.034 U	0.033 U	0.033 U	0.033 U	...	0.65 U	0.032 U	0.32 U	0.64 U	...
Pentachlorophenol	0.000057	0.044 U	0.04 U	0.039 U	0.045 U	0.046 U	0.046 U	0.045 U	0.045 U	0.044 U	...	0.86 U	0.043 U	0.43 U	0.85 U	...
Phenanthrene	--	1.1	0.49	0.47	0.057 J	0.42	0.091 J	0.62	0.38	1.5	...	120	4.5	36	63	...
Phenol	0.33	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	...	0.23 U	0.012 U	0.12 U	0.23 U	...
Pyrene	1.3	1.8	0.64	0.65	0.061 J	0.92	0.15 J	0.95	0.39	2	...	88	6.6	37	65	...
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2,2-Tetrachloroethane	0.00003	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2-Trichloroethane	0.000013	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1-Dichloroethane	0.00078	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1-Dichloroethene	0.01	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2,3-Trichlorobenzene	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2,4-Trichlorobenzene	0.0012	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dibromo-3-Chloropropane	0.00000014	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	CFISS-008	CFISS-008	CFISS-008	CFISS-009	CFISS-009	CFISS-010	CFISS-010	CFISS-011	CFISS-011	CFISS-011	CFISS-012	CFISS-012	CFISS-013	CFISS-013	CFISS-013
Sample Depth		0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		6/18/2016	7/26/2016	7/26/2016	6/22/2016	6/22/2016	6/22/2016	6/22/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/20/2016	6/20/2016	6/20/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichlorobenzene	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloroethane	0.000048	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloropropane	0.000047	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,3-Dichlorobenzene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,4-Dichlorobenzene	0.00046	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2-Hexanone	0.00088	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acetone	0.29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benzene	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromochloromethane	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromodichloromethane	0.000036	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromoform	0.00087	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromomethane	0.00019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Disulfide	0.024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Tetrachloride	0.00018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chlorobenzene	0.0053	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroethane	0.59	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroform	0.000061	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloromethane	0.0049	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,2-Dichloroethylene	0.0011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cyclohexane	1.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dibromochloromethane	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dichlorodifluoromethane	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ethylbenzene	0.0017	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Isopropylbenzene (Cumene)	0.074	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
M,P-Xylene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Acetate	0.41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylcyclohexane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylene Chloride	0.0027	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Styrene	0.13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tert-Butyl Methyl Ether	0.0032	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetrachloroethylene (PCE)	0.0018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toluene	0.076	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.0001	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichlorofluoromethane	0.33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vinyl Chloride	0.0000065	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-014	CFISS-014	CFISS-015	CFISS-015	CFISS-016	CFISS-016	CFISS-017	CFISS-017	CFISS-018	CFISS-018	CFISS-019	CFISS-019	CFISS-020	CFISS-020	CFISS-020-DUP
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		6/20/2016	6/20/2016	6/18/2016	6/18/2016	6/23/2016	6/28/2016	6/23/2016	6/29/2016	6/24/2016	6/24/2016	6/24/2016	6/24/2016	6/25/2016	6/25/2016	6/25/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	598 J	318 J	379 J-	372 J-	27.6	36.8 J	28.6	36.7	16.6 J-	72.9 J-	70.5 J-	215 J-	36.7 J-	61.2 J-	60.4 J-
Cyanide	0.0015	2.5	2.3	1.6	0.71	0.12	0.12	0.044 J	0.16	0.017 J	0.15	0.073 J	0.22	0.077 J	0.25	0.25
METALS																
Aluminum	3000	16900	18900	16200	19200	14500 J	13200 J	12100 J	12800	8620	11400	11700	15700	10700	14300	13700
Antimony	0.035	0.42 UJ	0.42 UJ	0.43 UJ	0.41 UJ	0.17 J-	0.12 J-	0.12 J-	0.15 J-	0.092 J-	0.18 J-	0.25 J-	0.31 J-	0.14 J-	0.26 J-	0.25 J-
Arsenic	0.0015	4.9	5.7	4.9	5.6	5.1	5	4.7	4.3	4.9	4.2	4.9	5.1	5	4.8	4.6
Barium	16	101 J	101 J	84.2	96.2	99.8	105	109	77.1	74.8	59.4	119	92.9	99.4	93.8	89.8
Beryllium	1.9	0.76	0.96	0.53	0.62	0.59	0.53	0.48 J	0.48 J	0.4 J	0.52 J	0.49 J	0.6	0.44 J	0.56	0.53 J
Cadmium	0.069	0.32 U	0.32 U	0.32 U	0.33 U	0.19 J	0.085 J	0.054 J	0.16 J	0.081 J	0.18 J	0.13 J	0.27 J	0.24 J	0.26 J	0.28 J
Calcium	--	21800 J	21600 J	13800 J	16500 J	16900	23200	30400	24700	32400	30400	24300	25800	25900	30600	29400
Chromium, Total	--	17.2 J	14.5 J	11.7	11.7	18.3	13.6	17	15 J-	17.8	18.6	22.9	17.9	14.8	19.3	17
Cobalt	0.027	7.9	5.8	5.3 J+	6.2 J+	6.1	5.9	5.6	5.6	5.5	5.5	6.1	6	5.9	5.8	5.9
Copper	2.8	34.2	26.6	21.5 J	13.9 J	19	17	14.1	16.4	15.9	15.8	25.2	21.9	20	25.8	25.1
Iron	35	22600	17600	14400	14700	16000	16100	15300	14700	14100	13900	14900	14900	15900	16400	15900
Lead	400	49.9 J	40.2 J	9.5	11.7	19.1	10.6	9.4	15.2	8.6	13.5	14.9	20.6	15.2	21.7	23.8
Magnesium	--	12800	10700	10700	10700	11500	12500	12700	11600	11900	11600	11600	10900	11600	11600	11500
Manganese	2.8	482	408	419	417	439	459	444	353	386	341	447	381	475	393	382
Mercury	0.0033	0.022	0.017	0.019	0.021	0.018 J	0.018 J	0.018 J	0.016 U	0.028 J	0.017 J	0.027 J	0.026 J	0.017 J	0.024 J	0.02 J
Nickel	2.6	17.1	26.4	13 J-	29.4 J-	25.4	13.5	14	21.6 J-	15.2	29.8	19.1	35.4	13.9	30.8	30.2
Potassium	--	1540	1710	1380	1360	1250	1130	1020	977	721	825	1020	1040	805	1170	1010
Selenium	0.052	0.4 U	0.45 J	0.4 U	0.95 J	1.7 J	1.8 J	1.7 J	1.5 J	1.5 J	1.4 J	1.6 J	1.3 J	1.5 J	1.5 J	1.4 J
Silver	0.08	0.77 U	0.77 U	0.78 U	0.79 U	0.055 J	0.037 J	0.03 J	0.046 J	0.03 J	0.046 J	0.055 J	0.058 J	0.19 J	0.17 J	0.19 J
Sodium	--	2270	1750	1700	1520	64.1 J	54.4 J	58 J	61.1 J	46.1 J	79.9 J	71.3 J	673	71.1 J	272 J	185 J
Thallium	0.0014	0.16 U	0.16 U	0.16 U	0.16 U	0.091 J	0.094 J	0.079 J	0.085 J	0.06 J	0.085 J	0.075 J	0.083 J	0.095 J	0.09 J	0.082 J
Vanadium	8.6	23	17.2	11.1	15.7	14.6	11.1	11	12.9	8.6	13.7	12.3	17.1	10.3	17	14.8
Zinc	37	67.7	72	45.5	59.2	59.7	47.5	44.4	48.3	51.3	48.8	54.3	64.8	75.3	79.4	77

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-014	CFISS-014	CFISS-015	CFISS-015	CFISS-016	CFISS-016	CFISS-017	CFISS-017	CFISS-018	CFISS-018	CFISS-019	CFISS-019	CFISS-020	CFISS-020	CFISS-020-DUP
Sample Depth		0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft
Chemical Name		6/20/2016	6/20/2016	6/18/2016	6/18/2016	6/23/2016	6/28/2016	6/23/2016	6/29/2016	6/24/2016	6/24/2016	6/24/2016	6/24/2016	6/25/2016	6/25/2016	6/25/2016
PESTICIDES																
Aldrin	0.00015	--	0.00098 U	--	0.0009 U	0.00079 U	--	--	0.0008 U	--	0.00079 U	--	0.00081 U	--	0.0008 U	0.00079 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	0.00066 U	--	0.00068 U	0.00059 U	--	--	0.00061 U	--	0.00059 U	--	0.00061 U	--	0.0006 U	0.00059 U
Alpha Endosulfan	--	--	0.001 U	--	0.001 U	0.0009 U	--	--	0.00092 U	--	0.00091 U	--	0.00093 U	--	0.00092 U	0.0009 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	0.0007 U	--	0.00072 U	0.00063 U	--	--	0.00065 U	--	0.00063 U	--	0.00065 U	--	0.00064 U	0.00063 U
Beta Endosulfan	--	--	0.0011 U	--	0.0012 U	0.001 U	--	--	0.001 U	--	0.001 U	--	0.0011 U	--	0.001 U	0.001 U
cis-Chlordane	--	--	0.0012 U	--	0.0012 U	0.0011 U	--	--	0.0011 U	--	0.0011 U	--	0.0011 U	--	0.0011 U	0.0011 U
Delta BHC (Delta Hexachlorocyclohexane)	--	--	0.00079 U	--	0.00081 U	0.00071 U	--	--	0.00073 U	--	0.00071 U	--	0.00073 U	--	0.00072 U	0.00071 U
Dieldrin	0.000071	--	0.00094 U	--	0.00096 U	0.00085 U	--	--	0.00087 U	--	0.00085 U	--	0.00087 U	--	0.00086 U	0.00085 U
Endosulfan Sulfate	--	--	0.00085 U	--	0.00086 U	0.00076 U	--	--	0.00077 U	--	0.00076 U	--	0.00078 U	--	0.00077 U	0.00076 U
Endrin	0.0092	--	0.00092 U	--	0.00094 U	0.00083 U	--	--	0.00084 U	--	0.00083 U	--	0.00085 U	--	0.00084 U	0.00083 U
Endrin Aldehyde	--	--	0.0009 U	--	0.00092 U	0.00081 U	--	--	0.00082 U	--	0.00081 U	--	0.00083 U	--	0.00082 U	0.00081 U
Endrin Ketone	--	--	0.001 U	--	0.001 U	0.0009 U	--	--	0.00092 U	--	0.00091 U	--	0.00093 U	--	0.00092 U	0.0009 U
Gamma Bhc (Lindane)	0.00024	--	0.00065 U	--	0.00066 U	0.00058 U	--	--	0.0006 U	--	0.00058 U	--	0.0006 U	--	0.00059 U	0.00058 U
Heptachlor	0.00012	--	0.00093 U	--	0.00095 U	0.00084 U	--	--	0.00085 U	--	0.00084 U	--	0.00086 U	--	0.00085 U	0.00084 U
Heptachlor Epoxide	0.000028	--	0.0014 U	--	0.0015 U	0.0013 U	--	--	0.0013 U	--	0.0013 U	--	0.0013 U	--	0.0013 U	0.0013 U
Methoxychlor	0.2	--	0.0015 U	--	0.0016 U	0.0014 U	--	--	0.0014 U	--	0.0014 U	--	0.0014 U	--	0.0014 U	0.0014 U
P,P'-DDD	0.0075	--	0.00095 U	--	0.00098 U	0.00085 U	--	--	0.00087 U	--	0.00086 U	--	0.00088 U	--	0.00087 U	0.00086 U
P,P'-DDE	0.011	--	0.0011 U	--	0.0011 U	0.00094 U	--	--	0.00096 U	--	0.00094 U	--	0.00097 U	--	0.00096 U	0.00094 U
P,P'-DDT	0.077	--	0.00075 U	--	0.00076 U	0.00067 U	--	--	0.00069 U	--	0.00067 U	--	0.00069 U	--	0.00068 U	0.00067 U
Toxaphene	0.011	--	0.021 U	--	0.022 U	0.019 U	--	--	0.019 U	--	0.019 U	--	0.02 U	--	0.019 U	0.019 U
trans-Chlordane	--	--	0.0016 U	--	0.0016 U	0.0014 U	--	--	0.0014 U	--	0.0014 U	--	0.0015 U	--	0.0014 U	0.0014 U
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.0095 U	0.0096 U	0.01 U	0.0099 U	0.0086 U	0.0085 U	0.0085 U	0.0088 U	0.0087 U	0.0087 U	0.0088 U	0.0089 U	0.0087 U	0.0088 U	0.0088 U
PCB-1221 (Aroclor 1221)	0.00008	0.0095 U	0.0096 U	0.01 U	0.0099 U	0.0086 U	0.0085 U	0.0085 U	0.0088 U	0.0087 U	0.0087 U	0.0088 U	0.0089 U	0.0087 U	0.0088 U	0.0088 U
PCB-1232 (Aroclor 1232)	0.00008	0.0095 U	0.0096 U	0.01 U	0.0099 U	0.0086 U	0.0085 U	0.0085 U	0.0088 U	0.0087 U	0.0087 U	0.0088 U	0.0089 U	0.0087 U	0.0088 U	0.0088 U
PCB-1242 (Aroclor 1242)	0.0012	0.0095 U	0.0096 U	0.01 U	0.0099 U	0.0086 U	0.0085 U	0.0085 U	0.0088 U	0.0087 U	0.0087 U	0.0088 U	0.0089 U	0.0087 U	0.0088 U	0.0088 U
PCB-1248 (Aroclor 1248)	0.0012	0.0095 U	0.0096 U	0.01 U	0.0099 U	0.0086 U	0.0085 U	0.0085 U	0.0088 U	0.0087 U	0.0087 U	0.0088 U	0.0089 U	0.0087 U	0.0088 U	0.0088 U
PCB-1254 (Aroclor 1254)	0.002	0.0098 U	0.01 U	0.01 U	0.01 U	0.0089 U	0.0088 U	0.0088 U	0.0091 U	0.0089 U	0.009 U	0.0091 U	0.0092 U	0.16	0.079 J	0.0091 UJ
PCB-1260 (Aroclor 1260)	0.0055	0.0098 U	0.01 U	0.01 U	0.01 U	0.0089 U	0.0088 U	0.0088 U	0.0091 U	0.0089 U	0.009 U	0.0091 U	0.0092 U	0.009 U	0.0091 U	0.0091 U
PCB-1262 (Aroclor 1262)	--	0.0098 U	0.01 U	0.01 U	0.01 U	0.0089 U	0.0088 U	0.0088 U	0.0091 U	0.0089 U	0.009 U	0.0091 U	0.0092 U	0.009 U	0.0091 U	0.0091 U
PCB-1268 (Aroclor 1268)	--	0.0098 U	0.01 U	0.01 U	0.01 U	0.0089 U	0.0088 U	0.0088 U	0.0091 U	0.0089 U	0.009 U	0.0091 U	0.0092 U	0.009 U	0.0091 U	0.0091 U
Polychlorinated Biphenyl (PCBs)	--	0.0098 U	0.01 U	0.01 U	0.01 U	0.0089 U	0.0088 U	0.0088 U	0.0091 U	0.0089 U	0.009 U	0.0091 U	0.0092 U	0.16	0.079 J	0.0091 UJ
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.026 U	0.027 U	0.028 U	0.027 U	0.024 U	0.024 U	0.023 U	0.049 U	0.025 U	0.025 U	0.049 U	0.024 U	0.24 U	0.25 U	0.25 U
1,4-Dioxane (P-Dioxane)	0.000094	0.094 U	0.096 U	0.1 U	0.098 U	0.085 U	0.086 U	0.084 U	0.18 U	0.089 U	0.089 U	0.18 U	0.087 U	0.85 U	0.88 U	0.89 U
2,3,4,6-Tetrachlorophenol	0.018	0.033 U	0.034 U	0.035 U	0.034 U	0.03 U	0.03 U	0.03 U	0.062 U	0.031 U	0.031 U	0.062 U	0.031 U	0.3 U	0.31 U	0.31 U
2,4,5-Trichlorophenol	0.4	0.035 U	0.036 U	0.037 U	0.036 U	0.032 U	0.032 U	0.031 U	0.066 U	0.033 U	0.033 U	0.066 U	0.032 U	0.32 U	0.33 U	0.33 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.01 U	0.01 U	0.01 U	0.009 U	0.0091 U	0.009 U	0.019 U	0.0094 U	0.0094 U	0.019 U	0.0093 U	0.09 U	0.094 U	0.094 U
2,4-Dichlorophenol	0.0023	0.0083 U	0.0084 U	0.0088 U	0.0086 U	0.0075 U	0.0076 U	0.0075 U	0.016 U	0.0078 U	0.0078 U	0.016 U	0.0077 U	0.075 U	0.078 U	0.078 U
2,4-Dimethylphenol	0.042	0.078 U	0.079 U	0.082 U	0.081 U	0.07 U	0.07 U	0.069 U	0.15 U	0.072 U	0.073 U	0.15 U	0.072 U	0.7 U	0.73 U	0.73 U
2,4-Dinitrophenol	0.0044	0.27 U	0.27 U	0.28 U	0.28 U	0.24 U	0.24 U	0.24 U	0.5 U	0.25 U	0.25 U	0.5 U	0.25 U	2.4 U	2.5 U	2.5 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.014 U	0.015 U	0.015 U	0.013 U	0.013 U	0.013 U	0.026 U	0.013 U	0.013 U	0.026 U	0.013 U	0.13 U	0.13 U	0.13 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.019 U	0.02 U	0.019 U	0.017 U	0.017 U	0.017 U	0.035 U	0.018 U	0.018 U	0.035 U	0.017 U	0.17 U	0.18 U	0.18 U
2-Chloronaphthalene	0.39	0.008 U	0.0081 U	0.0085 U	0.0083 U	0.0072 U	0.0073 U	0.0072 U	0.015 U	0.0075 U	0.0075 U	0.015 U	0.0074 U	0.072 U	0.075 U	0.075 U
2-Chlorophenol	0.0089	0.009 U	0.0091 U	0.0095 U	0.0093 U	0.0081 U	0.0081 U	0.008 U	0.017 U	0.0084 U	0.0084 U	0.017 U	0.0083 U	0.081 U	0.084 U	0.084 U
2-Methylnaphthalene	0.019	0.0083 J	0.015 J	0.014 J	0.0082 J	0.011 J	0.015 J	0.012 J	0.018 J	0.0073 U	0.0096 J	0.081 J	0.04 J	0.43 J	1.3 J	0.88 J
2-Methylphenol (O-Cresol)	0.075	0.015 U	0.016 U	0.016 U	0.016 U	0.014 U	0.014 U	0.014 U	0.029 U	0.014 U	0.014 U	0.029 U	0.014 U	0.14 U	0.14 U	0.14 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.012 U	0.012 U	0.01 U	0.011 U	0.01 U	0.022 U	0.011 U	0.011 U	0.022 U	0.011 U	0.1 U	0.11 U	0.11 U
2-Nitrophenol	--	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.011 U	0.011 U	0.022 U	0.011 U	0.011 U	0.022 U	0.011 U	0.11 U	0.11 U	0.11 U
3- And 4- Methylphenol (Total)	--	0.0094 U	0.0095 U	0.0099 U	0.0097 U	0.0085 U	0.0085 U	0.0084 U	0.018 U	0.0088 U	0.0088 U	0.018 U	0.0087 U	0.085 U	0.088 U	0.088 U
3,3'-Dichlorobenzidine	0.00082	0.039 U	0.04 U	0.042 U	0.041 U	0.035 U	0.036 U	0.035 U	0.074 U	0.037 U	0.037 U	0.074 U	0.036 U	0.35 U	0.37 U	0.37 U
3-Nitroaniline	--	0.01 U	0.011 U	0.011 U	0.011 U	0.0094 U	0.0095 U	0.0094 U	0.02 U	0.0098 U	0.0098 U	0.02 U	0.0097 U	0.094 U	0.098 U	0.098 U
4,6-Dinitro-2-Methylphenol	0.00026	0.094 U	0.096 U	0.099 U	0.098 U	0.085 U	0.086 U	0.084 U	0.18 U	0.089 U	0.089 U	0.18 U	0.087 U	0.85 U	0.88 U	0.89 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.0098 U	0.021 U	0.01 U	0.01 U	0.021 U	0.01 U	0.1 U	0.1 U	0.1 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.015 U	0.016 U	0.016 U	0.014 U	0.014 U	0.014 U	0.029 U	0.014 U	0.014 U	0.029 U	0.014 U	0.14 U	0.14 U	0.14 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFISS-014**	**CFISS-014**	**CFISS-015**	**CFISS-015**	**CFISS-016**	**CFISS-016**	**CFISS-017**	**CFISS-017**	**CFISS-018**	**CFISS-018**	**CFISS-019**	**CFISS-019**	**CFISS-020**	**CFISS-020**	**CFISS-020-DUP**
Sample Depth		**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**
Chemical Name		**6/20/2016**	**6/20/2016**	**6/18/2016**	**6/18/2016**	**6/23/2016**	**6/28/2016**	**6/23/2016**	**6/29/2016**	**6/24/2016**	**6/24/2016**	**6/24/2016**	**6/24/2016**	**6/25/2016**	**6/25/2016**	**6/25/2016**
4-Chloroaniline	0.00016	0.0091 U	0.0092 U	0.0096 U	0.0094 U	0.0082 U	0.0082 U	0.0081 U	0.017 U	0.0085 U	0.0085 U	0.017 U	0.0084 U	0.082 U	0.085 U	0.085 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.011 U	0.0095 U	0.0096 U	0.0095 U	0.02 U	0.0099 U	0.0099 U	0.02 U	0.0098 U	0.095 U	0.099 U	0.099 U
4-Nitroaniline	0.0016	0.013 U	0.014 U	0.014 U	0.014 U	0.012 U	0.012 U	0.012 U	0.025 U	0.012 U	0.013 U	0.025 U	0.012 U	0.12 U	0.12 U	0.13 U
4-Nitrophenol	--	0.17 U	0.17 U	0.18 U	0.18 U	0.15 U	0.15 U	0.15 U	0.32 U	0.16 U	0.16 U	0.32 U	0.16 U	1.5 U	1.6 U	1.6 U
Acenaphthene	0.55	0.047 J	0.085 J	0.009 U	0.036 J	0.025 J	0.036 J	0.0076 U	0.13 J	0.008 J	0.073 J	0.42 J	0.25 J	2.3 J	5.4	3.5
Acenaphthylene	--	0.0091 U	0.0092 U	0.0096 U	0.0094 U	0.0082 U	0.0082 U	0.0081 U	0.017 U	0.0085 U	0.0085 U	0.017 U	0.0084 U	0.1 J	0.2 J	0.14 J
Acetophenone	0.058	0.0077 U	0.0078 U	0.0081 U	0.008 U	0.0069 U	0.015 J	0.0088 J	0.014 U	0.0072 U	0.0072 U	0.014 U	0.0071 U	0.069 U	0.072 U	0.072 U
Anthracene	5.8	0.1 J	0.2 J	0.035 U	0.035 U	0.049 J	0.066 J	0.03 U	0.25 J	0.031 U	0.13 J	0.73	0.44	4.2	8.5	6
Atrazine	0.0002	0.016 U	0.016 U	0.017 U	0.016 U	0.014 U	0.014 U	0.014 U	0.03 U	0.015 U	0.015 U	0.029 U	0.015 U	0.14 U	0.15 U	0.15 U
Benzaldehyde	0.0041	0.027 U	0.027 U	0.028 U	0.03 J	0.024 U	0.024 U	0.024 U	0.051 U	0.025 U	0.025 U	0.05 U	0.025 U	0.24 U	0.25 U	0.25 U
Benzo(A)Anthracene	0.011	0.38	1.1	0.096	1.2	0.32	0.24	0.026 U	1.6	0.091	1.1	1.9	2.8	12	23	17
Benzo(A)Pyrene	0.018	0.34	1.2	0.11	0.62	0.42	0.23	0.018 J	2.1	0.095	1.3	2.3	3.4	11	24	18
Benzo(B)Fluoranthene	0.18	0.87	3.2	0.26	6.1	0.74	0.38	0.022 J	2.7	0.15	2	2.7	4.3	13	30	21
Benzo(G,H,I)Perylene	--	0.38	1.7	0.11 J	1.2	0.43	0.25 J	0.025 J	2.2	0.097 J	1.9	1.7	4.1	6.2	21	15
Benzo(K)Fluoranthene	1.8	0.26	0.9	0.089	1.2	0.24	0.14	0.015 J	0.84	0.053	0.67	0.98	1.6	4.9	12	8.7
Benzyl Butyl Phthalate	0.24	0.068 J	0.011 U	0.011 U	0.011 U	0.0098 U	0.0099 U	0.0097 U	0.02 U	0.01 U	0.01 U	0.02 U	0.01 U	0.098 U	0.1 U	0.1 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.031 U	0.032 U	0.031 U	0.027 U	0.027 U	0.027 U	0.057 U	0.028 U	0.028 U	0.056 U	0.028 U	0.27 U	0.31 J	0.28 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.012 U	0.011 U	0.0099 U	0.01 U	0.0098 U	0.021 U	0.01 U	0.01 U	0.021 U	0.01 U	0.099 U	0.1 U	0.1 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0083 U	0.0084 U	0.0088 U	0.0086 U	0.0075 U	0.0076 U	0.0075 U	0.016 U	0.0078 U	0.0078 U	0.016 U	0.0077 U	0.075 U	0.078 U	0.078 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.015 U	0.016 U	0.015 U	0.013 U	0.013 U	0.013 U	0.027 U	0.014 U	0.014 U	0.027 U	0.013 U	0.13 U	0.14 U	0.14 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.047 J	0.015 U	0.014 U	0.012 U	0.012 U	0.012 U	0.033 J	0.013 U	0.013 U	0.026 U	0.013 U	0.12 U	0.81 J	0.52 J
Caprolactam	0.25	0.025 U	0.026 U	0.027 U	0.026 U	0.023 U	0.023 U	0.023 U	0.048 U	0.024 U	0.024 U	0.048 U	0.023 U	0.23 U	0.24 U	0.24 U
Carbazole	--	0.04 J	0.18 J	0.0092 U	0.08 J	0.046 J	0.049 J	0.0078 U	0.26 J	0.012 J	0.15 J	0.39 J	0.37	2.4 J	4.3	3.1 J
Chrysene	9	0.57	2.3	0.18 J	6.2	0.49	0.3 J	0.022 J	2.3	0.12 J	1.5	2.4	3.4	12	25	19
Dibenz(A,H)Anthracene	0.096	0.12	0.49	0.03 J	0.56	0.11	0.068	0.016 U	0.59	0.027 J	0.42	0.54	1	2.4	6.2	4.7
Dibenzofuran	0.015	0.025 J	0.034 J	0.011 U	0.016 J	0.013 J	0.03 J	0.0096 U	0.058 J	0.01 U	0.023 J	0.23 J	0.09 J	1.1 J	2.3 J	1.5 J
Diethyl Phthalate	0.61	0.01 U	0.01 U	0.011 U	0.01 U	0.009 U	0.0091 U	0.009 U	0.019 U	0.0094 U	0.0094 U	0.019 U	0.0093 U	0.09 U	0.094 U	0.094 U
Dimethyl Phthalate	--	0.01 U	0.01 U	0.011 U	0.011 U	0.0092 U	0.0093 U	0.0092 U	0.019 U	0.0096 U	0.0096 U	0.019 U	0.0095 U	0.092 U	0.096 U	0.096 U
Di-N-Butyl Phthalate	0.23	0.039 J	0.019 J	0.048 J	0.04 J	0.0095 U	0.019 J	0.0095 U	0.02 U	0.0099 U	0.0099 U	0.02 U	0.022 J	0.095 U	0.099 U	0.099 U
Di-N-Octylphthalate	5.7	0.018 U	0.018 U	0.019 U	0.019 U	0.016 U	0.016 U	0.016 U	0.034 U	0.017 U	0.017 U	0.034 U	0.017 U	0.16 U	0.17 U	0.17 U
Fluoranthene	8.9	0.62	2.2	0.17 J	2.3	0.57	0.49	0.03 J	3	0.16 J	1.7	3.3	4.5	22	39	30
Fluorene	0.54	0.054 J	0.063 J	0.0081 U	0.021 J	0.015 J	0.031 J	0.0069 U	0.095 J	0.0072 U	0.041 J	0.34 J	0.15 J	1.7 J	4.1	2.7 J
Hexachlorobenzene	0.00012	0.014 U	0.015 U	0.015 U	0.015 U	0.013 U	0.013 U	0.013 U	0.027 U	0.013 U	0.013 U	0.027 U	0.013 U	0.13 U	0.13 U	0.13 U
Hexachlorobutadiene	0.00027	0.0099 U	0.01 U	0.01 U	0.01 U	0.0089 U	0.009 U	0.0089 U	0.019 U	0.0093 U	0.0093 U	0.019 U	0.0092 U	0.089 U	0.093 U	0.093 U
Hexachlorocyclopentadiene	0.00013	0.022 U	0.022 U	0.023 U	0.023 U	0.02 U	0.02 U	0.02 U	0.041 U	0.021 U	0.021 U	0.041 U	0.02 U	0.2 U	0.21 U	0.21 U
Hexachloroethane	0.0002	0.013 U	0.013 U	0.014 U	0.013 U	0.012 U	0.012 U	0.012 U	0.024 U	0.012 U	0.012 U	0.024 U	0.012 U	0.12 U	0.12 U	0.12 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.37	1.6	0.12	1.4	0.41	0.25	0.021 U	2.4	0.1	1.7	2	4	8	22	17
Isophorone	0.026	0.0076 U	0.0077 U	0.008 U	0.0079 U	0.047 J	0.0069 U	0.037 J	0.086 J	0.0071 U	0.0071 U	0.014 U	0.007 U	0.068 U	0.071 U	0.071 U
Naphthalene	0.00054	0.015 J	0.024 J	0.016 J	0.02 J	0.014 J	0.016 J	0.008 U	0.049 J	0.0084 U	0.016 J	0.18 J	0.07 J	0.87 J	2.2 J	1.2 J
Nitrobenzene	0.000092	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U	0.01 U	0.0098 U	0.021 U	0.01 U	0.01 U	0.021 U	0.01 U	0.1 U	0.1 U	0.1 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.011 U	0.011 U	0.022 U	0.011 U	0.011 U	0.022 U	0.011 U	0.11 U	0.11 U	0.11 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.032 U	0.034 UJ	0.033 UJ	0.029 U	0.029 U	0.029 U	0.06 U	0.03 U	0.03 U	0.06 U	0.03 U	0.29 U	0.3 U	0.3 U
Pentachlorophenol	0.000057	0.043 U	0.043 U	0.045 U	0.044 U	0.038 U	0.039 U	0.038 U	0.08 U	0.04 U	0.04 U	0.08 U	0.039 U	0.38 U	0.4 U	0.4 U
Phenanthrene	--	0.4	1.2	0.1 J	0.65	0.31 J	0.46	0.026 J	1.6	0.12 J	0.86	2.8	2.4	17	32	24
Phenol	0.33	0.012 U	0.012 U	0.012 U	0.012 U	0.01 U	0.01 U	0.01 U	0.022 U	0.011 U	0.011 U	0.022 U	0.011 U	0.1 U	0.11 U	0.11 U
Pyrene	1.3	0.71	2.3	0.18 J	2.1	0.74	0.58	0.026 J	2.2	0.19 J	1.6	2.6	3.8	15	40	28
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2,2-Tetrachloroethane	0.00003	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2-Trichloroethane	0.000013	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1-Dichloroethane	0.00078	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1-Dichloroethene	0.01	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2,3-Trichlorobenzene	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2,4-Trichlorobenzene	0.0012	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dibromo-3-Chloropropane	0.00000014	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Preliminary - Under EPA and IDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	**CFISS-014**	**CFISS-014**	**CFISS-015**	**CFISS-015**	**CFISS-016**	**CFISS-016**	**CFISS-017**	**CFISS-017**	**CFISS-018**	**CFISS-018**	**CFISS-019**	**CFISS-019**	**CFISS-020**	**CFISS-020**	**CFISS-020-DUP**
Sample Depth		**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**	**0.5-2 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0.5-2 ft**	**0-0.5 ft**	**0-0.5 ft**
Chemical Name		**6/20/2016**	**6/20/2016**	**6/18/2016**	**6/18/2016**	**6/23/2016**	**6/28/2016**	**6/23/2016**	**6/29/2016**	**6/24/2016**	**6/24/2016**	**6/24/2016**	**6/24/2016**	**6/25/2016**	**6/25/2016**	**6/25/2016**
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichlorobenzene	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloroethane	0.000048	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloropropane	0.000047	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,3-Dichlorobenzene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,4-Dichlorobenzene	0.00046	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2-Hexanone	0.00088	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acetone	0.29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benzene	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromochloromethane	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromodichloromethane	0.000036	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromoform	0.00087	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromomethane	0.00019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Disulfide	0.024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Tetrachloride	0.00018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chlorobenzene	0.0053	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroethane	0.59	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroform	0.000061	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloromethane	0.0049	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,2-Dichloroethylene	0.0011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cyclohexane	1.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dibromochloromethane	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dichlorodifluoromethane	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ethylbenzene	0.0017	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Isopropylbenzene (Cumene)	0.074	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
M,P-Xylene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Acetate	0.41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylcyclohexane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylene Chloride	0.0027	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Styrene	0.13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tert-Butyl Methyl Ether	0.0032	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetrachloroethylene (PCE)	0.0018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toluene	0.076	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.0001	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichlorofluoromethane	0.33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vinyl Chloride	0.0000065	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-021	CFISS-021	CFISS-021	CFISS-022	CFISS-022	CFISS-023	CFISS-023	CFISS-024	CFISS-024	CFISS-024	CFISS-025	CFISS-025	CFISS-026	CFISS-026	CFISS-027
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/25/2016	6/25/2016	6/25/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/29/2016	6/29/2016	6/29/2016	6/30/2016	6/30/2016	6/30/2016	6/30/2016	7/1/2016
DIOXIN/FURAN																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																
Fluoride	12	136 J-	251 J-	--	282 J+	732 J+	44.6 J	39.3 J	204 J+	592 J+	--	157 J+	69.8	632 J+	617 J+	946
Cyanide	0.0015	0.36	0.56	--	0.63	0.66	0.11	0.19	0.14 J-	0.31	--	0.16	0.69	0.26	0.38	0.43
METALS																
Aluminum	3000	12500	22600	--	17700 J	27500 J	15100 J	17500 J	13200	22900	--	13900	24800	22400	37100	24900
Antimony	0.035	0.16 J-	0.63 J-	--	0.16 J	1 J-	0.13 J-	0.15 J-	0.14 J-	0.22 J-	--	0.14 J-	0.4 J-	0.16 J-	0.27 J-	0.21 J-
Arsenic	0.0015	5.1	8.2	--	5.8	12.3	5.6	5.3	5	6	--	4.5	6	5.6	7.2	5.8
Barium	16	113	113	--	168	143	138	110	123	97.2	--	94.7	98.7	158	251	165
Beryllium	1.9	0.53 J	0.91	--	0.89	0.99	0.57	0.65	0.56	0.81	--	0.54	0.67	0.82	1.3	1.2
Cadmium	0.069	0.15 J	0.97 J	--	0.13 J	1.2 J	0.092 J	0.18 J	0.1 J	0.28 J	--	0.099 J	0.38 J	0.17 J	0.55 J	0.19 J
Calcium	--	22200	20300	--	11100	12600	17600	13300	25400	23600	--	26900	27900	18800	9150	19100
Chromium, Total	--	22.1	31.1	--	20	50.4	15.5	15.8	15.9 J-	18.5 J-	--	15.8 J-	18.3 J-	18.9 J-	27.6 J-	54.4 J-
Cobalt	0.027	6.1	7.7	--	6.5	9.3	6.5	6.5	6.1	6.3	--	5.7	6.3	6.1	7.2	6.3
Copper	2.8	21.7	44	--	17.8	47.6	16.6	17.4	17.7	19.6	--	15.6	33.3	18	45.2	18.7
Iron	35	17200	24500	--	17800	30400	17200	17200	15400	16700	--	15600	17500	17200	27100	17200
Lead	400	15.3	46.5 J	55.1	15	64.9	12.8	14.6	12.4	18.1	24.5	11.1	19.7	13	37.6	13.9
Magnesium	--	11100	11100	--	10700	10700	11100	11000	11700	11800	--	11800	11700	11400	9870	10700
Manganese	2.8	477	499	--	563	564	501	465	437	390	--	403	399	455	583	448
Mercury	0.0033	0.026 J	0.028 J	--	0.021 J	0.026 J	0.021 J	0.02 J	0.021 J	0.039 J	--	0.016 J	0.015 U	0.017 J	0.016 U	0.015 U
Nickel	2.6	20.5	93.6	--	18.6	142	14.3	26.3	19 J-	51.4 J-	--	18.6 J-	46.6 J-	21.2 J-	54.1 J-	38.5 J-
Potassium	--	1040	1600	--	1280	2150	1210	1150	1270	1790	--	1210	1680	2180	2290	2480
Selenium	0.052	1.8 J	3.8 J	--	1.9 J	13.3	1.9 J	1.8 J	1.5 J	1.6 J	--	1.5 J	1.9 J	2 J	3.1 J	1.8 J
Silver	0.08	0.05 J	0.12 J	--	0.047 J	0.11 J	0.043 J	0.048 J	0.049 J	0.047 J	--	0.034 J	0.065 J	0.05 J	0.11 J	0.053 J
Sodium	--	288	1200	--	461	1670	80.3 J	79.9 J	177 J	1520	--	93.4 J	312	2020	2160	2760
Thallium	0.0014	0.083 J	0.17 J	--	0.11 J	0.4 J	0.098 J	0.098 J	0.082 J	0.1 J	--	0.077 J	0.11 J	0.12 J	0.17 J	0.15 J
Vanadium	8.6	12.1	35.3	--	15.7	54.5	13	15.3	13.4	21.7	--	12.6	20.9	18.2	27.7	31.2
Zinc	37	73.8	103	--	55.1	88.2	50.5	89.2	52.4	77.8	--	47.7	70.3	56.8	90	53.4

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-021	CFISS-021	CFISS-021	CFISS-022	CFISS-022	CFISS-023	CFISS-023	CFISS-024	CFISS-024	CFISS-024	CFISS-025	CFISS-025	CFISS-026	CFISS-026	CFISS-027
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/25/2016	6/25/2016	6/25/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/29/2016	6/29/2016	6/29/2016	6/30/2016	6/30/2016	6/30/2016	6/30/2016	7/1/2016
PESTICIDES																
Aldrin	0.00015	...	0.0008 U	...	...	0.0008 U	...	0.00078 U	...	0.00078 U	...	...	0.00079 U	...	0.0008 U	...
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	...	0.0006 U	...	...	0.0006 U	...	0.0006 U	...	0.00059 U	...	...	0.0006 U	...	0.0006 U	...
Alpha Endosulfan	--	...	0.00092 U	...	...	0.00092 U	...	0.00091 U	...	0.0009 U	...	...	0.00091 U	...	0.00092 U	...
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	...	0.00064 U	...	...	0.00064 U	...	0.00064 U	...	0.00063 U	...	...	0.00063 U	...	0.00064 U	...
Beta Endosulfan	--	...	0.001 U	...	...	0.001 U	...	0.001 U	...	0.001 U	...	...	0.001 U	...	0.001 U	...
cis-Chlordane	--	...	0.0011 U	...	...	0.0011 U	...	0.0011 U	...	0.0011 U	...	...	0.0011 U	...	0.0011 U	...
Delta BHC (Delta Hexachlorocyclohexane)	--	...	0.00072 U	...	...	0.00072 U	...	0.00071 U	...	0.0007 U	...	...	0.00071 U	...	0.00072 U	...
Dieldrin	0.000071	...	0.00086 U	...	...	0.00086 U	...	0.00085 U	...	0.00084 U	...	...	0.00085 U	...	0.00086 U	...
Endosulfan Sulfate	--	...	0.00077 U	...	...	0.00077 U	...	0.00076 U	...	0.00075 U	...	...	0.00076 U	...	0.00077 U	...
Endrin	0.0092	...	0.00084 U	...	...	0.00084 U	...	0.00083 U	...	0.00082 U	...	...	0.00083 U	...	0.00084 U	...
Endrin Aldehyde	--	...	0.00082 U	...	...	0.00082 U	...	0.00081 U	...	0.0008 U	...	...	0.00081 U	...	0.00082 U	...
Endrin Ketone	--	...	0.00092 U	...	...	0.00092 U	...	0.00091 U	...	0.0009 U	...	...	0.00091 U	...	0.00092 U	...
Gamma Bhc (Lindane)	0.00024	...	0.00059 U	...	...	0.00059 U	...	0.00059 U	...	0.00058 U	...	...	0.00059 U	...	0.00059 U	...
Heptachlor	0.00012	...	0.00085 U	...	...	0.00085 U	...	0.00084 U	...	0.00083 U	...	...	0.00084 U	...	0.00085 U	...
Heptachlor Epoxide	0.000028	...	0.0013 U	...	...	0.0013 U	...	0.0013 U	...	0.0013 U	...	...	0.0013 U	...	0.0013 U	...
Methoxychlor	0.2	...	0.0014 U	...	...	0.0014 U	...	0.0014 U	...	0.0014 U	...	...	0.0014 U	...	0.0014 U	...
P,P'-DDD	0.0075	...	0.00087 U	...	...	0.00087 U	...	0.00086 U	...	0.00085 U	...	...	0.00086 U	...	0.00087 U	...
P,P'-DDE	0.011	...	0.00096 U	...	...	0.00096 U	...	0.00095 U	...	0.00094 U	...	...	0.00095 U	...	0.00096 U	...
P,P'-DDT	0.077	...	0.00068 U	...	...	0.00068 U	...	0.00068 U	...	0.00067 U	...	...	0.00067 U	...	0.00068 U	...
Toxaphene	0.011	...	0.019 U	...	...	0.019 U	...	0.019 U	...	0.019 U	...	...	0.019 U	...	0.019 U	...
trans-Chlordane	--	...	0.0014 U	...	...	0.0014 U	...	0.0014 U	...	0.0014 U	...	...	0.0014 U	...	0.0014 U	...
PCB's																
PCB-1016 (Aroclor 1016)	0.013	0.009 U	0.0088 U	...	0.009 U	0.0088 U	0.0089 U	0.0087 U	0.0086 U	0.0086 U	...	0.0087 U	0.0087 U	0.0087 U	0.0088 U	0.000089 UJ
PCB-1221 (Aroclor 1221)	0.00008	0.009 U	0.0088 U	...	0.009 U	0.0088 U	0.0089 U	0.0087 U	0.0086 U	0.0086 U	...	0.0087 U	0.0087 U	0.0087 U	0.0088 U	0.000089 UJ
PCB-1232 (Aroclor 1232)	0.00008	0.009 U	0.0088 U	...	0.009 U	0.0088 U	0.0089 U	0.0087 U	0.0086 U	0.0086 U	...	0.0087 U	0.0087 U	0.0087 U	0.0088 U	0.000089 UJ
PCB-1242 (Aroclor 1242)	0.0012	0.009 U	0.0088 U	...	0.009 U	0.0088 U	0.0089 U	0.0087 U	0.0086 U	0.0086 U	...	0.0087 U	0.0087 U	0.0087 U	0.0088 U	0.000089 U
PCB-1248 (Aroclor 1248)	0.0012	0.009 U	0.0088 U	...	0.009 U	0.0088 U	0.0089 U	0.0087 U	0.0086 U	0.0086 U	...	0.0087 U	0.0087 U	0.0087 U	0.0088 U	0.000089 U
PCB-1254 (Aroclor 1254)	0.002	0.0093 U	0.0091 U	...	0.0093 U	0.06 J	0.0092 U	0.009 U	0.0089 U	0.0089 U	...	0.009 U	0.009 U	0.009 U	0.0091 U	0.000092 U
PCB-1260 (Aroclor 1260)	0.0055	0.0093 U	0.0091 U	...	0.0093 U	0.0091 U	0.0092 U	0.009 U	0.0089 U	0.0089 U	...	0.009 U	0.009 U	0.009 U	0.0091 U	0.000092 U
PCB-1262 (Aroclor 1262)	--	0.0093 U	0.0091 U	...	0.0093 U	0.0091 U	0.0092 U	0.009 U	0.0089 U	0.0089 U	...	0.009 U	0.009 U	0.009 U	0.0091 U	0.000092 U
PCB-1268 (Aroclor 1268)	--	0.0093 U	0.0091 U	...	0.0093 U	0.0091 U	0.0092 U	0.009 U	0.0089 U	0.0089 U	...	0.009 U	0.009 U	0.009 U	0.0091 U	0.000092 U
Polychlorinated Biphenyl (PCBs)	--	0.0093 U	0.0091 U	...	0.0093 U	0.06 J	0.0092 U	0.009 U	0.0089 U	0.0089 U	...	0.009 U	0.009 U	0.009 U	0.0091 U	0.000092 UJ
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.023 U	0.049 U	...	0.025 U	0.024 U	0.024 U	0.025 U	0.05 U	0.048 U	...	0.024 U	0.049 U	0.024 U	0.049 U	0.024 U
1,4-Dioxane (P-Dioxane)	0.000094	0.084 U	0.18 U	...	0.089 U	0.086 U	0.085 U	0.089 U	0.18 U	0.17 U	...	0.087 U	0.18 U	0.085 U	0.18 U	0.085 U
2,3,4,6-Tetrachlorophenol	0.018	0.03 U	0.062 U	...	0.031 U	0.03 U	0.03 U	0.031 U	0.063 U	0.061 U	...	0.03 U	0.062 U	0.03 U	0.062 U	0.03 UJ
2,4,5-Trichlorophenol	0.4	0.031 U	0.066 U	...	0.033 U	0.032 U	0.032 U	0.033 U	0.066 U	0.064 U	...	0.032 U	0.066 U	0.032 U	0.066 U	0.032 U
2,4,6-Trichlorophenol	0.0012	0.0089 U	0.019 U	...	0.0095 U	0.0091 U	0.009 U	0.0095 U	0.019 U	0.018 U	...	0.0092 U	0.019 U	0.0091 U	0.019 U	0.009 U
2,4-Dichlorophenol	0.0023	0.0074 U	0.016 U	...	0.0078 U	0.0076 U	0.0075 U	0.0078 U	0.016 U	0.015 U	...	0.0076 U	0.016 U	0.0075 U	0.016 U	0.0075 U
2,4-Dimethylphenol	0.042	0.069 U	0.15 U	...	0.073 U	0.071 U	0.07 U	0.073 U	0.15 U	0.14 U	...	0.071 U	0.15 U	0.07 U	0.15 U	0.07 U
2,4-Dinitrophenol	0.0044	0.24 U	0.5 U	...	0.25 U	0.24 U	0.24 U	0.25 U	0.5 U	0.49 U	...	0.24 U	0.5 U	0.24 U	0.5 U	0.24 UR
2,4-Dinitrotoluene	0.00032	0.012 U	0.026 U	...	0.013 U	0.013 U	0.013 U	0.013 U	0.026 U	0.026 U	...	0.013 U	0.026 U	0.013 U	0.026 U	0.013 U
2,6-Dinitrotoluene	0.000067	0.017 U	0.035 U	...	0.018 U	0.017 U	0.017 U	0.018 U	0.035 U	0.034 U	...	0.017 U	0.035 U	0.017 U	0.035 U	0.017 U
2-Chloronaphthalene	0.39	0.0071 U	0.015 U	...	0.0075 U	0.0073 U	0.0072 U	0.0076 U	0.015 U	0.015 U	...	0.0073 U	0.015 U	0.0072 U	0.015 U	0.0072 U
2-Chlorophenol	0.0089	0.008 U	0.017 U	...	0.0085 U	0.0082 U	0.008 U	0.0085 U	0.017 U	0.016 U	...	0.0082 U	0.017 U	0.0081 U	0.017 U	0.0081 U
2-Methylnaphthalene	0.019	0.0069 U	0.035 J	...	0.014 J	0.16 J	0.0074 J	0.0074 U	0.037 J	0.052 J	...	0.017 J	0.033 J	0.019 J	0.17 J	0.054 J
2-Methylphenol (O-Cresol)	0.075	0.014 U	0.029 U	...	0.014 U	0.014 U	0.014 U	0.015 U	0.029 U	0.028 U	...	0.014 U	0.029 U	0.014 U	0.029 U	0.014 U
2-Nitroaniline	0.008	0.01 U	0.022 U	...	0.011 U	0.011 U	0.01 U	0.011 U	0.022 U	0.021 U	...	0.011 U	0.022 U	0.011 U	0.022 U	0.01 U
2-Nitrophenol	--	0.011 U	0.022 U	...	0.011 U	0.011 U	0.011 U	0.011 U	0.022 U	0.022 U	...	0.011 U	0.022 U	0.011 U	0.022 U	0.011 U
3- And 4- Methylphenol (Total)	--	0.0084 U	0.018 U	...	0.0089 U	0.011 J	0.0084 U	0.0089 U	0.018 U	0.017 U	...	0.0086 U	0.018 U	0.0085 U	0.018 U	0.0084 U
3,3'-Dichlorobenzidine	0.00082	0.035 U	0.074 U	...	0.037 U	0.036 U	0.035 U	0.037 U	0.074 U	0.072 U	...	0.036 U	0.074 U	0.036 U	0.074 U	0.035 U
3-Nitroaniline	--	0.0093 U	0.02 U	...	0.0099 U	0.0095 U	0.0094 U	0.0099 U	0.02 U	0.019 U	...	0.0096 U	0.02 U	0.0095 U	0.02 U	0.0094 U
4,6-Dinitro-2-Methylphenol	0.00026	0.084 U	0.18 U	...	0.089 U	0.086 U	0.085 U	0.089 U	0.18 U	0.17 U	...	0.086 U	0.18 U	0.085 U	0.18 U	0.085 UJ
4-Bromophenyl Phenyl Ether	--	0.0099 U	0.021 U	...	0.01 U	0.01 U	0.01 U	0.01 U	0.021 U	0.02 U	...	0.01 U	0.021 U	0.01 U	0.021 U	0.01 U
4-Chloro-3-Methylphenol	0.17	0.014 U	0.028 U	...	0.014 U	0.014 U	0.014 U	0.014 U	0.029 U	0.028 U	...	0.014 U	0.029 U	0.014 U	0.028 U	0.014 U

Preliminary - Under EPA and MDEQ Review

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-021	CFISS-021	CFISS-021	CFISS-022	CFISS-022	CFISS-023	CFISS-023	CFISS-024	CFISS-024	CFISS-024	CFISS-025	CFISS-025	CFISS-026	CFISS-026	CFISS-027
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/25/2016	6/25/2016	6/25/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/29/2016	6/29/2016	6/29/2016	6/30/2016	6/30/2016	6/30/2016	6/30/2016	7/1/2016
4-Chloroaniline	0.00016	0.0081 U	0.017 U	...	0.0086 U	0.0083 U	0.0081 U	0.0086 U	0.017 U	0.017 U	...	0.0083 U	0.017 U	0.0082 U	0.017 U	0.0082 U
4-Chlorophenyl Phenyl Ether	--	0.0094 U	0.02 U	...	0.01 U	0.0096 U	0.0095 U	0.01 U	0.02 U	0.019 U	...	0.0097 U	0.02 U	0.0096 U	0.02 U	0.0095 U
4-Nitroaniline	0.0016	0.012 U	0.025 U	...	0.013 U	0.012 U	0.012 U	0.013 U	0.025 U	0.024 U	...	0.012 U	0.025 U	0.012 U	0.025 U	0.012 U
4-Nitrophenol	--	0.15 U	0.32 U	...	0.16 U	0.15 U	0.15 U	0.16 U	0.32 U	0.31 U	...	0.16 U	0.32 U	0.15 U	0.32 U	0.15 U
Acenaphthene	0.55	0.033 J	0.21 J	...	0.059 J	0.73	0.019 J	0.014 J	0.31 J	0.35 J	...	0.1 J	0.21 J	0.077 J	0.41 J	0.29 J
Acenaphthylene	--	0.0081 U	0.017 U	...	0.0086 U	0.026 J	0.0081 U	0.0086 U	0.017 U	0.017 U	...	0.0083 U	0.017 U	0.0082 U	0.017 U	0.0082 U
Acetophenone	0.058	0.0069 U	0.014 U	...	0.0073 J	0.0071 J	0.0069 U	0.0073 J	0.015 U	0.014 U	...	0.012 J	0.02 J	0.017 J	0.023 J	0.02 J
Anthracene	5.8	0.24 J	0.3 J	...	0.096 J	1.6	0.033 J	0.032 U	0.53 J	0.57 J	...	0.19 J	0.4 J	0.16 J	0.58 J	0.58
Atrazine	0.0002	0.014 U	0.029 U	...	0.015 U	0.014 U	0.014 U	0.015 U	0.03 U	0.029 U	...	0.014 U	0.03 U	0.014 U	0.029 U	0.014 U
Benzaldehyde	0.0041	0.024 U	0.05 U	...	0.025 U	0.024 U	0.024 U	0.025 U	0.051 U	0.049 U	...	0.025 U	0.051 J	0.024 U	0.05 U	0.026 J-
Benzo(A)Anthracene	0.011	0.27	2.6	...	0.3	11	0.12	0.25	2.4	2.9	...	0.87	2.4	1	1.7	3
Benzo(A)Pyrene	0.018	0.3	2.9	...	0.33	7.7	0.12	0.36	3.1	3.5	...	1.1	3.1	1.3	1.8	3.9
Benzo(B)Fluoranthene	0.18	0.43	7.5	...	0.65	45	0.16	0.79	3.4	4.9	...	1.4	4.6	1.7	4	4.9
Benzo(G,H,I)Perylene	--	0.3 J	4.7	...	0.31 J	17	0.15 J	0.44	2.9	3.8	...	1.4	4.9	1.3	2.7	4.2
Benzo(K)Fluoranthene	1.8	0.14	2.4	...	0.2	11	0.077	0.25	1.2	1.5	...	0.5	1.8	0.6	1.2	1.7 J-
Benzyl Butyl Phthalate	0.24	0.0099 J	0.43 J	...	0.014 J	0.0099 U	0.0098 U	0.01 U	0.021 U	0.02 U	...	0.01 U	0.046 J	0.0098 U	0.02 U	0.0098 U
Biphenyl (Diphenyl)	0.00087	0.027 U	0.056 U	...	0.028 U	0.041 J	0.027 U	0.028 U	0.057 U	0.055 U	...	0.028 U	0.057 U	0.027 U	0.058 J	0.027 U
Bis(2-Chloroethoxy) Methane	0.0013	0.0098 U	0.021 U	...	0.01 U	0.01 U	0.0099 U	0.01 U	0.021 U	0.02 U	...	0.01 U	0.021 U	0.0099 U	0.021 U	0.0099 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0074 U	0.016 U	...	0.0078 U	0.0076 U	0.0075 U	0.0078 U	0.016 U	0.015 U	...	0.0076 U	0.016 U	0.0075 U	0.016 U	0.0075 U
Bis(2-Chloroisopropyl) Ether	0.026	0.013 U	0.027 U	...	0.014 U	0.013 U	0.013 U	0.014 U	0.027 U	0.027 U	...	0.013 U	0.027 U	0.013 U	0.027 U	0.013 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.012 U	0.086 J	...	0.035 J	0.013 U	0.014 J	0.033 J	0.026 U	0.025 U	...	0.013 U	0.047 J	0.012 U	0.055 J	0.074 J
Caprolactam	0.25	0.023 U	0.048 U	...	0.024 U	0.023 U	0.023 U	0.024 U	0.048 U	0.047 U	...	0.023 U	0.048 U	0.023 U	0.048 U	0.023 UJ
Carbazole	--	0.13 J	0.41 J	...	0.05 J	1.4	0.018 J	0.032 J	0.45 J	0.43 J	...	0.15 J	0.35 J	0.13 J	0.34 J	0.48
Chrysene	9	0.44	5.3	...	0.43	29	0.14 J	0.46	3.1	4	...	1.2	3.6	1.3	2.9	4.3
Dibenz(A,H)Anthracene	0.096	0.079	1.6	...	0.087	6.8	0.016 U	0.11	0.69	1	...	0.32	1.2	0.38	0.86	1.1
Dibenzofuran	0.015	0.013 J	0.071 J	...	0.028 J	0.3 J	0.011 J	0.01 U	0.089 J	0.14 J	...	0.035 J	0.066 J	0.035 J	0.26 J	0.11 J
Diethyl Phthalate	0.61	0.0089 U	0.019 U	...	0.0095 U	0.0091 U	0.009 U	0.0095 U	0.019 U	0.018 U	...	0.0092 U	0.019 U	0.0091 U	0.019 U	0.009 U
Dimethyl Phthalate	--	0.0091 U	0.019 U	...	0.0097 U	0.0093 U	0.0092 U	0.0097 U	0.019 U	0.019 U	...	0.0094 U	0.019 U	0.0093 U	0.019 U	0.0092 U
Di-N-Butyl Phthalate	0.23	0.0094 U	0.02 U	...	0.01 U	0.035 J	0.011 J	0.015 J	0.02 U	0.019 U	...	0.0097 U	0.02 U	0.0096 U	0.021 J	0.0095 U
Di-N-Octylphthalate	5.7	0.016 U	0.034 U	...	0.017 U	0.016 U	0.016 U	0.017 U	0.034 U	0.033 U	...	0.016 U	0.034 U	0.016 U	0.034 U	0.016 U
Fluoranthene	8.9	0.49	4.5	...	0.59	13	0.19 J	0.41	4.4	5.1	...	1.8	4	1.6	3	5.4
Fluorene	0.54	0.031 J	0.14 J	...	0.056 J	0.52	0.02 J	0.01 J	0.2 J	0.22 J	...	0.068 J	0.13 J	0.064 J	0.39 J	0.22 J
Hexachlorobenzene	0.00012	0.013 U	0.027 U	...	0.014 U	0.013 U	0.013 U	0.013 U	0.027 U	0.026 U	...	0.013 U	0.027 U	0.013 U	0.027 U	0.013 U
Hexachlorobutadiene	0.00027	0.0088 U	0.019 U	...	0.0094 U	0.009 U	0.0089 U	0.0094 U	0.019 U	0.018 U	...	0.0091 U	0.019 U	0.009 U	0.019 U	0.0089 U
Hexachlorocyclopentadiene	0.00013	0.02 U	0.041 U	...	0.021 U	0.02 U	0.02 U	0.021 U	0.042 U	0.04 U	...	0.02 U	0.041 U	0.02 U	0.041 U	0.02 UJ
Hexachloroethane	0.0002	0.012 U	0.024 U	...	0.012 U	0.012 U	0.012 U	0.012 U	0.024 U	0.024 U	...	0.012 U	0.024 U	0.012 U	0.024 U	0.012 UJ
Indeno(1,2,3-C,D)Pyrene	0.98	0.36	4.8	...	0.33	17	0.12	0.44	3	4	...	1.4	4.5	1.4	3	3.9
Isophorone	0.026	0.011 J	0.014 U	...	0.0071 U	0.024 J	0.0068 U	0.0072 U	0.014 U	0.076 J	...	0.007 U	0.014 U	0.1 J	0.014 U	0.11 J
Naphthalene	0.00054	0.01 J	0.07 J	...	0.024 J	0.36	0.014 J	0.0085 U	0.06 J	0.11 J	...	0.027 J	0.054 J	0.046 J	0.64 J	0.079 J
Nitrobenzene	0.000092	0.0099 U	0.021 U	...	0.01 U	0.01 U	0.01 U	0.01 U	0.021 U	0.02 U	...	0.01 U	0.021 U	0.01 U	0.021 U	0.01 U
N-Nitrosodi-N-Propylamine	0.0000081	0.011 U	0.022 U	...	0.011 U	0.011 U	0.011 U	0.011 U	0.022 U	0.022 U	...	0.011 U	0.022 U	0.011 U	0.022 U	0.011 U
N-Nitrosodiphenylamine	0.067	0.029 U	0.06 U	...	0.03 U	0.029 U	0.029 U	0.03 U	0.06 U	0.059 U	...	0.029 U	0.06 U	0.029 U	0.06 U	0.029 U
Pentachlorophenol	0.000057	0.038 U	0.08 U	...	0.04 U	0.039 U	0.038 U	0.04 U	0.081 U	0.078 U	...	0.039 U	0.08 U	0.039 U	0.08 U	0.038 UJ
Phenanthrene	--	0.31	2.1	...	0.46	6.6	0.18 J	0.18 J	2.7	2.7	...	1	2.1	0.82	2.6	2.7
Phenol	0.33	0.01 U	0.022 U	...	0.011 U	0.018 J	0.01 U	0.011 U	0.022 U	0.021 U	...	0.011 U	0.022 U	0.01 U	0.022 U	0.017 J
Pyrene	1.3	0.5	4.6	...	0.74	16	0.26 J	0.58	3.8	3.5	...	1.4	3.8	1.3	2.7	4.6
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2,2-Tetrachloroethane	0.00003	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1,2-Trichloroethane	0.000013	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1-Dichloroethane	0.00078	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,1-Dichloroethene	0.01	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2,3-Trichlorobenzene	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2,4-Trichlorobenzene	0.0012	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dibromo-3-Chloropropane	0.00000014	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Surface Soil (mg/kg)**	CFISS-021	CFISS-021	CFISS-021	CFISS-022	CFISS-022	CFISS-023	CFISS-023	CFISS-024	CFISS-024	CFISS-024	CFISS-025	CFISS-025	CFISS-026	CFISS-026	CFISS-027
Sample Depth		0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0.5-2 ft
Chemical Name		6/25/2016	6/25/2016	6/25/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/29/2016	6/29/2016	6/29/2016	6/30/2016	6/30/2016	6/30/2016	6/30/2016	7/1/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichlorobenzene	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloroethane	0.000048	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,2-Dichloropropane	0.000047	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,3-Dichlorobenzene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,4-Dichlorobenzene	0.00046	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2-Hexanone	0.00088	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acetone	0.29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benzene	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromochloromethane	0.0021	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromodichloromethane	0.000036	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromoform	0.00087	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bromomethane	0.00019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Disulfide	0.024	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Carbon Tetrachloride	0.00018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chlorobenzene	0.0053	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroethane	0.59	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloroform	0.000061	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chloromethane	0.0049	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,2-Dichloroethylene	0.0011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cis-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cyclohexane	1.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dibromochloromethane	0.00023	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dichlorodifluoromethane	0.03	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ethylbenzene	0.0017	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Isopropylbenzene (Cumene)	0.074	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
M,P-Xylene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Acetate	0.41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylcyclohexane	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Methylene Chloride	0.0027	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Styrene	0.13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tert-Butyl Methyl Ether	0.0032	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetrachloroethylene (PCE)	0.0018	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toluene	0.076	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	0.011	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	--	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.0001	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichlorofluoromethane	0.33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vinyl Chloride	0.0000065	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-027	CFISS-027-DUP	CFISS-028	CFISS-028	CFISS-028	CFISS-029	CFISS-029
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/1/2016	7/1/2016	7/1/2016	7/1/2016	7/1/2016	6/27/2016	6/27/2016
DIOXIN/FURAN								
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY								
Fluoride	12	244 J+	239 J+	861 J+	183 J+	--	53 J	39.9 J
Cyanide	0.0015	0.43	0.45	0.77	0.28	--	0.15	0.27
METALS								
Aluminum	3000	30900	29400	25600	26900	--	15600 J	17900 J
Antimony	0.035	0.31 J-	0.27 J-	0.17 J-	0.15 J-	--	0.17 J-	0.24 J-
Arsenic	0.0015	8.2	8.1	5.9	5.3	--	6.4	5.9
Barium	16	293	296	180	262	--	135	120
Beryllium	1.9	1.1	1	0.9	0.92	--	0.53	0.58
Cadmium	0.069	0.65 J	0.67 J	0.13 J	0.22 J	--	0.14 J	0.24 J
Calcium	--	7060	7670	19500	7530	--	17300	18300
Chromium, Total	--	38.5 J	69.1 J	19.3 J-	17.7 J-	--	17.1	14.9
Cobalt	0.027	7.6	7.8	6.1	6.5	--	6.4	6.3
Copper	2.8	40.3	41.7	16.1	20.6	--	398	65.1
Iron	35	25500	26100	16300	18400	--	17300	16500
Lead	400	61.2	64.5	13.9	16.6	14.1	16.1	16.6
Magnesium	--	10000	10200	11000	10100	--	11100	11200
Manganese	2.8	485	500	454	452	--	515	445
Mercury	0.0033	0.018 J	0.019 J	0.016 U	0.016 U	--	0.024 J	0.024 J
Nickel	2.6	78 J-	87 J-	18.6 J-	24.7 J-	--	15.4	25.2
Potassium	--	2370	2030	2490	1770	--	1100	1330
Selenium	0.052	5.7 J	5.4 J	1.9 J	2.3 J	--	1.7 J	1.7 J
Silver	0.08	0.096 J	0.1 J	0.053 J	0.063 J	--	0.053 J	0.043 J
Sodium	--	739	638	3280	357	--	77.4 J	87.2 J
Thallium	0.0014	0.22 J	0.2 J	0.13 J	0.12 J	--	0.089 J	0.095 J
Vanadium	8.6	33.7	32.8	18	18	--	12.6	14.7
Zinc	37	83.3	87.5	53.1	64.3	--	55	75.5

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Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-027	CFISS-027-DUP	CFISS-028	CFISS-028	CFISS-028	CFISS-029	CFISS-029
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/1/2016	7/1/2016	7/1/2016	7/1/2016	7/1/2016	6/27/2016	6/27/2016
PESTICIDES								
Aldrin	0.00015	0.00081 U	0.00083 U	--	0.00081 U	--	--	0.00078 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	0.00061 U	0.00062 U	--	0.00061 U	--	--	0.00059 U
Alpha Endosulfan	--	0.00093 U	0.00095 U	--	0.00093 U	--	--	0.00089 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	0.00065 U	0.00066 U	--	0.00065 U	--	--	0.00063 U
Beta Endosulfan	--	0.0011 U	0.0011 U	--	0.0011 U	--	--	0.001 U
cis-Chlordane	--	0.0011 U	0.0011 U	--	0.0011 U	--	--	0.001 U
Delta BHC (Delta Hexachlorocyclohexane)	--	0.00073 U	0.00075 U	--	0.00[illegible]	--	--	0.0007 U
Dieldrin	0.000071	0.00087 U	0.00089 U	--	0.000[illegible] U	--	--	0.00084 U
Endosulfan Sulfate	--	0.00078 U	0.0008 U	--	0.00078 U	--	--	0.00075 U
Endrin	0.0092	0.00085 U	0.00087 U	--	0.00085 U	--	--	0.00082 U
Endrin Aldehyde	--	0.00083 U	0.00085 U	--	0.00083 U	--	--	0.0008 U
Endrin Ketone	--	0.00093 U	0.00095 U	--	0.00093 U	--	--	0.00089 U
Gamma Bhc (Lindane)	0.00024	0.0006 U	0.00061 U	--	0.0006 U	--	--	0.00058 U
Heptachlor	0.00012	0.00086 U	0.00088 U	--	0.00086 U	--	--	0.00083 U
Heptachlor Epoxide	0.000028	0.0013 U	0.0013 U	--	0.0013 U	--	--	0.0013 U
Methoxychlor	0.2	0.0014 U	0.0015 U	--	0.0014 U	--	--	0.0014 U
P,P'-DDD	0.0075	0.00088 U	0.0009 U	--	0.00088 U	--	--	0.00085 U
P,P'-DDE	0.011	0.00097 U	0.00099 U	--	0.00097 U	--	--	0.00093 U
P,P'-DDT	0.077	0.00069 U	0.0007[illegible]	--	0.00069 U	--	--	0.00066 U
Toxaphene	0.011	0.02 U	0.02[illegible] U	--	0.02 U	--	--	0.019 U
trans-Chlordane	--	0.0015 U	0.0015 U	--	0.0015 U	--	--	0.0014 U
PCB's								
PCB-1016 (Aroclor 1016)	0.013	0.0089 U	0.0091 U	0.0088 U	0.0089 U	--	0.0087 U	0.0086 U
PCB-1221 (Aroclor 1221)	0.00008	0.0089 U	0.0091 U	0.0088 U	0.0089 U	--	0.0087 U	0.0086 U
PCB-1232 (Aroclor 1232)	0.00008	0.008[illegible] U	0.0091 U	0.0088 U	0.0089 U	--	0.0087 U	0.0086 U
PCB-1242 (Aroclor 1242)	0.0012	0.0[illegible] U	0.0091 U	0.0088 U	0.0089 U	--	0.0087 U	0.0086 U
PCB-1248 (Aroclor 1248)	0.0012	0.0[illegible] U	0.0091 U	0.0088 U	0.0089 U	--	0.0087 U	0.0086 U
PCB-1254 (Aroclor 1254)	0.002	0.0092 U	0.0094 U	0.0091 U	0.0092 U	--	0.009 U	0.0089 U
PCB-1260 (Aroclor 1260)	0.0055	0.0092 U	0.0094 U	0.0091 U	0.0092 U	--	0.009 U	0.0089 U
PCB-1262 (Aroclor 1262)	--	0.0092 U	0.0094 U	0.0091 U	0.0092 U	--	0.009 U	0.0089 U
PCB-1268 (Aroclor 1268)	--	0.0092 U	0.0094 U	0.0091 U	0.0092 U	--	0.009 U	0.0089 U
Polychlorinated Biphenyl (PCBs)		0.0092 U	0.0094 U	0.0091 U	0.0092 U	--	0.009 U	0.0089 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)								
1,2,4,5-Tetrachlorobenzene	0.00079	0.12 U	0.13 U	0.024 U	0.024 U	--	0.024 U	0.024 U
1,4-Dioxane (P-Dioxane)	0.000094	0.43 U	0.45 U	0.086 U	0.087 U	--	0.087 U	0.087 U
2,3,4,6-Tetrachlorophenol	0.018	0.15 U	0.16 U	0.03 U	0.03 U	--	0.031 U	0.031 U
2,4,5-Trichlorophenol	0.4	0.16 U	0.17 U	0.032 U	0.032 U	--	0.032 U	0.032 U
2,4,6-Trichlorophenol	0.0012	0.046 U	0.048 U	0.0091 U	0.0092 U	--	0.0092 U	0.0093 U
2,4-Dichlorophenol	0.0023	0.038 U	0.04 U	0.0076 U	0.0076 U	--	0.0077 U	0.0077 U
2,4-Dimethylphenol	0.042	0.36 U	0.37 U	0.071 U	0.071 U	--	0.071 U	0.072 U
2,4-Dinitrophenol	0.0044	1.2 U	1.3 U	0.24 U	0.24 U	--	0.25 U	0.25 U
2,4-Dinitrotoluene	0.00032	0.064 U	0.067 U	0.013 U	0.013 U	--	0.013 U	0.013 U
2,6-Dinitrotoluene	0.000067	0.086 U	0.09 U	0.017 U	0.017 U	--	0.017 U	0.017 U
2-Chloronaphthalene	0.39	0.037 U	0.038 U	0.0073 U	0.0073 U	--	0.0074 U	0.0074 U
2-Chlorophenol	0.0089	0.041 U	0.043 U	0.0082 U	0.0082 U	--	0.0083 U	0.0083 U
2-Methylnaphthalene	0.019	0.079 J	0.091 J	0.017 J	0.011 J	--	0.0072 U	0.0075 J
2-Methylphenol (O-Cresol)	0.075	0.071 U	0.073 U	0.014 U	0.014 U	--	0.014 U	0.014 U
2-Nitroaniline	0.008	0.053 U	0.055 U	0.011 U	0.011 U	--	0.011 U	0.011 U
2-Nitrophenol	--	0.054 U	0.056 U	0.011 U	0.011 U	--	0.011 U	0.011 U
3- And 4- Methylphenol (Total)	--	0.043 U	0.045 U	0.0085 U	0.0086 U	--	0.0086 U	0.0087 U
3,3'-Dichlorobenzidine	0.00082	0.18 U	0.19 U	0.036 U	0.036 U	--	0.036 U	0.036 U
3-Nitroaniline	--	0.048 U	0.05 U	0.0095 U	0.0096 U	--	0.0096 U	0.0097 U
4,6-Dinitro-2-Methylphenol	0.00026	0.43 U	0.45 U	0.086 U	0.086 U	--	0.087 U	0.087 U
4-Bromophenyl Phenyl Ether	--	0.051 U	0.053 U	0.01 U	0.01 U	--	0.01 U	0.01 U
4-Chloro-3-Methylphenol	0.17	0.07 U	0.072 U	0.014 U	0.014 U	--	0.014 U	0.014 U

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-027	CFISS-027-DUP	CFISS-028	CFISS-028	CFISS-028	CFISS-029	CFISS-029
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/1/2016	7/1/2016	7/1/2016	7/1/2016	7/1/2016	6/27/2016	6/27/2016
4-Chloroaniline	0.00016	0.042 U	0.043 U	0.0083 U	0.0083 U	---	0.0084 U	0.0084 U
4-Chlorophenyl Phenyl Ether	--	0.048 U	0.05 U	0.0096 U	0.0097 U	---	0.0097 U	0.0098 U
4-Nitroaniline	0.0016	0.061 U	0.064 U	0.012 U	0.012 U	---	0.012 U	0.012 U
4-Nitrophenol	--	0.78 U	0.81 U	0.15 U	0.16 U	---	0.16 U	0.16 U
Acenaphthene	0.55	0.13 J	0.21 J	0.095 J	0.035 J	---	0.014 J	0.039 J
Acenaphthylene	--	0.042 U	0.043 U	0.0083 U	0.0083 U	---	0.0084 U	0.0084 U
Acetophenone	0.058	0.035 U	0.037 U	0.021 J	0.03 J	---	0.015 J	0.02 J
Anthracene	5.8	0.27 J	0.4 J	0.23 J	0.079 J	---	0.031 U	0.079 J
Atrazine	0.0002	0.072 U	0.075 U	0.014 U	0.014 U	---	0.014 U	0.014 U
Benzaldehyde	0.0041	0.12 U	0.13 U	0.032 J	0.038 J	---	0.025 U	0.025 U
Benzo(A)Anthracene	0.011	2.7	3.2	1.5	0.47	---	0.14	0.67
Benzo(A)Pyrene	0.018	2	2.7	1.8	0.61	---	0.17	0.85
Benzo(B)Fluoranthene	0.18	12	13	2.3	0.96	---	0.24	1.4
Benzo(G,H,I)Perylene	--	6.1	6.7	1.7	0.72	---	0.18 J	1.1
Benzo(K)Fluoranthene	1.8	3.1	3	0.79	0.35	---	0.095	0.53
Benzyl Butyl Phthalate	0.24	0.05 U	0.052 U	0.012 J	0.01 U	---	0.01 U	0.01 U
Biphenyl (Diphenyl)	0.00087	0.14 U	0.14 U	0.027 U	0.028 U	---	0.028 U	0.028 U
Bis(2-Chloroethoxy) Methane	0.0013	0.05 U	0.052 U	0.01 U	0.01 U	---	0.01 U	0.01 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.038 U	0.04 U	0.0076 U	0.0076 U	---	0.0077 U	0.0077 U
Bis(2-Chloroisopropyl) Ether	0.026	0.067 U	0.07 U	0.013 U	0.013 U	---	0.013 U	0.013 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.27 J	0.25 U	0.046 J	0.013 U	---	0.049 J	0.1 J
Caprolactam	0.25	0.12 U	0.12 U	0.023 U	0.023 U	---	0.023 U	0.023 U
Carbazole	--	0.25 J	0.36 J	0.22 J	0.079 J	---	0.025 J	0.08 J
Chrysene	9	6.1	6.7	2	0.74	---	0.17 J	0.95
Dibenz(A,H)Anthracene	0.096	2.4	2.6	0.46	0.19	---	0.055	0.25
Dibenzofuran	0.015	0.088 J	0.12 J	0.041 J	0.017 J	---	0.0098 U	0.015 J
Diethyl Phthalate	0.61	0.047 U	0.048 U	0.0091 U	0.0092 U	---	0.0092 U	0.0093 U
Dimethyl Phthalate	--	0.047 U	0.049 U	0.0093 U	0.0094 U	---	0.0094 U	0.0095 U
Di-N-Butyl Phthalate	0.23	0.048 U	0.05 U	0.019 J	0.012 J	---	0.023 J	0.067 J
Di-N-Octylphthalate	5.7	0.082 U	0.085 U	0.016 U	0.016 U	---	0.017 U	0.017 U
Fluoranthene	8.9	3.2	4.1	2.7	0.88	---	0.22 J	0.96
Fluorene	0.54	0.1 J	0.16 J	0.078 J	0.028 J	---	0.012 J	0.027 J
Hexachlorobenzene	0.00012	0.066 U	0.068 U	0.013 U	0.013 U	---	0.013 U	0.013 U
Hexachlorobutadiene	0.00027	0.046 U	0.047 U	0.009 U	0.0091 U	---	0.0091 U	0.0092 U
Hexachlorocyclopentadiene	0.00013	0.1 U	0.1 U	0.02 U	0.02 U	---	0.02 U	0.02 U
Hexachloroethane	0.0002	0.059 U	0.062 U	0.012 U	0.012 U	---	0.012 U	0.012 U
Indeno(1,2,3-C,D)Pyrene	0.98	6.7	7.3	1.8	0.82	---	0.18	1.1
Isophorone	0.026	0.035 U	0.036 U	0.0069 U	0.099 J	---	0.007 U	0.007 U
Naphthalene	0.00054	0.052 J	0.088 J	0.033 J	0.019 J	---	0.0083 U	0.012 J
Nitrobenzene	0.000092	0.051 U	0.053 U	0.01 U	0.01 U	---	0.01 U	0.01 U
N-Nitrosodi-N-Propylamine	0.0000081	0.054 U	0.056 U	0.011 U	0.011 U	---	0.011 U	0.011 U
N-Nitrosodiphenylamine	0.067	0.15 U	0.15 U	0.029 U	0.029 U	---	0.029 U	0.03 U
Pentachlorophenol	0.000057	0.2 U	0.2 U	0.038 U	0.039 U	---	0.039 U	0.039 U
Phenanthrene	--	1.5 J	2.2	1.3	0.41	---	0.14 J	0.47
Phenol	0.33	0.053 U	0.055 U	0.014 J	0.015 J	---	0.011 U	0.012 J
Pyrene	1.3	2.7	3.8	2.1	0.65	---	0.28 J	1.3
VOLATILE ORGANIC COMPOUNDS (mg/kg)								
1,1,1-Trichloroethane	0.28	---	---	---	---	---	---	---
1,1,2,2-Tetrachloroethane	0.00003	---	---	---	---	---	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	---	---	---	---	---	---	---
1,1,2-Trichloroethane	0.000013	---	---	---	---	---	---	---
1,1-Dichloroethane	0.00078	---	---	---	---	---	---	---
1,1-Dichloroethene	0.01	---	---	---	---	---	---	---
1,2,3-Trichlorobenzene	0.0021	---	---	---	---	---	---	---
1,2,4-Trichlorobenzene	0.0012	---	---	---	---	---	---	---
1,2-Dibromo-3-Chloropropane	0.00000014	---	---	---	---	---	---	---

Preliminary - Under EPA and MDEQ Review

Table C-1a
Summary of Surface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA	HHRA Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Surface Soil (mg/kg)	CFISS-027	CFISS-027-DUP	CFISS-028	CFISS-028	CFISS-028	CFISS-029	CFISS-029
Sample Depth		0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft	0-0.5 ft	0.5-2 ft	0-0.5 ft
Chemical Name		7/1/2016	7/1/2016	7/1/2016	7/1/2016	7/1/2016	6/27/2016	6/27/2016
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	...	...	...	...	...	...	...
1,2-Dichlorobenzene	0.03	...	...	...	...	...	...	...
1,2-Dichloroethane	0.000048	...	...	...	...	...	...	...
1,2-Dichloropropane	0.000047	...	...	...	...	...	...	...
1,3-Dichlorobenzene	--	...	...	...	...	...	...	...
1,4-Dichlorobenzene	0.00046	...	...	...	...	...	...	...
2-Hexanone	0.00088	...	...	...	...	...	...	...
Acetone	0.29	...	...	...	...	...	...	...
Benzene	0.00023	...	...	...	...	...	...	...
Bromochloromethane	0.0021	...	...	...	...	...	...	...
Bromodichloromethane	0.000036	...	...	...	...	...	...	...
Bromoform	0.00087	...	...	...	...	...	...	...
Bromomethane	0.00019	...	...	...	...	...	...	...
Carbon Disulfide	0.024	...	...	...	...	...	...	...
Carbon Tetrachloride	0.00018	...	...	...	...	...	...	...
Chlorobenzene	0.0053	...	...	...	...	...	...	...
Chloroethane	0.59	...	...	...	...	...	...	...
Chloroform	0.000061	...	...	...	...	...	...	...
Chloromethane	0.0049	...	...	...	...	...	...	...
Cis-1,2-Dichloroethylene	0.0011	...	...	...	...	...	...	...
Cis-1,3-Dichloropropene	--	...	...	...	...	...	...	...
Cyclohexane	1.3	...	...	...	...	...	...	...
Dibromochloromethane	0.00023	...	...	...	...	...	...	...
Dichlorodifluoromethane	0.03	...	...	...	...	...	...	...
Ethylbenzene	0.0017	...	...	...	...	...	...	...
Isopropylbenzene (Cumene)	0.074	...	...	...	...	...	...	...
M,P-Xylene	--	...	...	...	...	...	...	...
Methyl Acetate	0.41	...	...	...	...	...	...	...
Methyl Ethyl Ketone (2-Butanone)	0.12	...	...	...	...	...	...	...
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	...	...	...	...	...	...	...
Methylcyclohexane	--	...	...	...	...	...	...	...
Methylene Chloride	0.0027	...	...	...	...	...	...	...
O-Xylene (1,2-Dimethylbenzene)	0.019	...	...	...	...	...	...	...
Styrene	0.13	...	...	...	...	...	...	...
Tert-Butyl Methyl Ether	0.0032	...	...	...	...	...	...	...
Tetrachloroethylene (PCE)	0.0018	...	...	...	...	...	...	...
Toluene	0.076	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	0.011	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	--	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.0001	...	...	...	...	...	...	...
Trichlorofluoromethane	0.33	...	...	...	...	...	...	...
Vinyl Chloride	0.0000065	...	...	...	...	...	...	...

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--	--	--	--							
Sample Location ID	**CFAC Site-Specific Human Health Subsurface Soil (mg/kg)**	**CFDS-003**	**CFDS-005**	**CFDS-005**	**CFDS-005-DUP**	**CFDS-007**	**CFDS-007**	**CFDS-013**	**CFDS-013**	**CFMW-025A**	**CFMW-026**	**CFMW-028A**	**CFMW-028A**	**CFMW-028A-DUP**	**CFMW-032A**	**CFMW-032A-DUP**
Sample Depth		**2-3 ft**	**2-3 ft**	**6-8 ft**	**2-3 ft**	**3-4 ft**	**8-10 ft**	**2-3 ft**	**5-7 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**4.5-6 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**
Chemical Name		**4/12/2016**	**4/12/2016**	**7/15/2016**	**4/12/2016**	**4/12/2016**	**7/14/2016**	**4/15/2016**	**7/14/2016**	**7/13/2016**	**6/14/2016**	**6/30/2016**	**6/30/2016**	**6/30/2016**	**8/8/2016**	**8/8/2016**
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (mg/kg)																
Aluminum	3000	11300	75200	18900	96000	90900	52600	102000	81000	5790	7850	5370	85500	8260	9740	10500
Antimony	0.035	0.41 UJ	0.67 J-	0.46 U	0.61 J-	3.3 J-	0.5 U	0.46 UJ	1.9	0.39 UJ	0.34 UJ	0.33 UJ	0.88 J-	0.31 UJ	0.42 UJ	0.41 UJ
Arsenic	0.0015	1.6	6	5.8	4.1	11.5	6.8	2.4	25.5	3.4	4.1	2.6	34.2	3.6	4.4	4.2
Barium	16	50.5	94.6	86.2	106	99.7	128	109	80	44.7	62.5	52 J	510 J	148 J	54	56.4
Beryllium	1.9	0.43	1.5 J	0.74	2.8 J	1.3	3.4	1.4	1.4	0.37 J	0.36	0.22 J	32.7	0.35	0.31 J	0.44
Cadmium	0.069	0.31 J	1.1 J	0.35 U	0.59 J	2.5	1.4	1.1	3.4	0.29 U	0.26 U	0.25 U	8	0.24 U	0.32 U	0.31 U
Calcium	--	7240	8610	4230	8030	11100	27500	6320	16700	20400	29500	115000 J	69600	30200 J	1100	1160
Chromium, Total	--	6.1	27.4	14.3	22.4	40.7	26.9	13.6	23.7	7 J	8.1	6.9	27.5	8.4	8.8	10
Cobalt	0.027	3	4.1	6.7	2.9	6.7	7.7	5	18.1	5.8	5.3	2.7 J	8	5.2 J	6	5.9
Copper	2.8	9.1	48.2 J	23.4	27.3 J	74.8	40.9	62.6	51.5	12.5	14.4 J+	7.5 J	19.3 J	13.2 J	14.4	13.5
Iron	35	6870	10100	15800	13300	21800	15700	14900	20900	11500 J	13200	8250	11000	13100	13400	14800
Lead	400	28.1	66.2 J	14.7	15.5 J	71.7	249	19.3	64.1	9.7	5.7 J+	3.6 J	104	7.4 J	7.3	7.1
Magnesium	--	7000	5410 J	8830	2880 J	5360	9060	3030	4170	7590	11100	24800 J	9420	12200 J	8300	8990
Manganese	2.8	338	194	359	151	221	192	286	110	227 J	432 J	667 J	73.4	319 J	304	300
Mercury	0.0033	0.03	0.024	0.03	0.021 J	0.041	0.059	0.027	0.021 U	0.014 J	0.012 U	0.011 J+	0.035 J+	0.011 U	0.012 J	0.015 J
Nickel	2.6	11.8	56.5	24.5	46.6	171	150	92.1	754	8 J	9.3	6.9	252	11	12	12.1
Potassium	--	499	1110	944	1710	1030	2330	512	779	478	672	473 J+	5050 J+	695 J+	622	595
Selenium	0.052	0.39 UJ	0.41 UJ	0.44 U	0.45 UJ	0.89 J-	0.47 U	0.43 UJ	1.4 J	0.36 U	0.32 U	0.31 U	1.4 J	0.29 U	0.4 U	0.39 U
Silver	0.08	0.76 U	0.84 J	0.85 U	0.92 J	1.8	0.92 U	0.84 U	1.3 U	0.71 U	0.63 U	0.6 U	1.1 U	0.57 U	0.78 U	0.76 U
Sodium	--	1060	7760 J	450	45900 J	2250	1420	232	1240	36.2 U	32.1 U	54.6 J	2820	29.3 UJ	168	184
Thallium	0.0014	0.16 U	0.16 U	0.18 U	0.18 U	0.19 J	0.19 U	0.17 U	0.26 U	0.15 U	0.13 U	0.12 U	2.2	0.12 U	0.16 U	0.16 U
Vanadium	8.6	5.2	23.5	17.2	17.5	57	64.4	40.6	221	7.2 J	9.3	6.3	166	8.2	9.8	8.8
Zinc	37	272	685 J	88.4	254 J	408	178	174	304	24.8	61.5	25.9	403	37.3	35.6	36.1
PESTICIDES (mg/kg)																
Aldrin	0.00015	0.0011 U	0.0011 U	0.00093 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0015 U	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	0.00083 U	0.00084 U	0.0007 U	0.00089 U	0.0009 U	0.00089 U	0.00093 U	0.0011 U	--	--	--	--	--	--	--
Alpha Endosulfan	--	0.0013 U	0.0013 U	0.0011 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0017 U	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	0.00080 U	0.00083 U	0.00075 U	0.00085 U	0.00085 U	0.00084 U	0.00089 U	0.0012 U	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--	--	--	--							
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFDS-003	CFDS-005	CFDS-005	CFDS-005-DUP	CFDS-007	CFDS-007	CFDS-013	CFDS-013	CFMW-025A	CFMW-026	CFMW-028A	CFMW-028A	CFMW-028A-DUP	CFMW-032A	CFMW-032A-DUP
Sample Depth		2-3 ft	2-3 ft	6-8 ft	2-3 ft	3-4 ft	8-10 ft	2-3 ft	5-7 ft	10-12 ft	10-12 ft	10-12 ft	4.5-6 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		4/12/2016	4/12/2016	7/15/2016	4/12/2016	4/12/2016	7/14/2016	4/15/2016	7/14/2016	7/13/2016	6/14/2016	6/30/2016	6/30/2016	6/30/2016	8/8/2016	8/8/2016
Beta Endosulfan	--	0.0014 U	0.0014 U	0.0012 U	0.0015 U	0.0015 U	0.0015 U	0.0016 U	0.002 U	--	--	--	--	--	--	--
cis-Chlordane	--	0.0015 U	0.0015 U	0.0013 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.002 U	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	0.00099 U	0.001 U	0.00084 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0014 U	--	--	--	--	--	--	--
Dieldrin	0.000071	0.0012 U	0.0012 U	0.001 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0016 U	--	--	--	--	--	--	--
Endosulfan Sulfate	--	0.0011 U	0.0011 U	0.0009 U	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0015 U	--	--	--	--	--	--	--
Endrin	0.0092	0.0011 U	0.0012 U	0.00098 U	0.0012 U	0.0012 U	0.0012 U	0.0013 U	0.0016 U	--	--	--	--	--	--	--
Endrin Aldehyde	--	0.0011 U	0.0011 U	0.00095 U	0.0012 U	0.0012 U	0.0012 U	0.0013 U	0.0016 U	--	--	--	--	--	--	--
Endrin Ketone	--	0.0013 U	0.0013 U	0.0011 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0017 U	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	0.00082 U	0.00082 U	0.00069 U	0.00088 U	0.00088 U	0.00087 U	0.00092 U	0.0011 U	--	--	--	--	--	--	--
Heptachlor	0.00012	0.0012 U	0.0012 U	0.00099 U	0.0013 U	0.0013 U	0.0012 U	0.0013 U	0.0016 U	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	0.0018 U	0.0018 U	0.0015 U	0.0019 U	0.0019 U	0.0019 U	0.002 U	0.0025 U	--	--	--	--	--	--	--
Methoxychlor	0.2	0.0019 U	0.0019 U	0.0016 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0027 U	--	--	--	--	--	--	--
P,P'-DDD	0.0075	0.0012 U	0.0012 U	0.001 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0017 U	--	--	--	--	--	--	--
P,P'-DDE	0.011	0.0013 U	0.0013 U	0.0011 U	0.0014 U	0.0014 U	0.0014 U	0.0015 U	0.0018 U	--	--	--	--	--	--	--
P,P'-DDT	0.077	0.00094 U	0.00095 U	0.00079 U	0.001 U	0.001 U	0.001 U	0.0011 U	0.0013 U	--	--	--	--	--	--	--
Toxaphene	0.011	0.027 U	0.027 U	0.022 U	0.029 U	0.029 U	0.028 U	0.03 U	0.037 U	--	--	--	--	--	--	--
trans-Chlordane	--	0.002 U	0.002 U	0.0017 U	0.0021 U	0.0021 U	0.0021 U	0.0022 U	0.0027 U	--	--	--	--	--	--	--
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.012 U	0.012 U	0.01 U	0.013 U	0.013 U	0.013 U	0.014 U	0.017 U	0.0093 U	0.0094 U	0.0094 U	0.016 U	0.0094 U	0.0096 U	0.0097 U
PCB-1221 (Aroclor 1221)	0.00008	0.012 U	0.012 U	0.01 U	0.013 U	0.013 U	0.013 U	0.014 U	0.017 U	0.0093 U	0.0094 U	0.0094 U	0.016 U	0.0094 U	0.0096 U	0.0097 U
PCB-1232 (Aroclor 1232)	0.00008	0.012 U	0.012 U	0.01 U	0.013 U	0.013 U	0.013 U	0.014 U	0.017 U	0.0093 U	0.0094 U	0.0094 U	0.016 U	0.0094 U	0.0096 U	0.0097 U
PCB-1242 (Aroclor 1242)	0.0012	0.012 U	0.012 U	0.01 U	0.013 U	0.013 U	0.013 U	0.014 U	0.017 U	0.0093 U	0.0094 U	0.0094 U	0.016 U	0.0094 U	0.0096 U	0.0097 U
PCB-1248 (Aroclor 1248)	0.0012	0.012 U	0.012 U	0.01 U	0.013 U	0.013 U	0.013 U	0.014 U	0.017 U	0.0093 U	0.0094 U	0.0094 U	0.016 U	0.0094 U	0.0096 U	0.0097 U
PCB-1254 (Aroclor 1254)	0.002	0.013 U	0.013 U	0.011 U	0.013 U	0.013 U	0.013 U	0.014 U	0.017 U	0.0096 U	0.0097 U	0.0097 U	0.017 U	0.0097 U	0.01 U	0.01 U
PCB-1260 (Aroclor 1260)	0.0055	0.013 U	0.013 U	0.011 U	0.013 U	0.013 U	0.013 U	0.014 U	0.017 U	0.0096 U	0.0097 U	0.0097 U	0.017 U	0.0097 U	0.01 U	0.01 U
PCB-1262 (Aroclor 1262)	--	0.013 U	0.013 U	0.011 U	0.013 U	0.014 U	0.013 U	0.014 U	0.017 U	0.0096 U	0.0097 U	0.0097 U	0.017 U	0.0097 U	0.01 U	0.01 U
PCB-1268 (Aroclor 1268)	--	0.013 U	0.013 U	0.011 U	0.013 U	0.014 U	0.013 U	0.014 U	0.017 U	0.0096 U	0.0097 U	0.0097 U	0.017 U	0.0097 U	0.01 U	0.01 U
Polychlorinated Biphenyl (PCBs)	--	0.013 U	0.013 U	0.011 U	0.013 U	0.014 U	0.013 U	0.014 U	0.017 U	0.0096 U	0.0097 U	0.0097 U	0.017 U	0.0097 U	0.01 U	0.01 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.17 U	0.17 U	0.028 U	0.0[illegible] U	0.36 UJ	1.8 U	0.075 U	0.46 U	0.026 UJ	0.026 U	0.026 U	3 U	0.026 U	0.027 U	0.027 U
1,4-Dioxane (P-Dioxane)	0.000094	0.6 U	0.61 U	0.1 U	[illegible] U	1.3 U	6.4 U	0.27 U	1.7 U	0.092 U	0.093 U	0.093 U	32 U	0.092 U	0.096 U	0.096 U
2,3,4,6-Tetrachlorophenol	0.018	0.21 U	0.21 U	0.036 U	[illegible] U	0.46 UJ	2.3 U	0.095 U	0.59 U	0.032 UJ	0.033 U	0.033 U	11 U	0.032 U	0.034 U	0.034 U
2,4,5-Trichlorophenol	0.4	0.22 U	0.23 U	0.038 U	0.036 U	0.48 UJ	2.4 U	0.1 U	0.62 U	0.034 UJ	0.035 U	0.035 U	12 U	0.035 U	0.036 U	0.036 U
2,4,6-Trichlorophenol	0.0012	0.064 U	0.064 U	0.011 U	0.027 U	0.14 UJ	0.68 U	0.029 U	0.18 U	0.0098 UJ	0.0099 U	0.0099 U	3.4 U	0.0099 U	0.01 U	0.01 U
2,4-Dichlorophenol	0.0023	0.052 U	0.052 U	0.008[illegible] U	0.023 U	0.11 UJ	0.57 U	0.024 U	0.15 U	0.0081 UJ	0.0082 U	0.0082 U	2.9 U	0.0082 U	0.0084 U	0.0085 U
2,4-Dimethylphenol	0.042	0.49 U	0.5 U	0.0[illegible] U	0.21 U	1.1 UJ	5.3 U	0.22 U	1.4 U	0.076 UJ	0.076 U	0.076 U	27 U	0.077 U	0.079 U	0.079 U
2,4-Dinitrophenol	0.0044	1.7 U	1.7 U	[illegible] U	0.73 U	3.7 UJ	18 U	0.76 U	4.7 U	0.26 UR	0.26 UJ	0.26 U	91 U	0.26 U	0.27 U	0.27 U
2,4-Dinitrotoluene	0.00032	0.089 U	0.09 U	0.0[illegible]5 U	0.038 U	0.19 U	0.95 U	0.04 U	0.25 U	0.014 UJ	0.014 U	0.014 U	4.8 U	0.014 U	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.12 U	0.12 U	0.02 U	0.051 U	0.26 U	1.3 U	0.054 U	0.33 U	0.018 UJ	0.018 U	0.018 U	6.4 U	0.019 U	0.019 U	0.019 U
2-Chloronaphthalene	0.39	0.051 U	0.051 U	0.0086 U	0.022 U	0.11 UJ	0.54 U	0.023 U	0.14 U	0.0078 UJ	0.0079 U	0.0079 U	2.7 U	0.0079 U	0.0081 U	0.0082 U
2-Chlorophenol	0.0089	0.057 U	0.057 U	0.0097 U	0.024 U	0.12 UJ	0.61 U	0.026 U	0.16 U	0.0089 UJ	0.0090 U	0.0090 U	3.1 U	0.0088 U	0.0091 U	0.0091 U
2-Methylnaphthalene	0.019	0.22 J	0.3 J	0.036 J	0.079 J	0.45 DJT	1.3 J	0.11 J	0.65 J	0.0076 UJ	0.0077 U	0.0077 U	4.4 J	0.0077 U	0.0079 U	0.0079 U
2-Methylphenol (O-Cresol)	0.075	0.098 U	0.099 U	0.017 U	0.042 U	0.21 UJ	1 U	0.044 U	0.27 U	0.015 U	0.015 U	0.015 U	5.3 U	0.015 U	0.016 U	0.016 U
2-Nitroaniline	0.008	0.074 U	0.075 U	0.013 U	0.032 U	0.16 U	0.79 U	0.033 U	0.2 U	0.011 U	0.011 U	0.011 U	4 U	0.011 U	0.012 U	0.012 U
2-Nitrophenol	--	0.075 U	0.076 U	0.013 U	0.032 U	0.16 UJ	0.81 U	0.034 U	0.21 U	0.012 UJ	0.012 U	0.012 U	4.1 U	0.012 U	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.06 U	0.06 U	0.01 U	0.026 U	0.13 U	0.64 U	0.027 U	0.17 U	0.0092 U	0.0092 U	0.0092 U	3.2 U	0.0093 U	0.0095 U	0.0096 U
3,3'-Dichlorobenzidine	0.00082	0.35 U	0.35 U	0.042 U	0.11 U	0.54 UJ	2.7 U	0.11 U	0.69 U	0.038 U	0.039 U	0.039 U	13 U	0.039 U	0.04 U	0.04 U
3-Nitroaniline	--	0.067 U	0.067 U	0.011 U	0.029 U	0.14 U	0.71 U	0.03 U	0.18 U	0.01 U	0.01 U	0.01 U	3.6 U	0.01 U	0.011 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	0.6 U	0.6 U	0.1 U	0.26 U	1.3 UJ	6.4 U	0.27 U	1.7 U	0.092 UJ	0.093 UJ	0.093 U	32 U	0.093 U	0.096 U	0.096 U
4-Bromophenyl Phenyl Ether	--	0.071 U	0.071 U	0.012 U	0.03 U	0.15 U	0.75 U	0.032 U	0.2 U	0.011 UJ	0.011 U	0.011 U	3.8 U	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.097 U	0.097 U	0.016 U	0.041 U	0.21 UJ	1 U	0.043 U	0.27 U	0.015 U	0.015 U	0.015 U	5.2 U	0.015 U	0.015 U	0.015 U
4-Chloroaniline	0.00016	0.058 U	0.058 U	0.0098 U	0.025 U	0.12 U	0.62 U	0.026 U	0.16 U	0.0089 U	0.0089 U	0.0089 U	3.1 U	0.0089 U	0.0092 U	0.0092 U
4-Chlorophenyl Phenyl Ether	--	0.067 U	0.068 U	0.011 U	0.029 U	0.15 UJ	0.72 U	0.03 U	0.19 U	0.01 UJ	0.01 U	0.01 U	3.6 U	0.01 U	0.011 U	0.011 U
4-Nitroaniline	0.0016	0.085 U	0.085 U	0.014 U	0.036 U	0.18 U	0.91 U	0.038 U	0.23 U	0.013 U	0.013 U	0.013 U	4.6 U	0.013 U	0.014 U	0.014 U
4-Nitrophenol	--	1.1 U	1.1 U	0.18 U	0.46 U	2.3 UJ	12 U	0.48 U	3 U	0.17 U	0.17 U	0.17 U	58 U	0.17 U	0.17 U	0.17 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--	--	--	--							
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFDS-003	CFDS-005	CFDS-005	CFDS-005-DUP	CFDS-007	CFDS-007	CFDS-013	CFDS-013	CFMW-025A	CFMW-026	CFMW-028A	CFMW-028A	CFMW-028A-DUP	CFMW-032A	CFMW-032A-DUP
Sample Depth		2-3 ft	2-3 ft	6-8 ft	2-3 ft	3-4 ft	8-10 ft	2-3 ft	5-7 ft	10-12 ft	10-12 ft	10-12 ft	4.5-6 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		4/12/2016	4/12/2016	7/15/2016	4/12/2016	4/12/2016	7/14/2016	4/15/2016	7/14/2016	7/13/2016	6/14/2016	6/30/2016	6/30/2016	6/30/2016	8/8/2016	8/8/2016
Acenaphthene	0.55	0.99 J	1.4 J	0.16 J	0.65 J	2.6 DJT	5.7 J	0.89 J	4.5 J	0.0082 UJ	0.0084 U	0.0084 U	55 J	0.0084 U	0.0087 U	0.0087 U
Acenaphthylene	--	0.11 J	0.074 J	0.0098 U	0.025 UJ	0.12 UT	0.62 U	0.026 U	0.16 U	0.0088 UJ	0.0089 U	0.0089 U	3.1 U	0.0089 U	0.0092 U	0.0092 U
Acetophenone	0.058	0.049 U	0.049 U	0.0083 U	0.021 U	0.11 UT	0.52 U	0.022 U	0.14 U	0.0075 U	0.0076 U	0.0076 U	2.6 U	0.0076 U	0.0078 U	0.0078 U
Anthracene	5.8	2.6	4 J	0.48	1.2 J	5.1 D	22 J	1	10	0.033 UJ	0.033 U	0.033 U	100 J	0.033 U	0.034 U	0.034 U
Atrazine	0.0002	0.1 U	0.1 U	0.017 U	0.043 U	0.22 U	1.1 U	0.045 U	0.28 U	0.015 U	0.015 U	0.015 U	5.4 U	0.015 U	0.016 U	0.016 U
Benzaldehyde	0.0041	0.17 U	0.17 U	0.029 U	0.073 U	0.37 UT	1.9 U	0.077 U	[illegible]	0.026 UJ	0.026 U	0.026 U	9.2 U	0.027 U	0.027 U	0.027 U
Benzo(A)Anthracene	0.011	8.4	11 J	1.8	6.4 J	37 D	130	11	74	0.029 UJ	0.029 U	0.036	400	0.044	0.03 U	0.03 U
Benzo(A)Pyrene	0.029	7.9	13 J	1.6	7 J	38 D	67	16	80	0.01 UJ	0.011 U	0.034 J	450	0.054	0.011 U	0.011 U
Benzo(B)Fluoranthene	0.3	14	18	2.5	11	71 D	160	22	100	0.013 UJ	0.014 U	0.043 J	570	0.075 J	0.014 U	0.014 U
Benzo(G,H,I)Perylene	--	11	12	1.8	9.3	50 D	53	22	76	0.02 U	0.02 U	0.023 J	290	0.042 J	0.021 U	0.021 U
Benzo(K)Fluoranthene	2.9	4.9	7.5 J	1.2	4.1 J	21 D	62	7.1	37	0.015 UJ	0.015 U	0.021 J	210	0.029 J	0.016 U	0.016 U
Benzyl Butyl Phthalate	0.24	1.3 J	0.07 U	0.012 U	0.03 U	3.3 DJ	0.74 U	[illegible]	0.19 U	0.011 U	0.011 U	0.011 U	3.7 U	0.011 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.19 U	0.19 U	0.032 U	0.082 U	0.41 UT	2 U	[illegible]	0.53 U	0.029 UJ	0.03 U	0.03 U	10 U	0.03 U	0.031 U	0.031 U
Bis(2-Chloroethoxy) Methane	0.0013	0.07 U	0.07 U	0.012 U	0.03 U	0.15 U	0.75 U	[illegible]	0.19 U	0.011 U	0.011 U	0.011 U	3.8 U	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.053 U	0.053 U	0.009 U	0.023 U	0.11 UT	0.57 U	0.024 U	0.15 U	0.0081 U	0.0082 U	0.0082 U	2.9 U	0.0082 U	0.0084 U	0.0085 U
Bis(2-Chloroisopropyl) Ether	0.026	0.092 U	0.093 U	0.016 U	0.04 U	0.2 U	0.99 U	0.041 U	0.26 U	0.014 U	0.014 U	0.014 U	5 U	0.014 U	0.015 U	0.015 U
Bis(2-Ethylhexyl) Phthalate	1.3	4.1	1.7 J	0.13 J	1.7	4 DJT	0.94 U	0.089 U	0.24 U	0.013 UJ	0.014 U	0.014 U	5.1 J	0.014 U	0.014 U	0.014 U
Caprolactam	0.25	0.16 U	0.16 U	0.027 U	0.069 U	0.35 U	[illegible]	0.073 U	0.45 U	0.025 UJ	0.025 U	0.025 U	8.7 U	0.025 U	0.026 U	0.026 U
Carbazole	--	2.7	3.3 J	0.46	1.2 J	7.8 D	[illegible]	1.2	7.4	0.0086 UJ	0.0086 U	0.0086 U	42 J	0.0086 U	0.0089 U	0.0089 U
Chrysene	9	17	19 J	3.2	11 J	68 D	330	16	110	0.0094 UJ	0.0095 U	0.031 J	500	0.057 J	0.0097 U	0.0098 U
Dibenz(A,H)Anthracene	0.096	3.1	3.8	0.5	2.6	14 D	20	4.4	23	0.018 U	0.018 U	0.018 U	6.3 U	0.018 U	0.019 U	0.019 U
Dibenzofuran	0.015	0.59 J	0.79 J	0.084 J	0.3 J	1.1 DJT	3.6 J	0.41 J	1.4 J	0.01 UJ	0.011 U	0.01 U	15 J	0.011 U	0.011 U	0.011 U
Diethyl Phthalate	0.61	0.064 U	0.064 U	0.011 U	0.027 U	0.14 U	0.68 U	0.029 U	0.18 U	0.0098 UJ	0.0099 U	0.0099 U	3.4 U	0.0099 U	0.01 U	0.01 U
Dimethyl Phthalate	--	0.065 U	0.066 U	0.011 U	0.028 U	[illegible]	0.7 U	0.029 U	0.18 U	0.01 UJ	0.01 U	0.01 U	3.5 U	0.01 U	0.01 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.25 J	0.058 U	0.029 J	0.029 U	1.9 DJT	0.72 U	0.03 U	0.19 U	0.01 UJ	0.01 U	0.013 J	3.6 U	0.015 J	0.035 J	0.02 J
Di-N-Octylphthalate	5.7	0.11 U	0.11 U	0.019 U	0.049 U	[illegible] UT	1.2 U	0.051 U	0.32 U	0.018 U	0.018 U	0.018 U	6.1 U	0.018 U	0.018 U	0.018 U
Fluoranthene	8.9	27	26 J	4.2	13 J	82 D	470	16	110	0.011 J-	0.01 U	0.049 J	1000	0.089 J	0.011 U	0.011 U
Fluorene	0.54	1 J	1.1 J	0.19 J	0.5 J	1.7 DJT	8.2 J	0.4 J	4.1 J	0.0075 UJ	0.0076 U	0.0076 U	33 J	0.0076 U	0.0078 U	0.0078 U
Hexachlorobenzene	0.00012	0.091 U	0.092 U	0.015 U	0.039 U	0.2 UT	0.97 U	0.041 U	0.25 U	0.014 UJ	0.014 U	0.014 U	4.9 U	0.014 U	0.015 U	0.015 U
Hexachlorobutadiene	0.00027	0.063 U	0.064 U	0.011 U	[illegible]	0.14 UT	0.67 U	0.028 U	0.17 U	0.0097 UJ	0.0098 U	0.0098 U	3.4 U	0.0098 U	0.01 U	0.01 U
Hexachlorocyclopentadiene	0.00013	0.14 U	0.14 U	0.024 U	[illegible]	0.3 UT	1.5 U	0.063 U	0.39 U	0.021 U	0.022 U	0.022 U	7.5 U	0.022 U	0.022 U	0.022 U
Hexachloroethane	0.0002	0.082 U	0.083 U	0.014 U	[illegible]	0.18 UT	0.88 U	0.037 U	0.23 U	0.013 UJ	0.013 U	0.013 U	4.4 U	0.013 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	12	14	2	10	56 D	62	22	83	0.023 U	0.023 U	0.027 J	360	0.044	0.024 U	0.024 U
Isophorone	0.026	0.048 U	0.049 U	0.0082 U	0.021 U	0.1 U	0.52 U	0.022 U	0.13 U	0.0074 U	0.0075 U	0.0074 U	2.6 U	0.0075 U	0.0077 U	0.0077 U
Naphthalene	0.00054	0.6 J	1.1 J	0.071 J	0.2 J	0.96 DJT	4.6 J	0.026 U	0.5 J	0.0088 UJ	0.0088 U	0.0088 U	8 J	0.0088 U	0.0091 U	0.0091 U
Nitrobenzene	0.000092	0.071 U	0.071 U	[illegible]	0.03 U	0.15 U	0.75 U	0.032 U	0.2 U	0.011 UJ	0.011 U	0.011 U	3.8 U	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.075 U	0.076 U	[illegible]	0.032 U	0.16 U	0.81 U	0.034 U	0.21 U	0.012 U	0.012 U	0.012 U	4.1 U	0.012 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.2 U	0.21 U	[illegible]	0.087 U	0.44 UT	2.2 U	0.091 U	0.56 U	0.031 UJ	0.032 UJ	0.031 U	11 U	0.032 U	0.032 U	0.032 U
Pentachlorophenol	0.000057	0.27 U	0.27 U	0.046 U	0.12 U	0.59 UT	2.9 U	0.12 U	0.75 U	0.042 UJ	0.042 UJ	0.042 U	15 U	0.042 U	0.043 U	0.044 U
Phenanthrene	--	12	16 J	2	7.6 J	28 D	130	5.9	59	0.0092 UJ	0.0092 U	0.032 J	440	0.049 J	0.0095 U	0.0096 U
Phenol	0.33	0.073 U	0.074 U	0.012 U	0.031 U	0.16 UT	0.78 U	0.033 U	0.2 U	0.011 U	0.011 U	0.011 U	4 U	0.011 U	0.012 U	0.012 U
Pyrene	1.3	18	19 J	4.5	11 J	56 D	340	16	120	0.016 U	0.016 U	0.045 J	730	0.089 J	0.016 U	0.016 U
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00052 U	0.00071 U	0.00023 U	0.0005 U	0.00048 UJ	0.0065 U	0.00048 U	0.00033 U	0.00032 U	0.0003 U	0.00036 U	0.00092 U	0.00031 U	0.00037 U	0.00044 U
1,1,2,2-Tetrachloroethane	0.00003	0.00023 U	0.00032 U	0.00011 U	0.00022 U	0.00021 UJ	0.0044 U	0.00021 U	0.00015 U	0.00014 U	0.00014 U	0.00016 U	0.00041 U	0.00014 U	0.00017 U	0.0002 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.0006 U	0.00083 U	0.00027 UJ	0.00058 U	0.00055 UJ	0.0079 U	0.00055 U	0.00039 UJ	0.00037 U	0.00035 U	0.00042 U	0.0011 U	0.00036 U	0.00043 U	0.00051 U
1,1,2-Trichloroethane	0.000013	0.00038 U	0.00053 U	0.00017 U	0.00037 U	0.00035 UJ	0.0019 U	0.00035 U	0.00024 U	0.00024 U	0.00022 U	0.00027 U	0.00068 U	0.00023 U	0.00028 U	0.00032 U
1,1-Dichloroethane	0.00078	0.00047 U	0.00064 U	0.00021 U	0.00045 U	0.00043 UJ	0.0056 U	0.00043 U	0.0003 U	0.00029 U	0.00027 U	0.00032 U	0.00082 U	0.00028 U	0.00033 U	0.00039 U
1,1-Dichloroethene	0.01	0.00056 U	0.00077 U	0.00025 U	0.00054 U	0.00052 UJ	0.0079 U	0.00052 U	0.00036 U	0.00035 U	0.00033 U	0.00039 U	0.00099 U	0.00033 U	0.0004 U	0.00047 U
1,2,3-Trichlorobenzene	0.0021	0.00015 U	0.00021 U	0.000068 U	0.00014 U	0.00014 UJ	0.0081 U	0.00014 U	0.000096 UJ	0.000093 U	0.000088 UJ	0.0001 U	0.00027 U	0.000089 U	0.00011 U	0.00012 U
1,2,4-Trichlorobenzene	0.0012	0.00044 U	0.0006 U	0.0002 U	0.00042 U	0.0004 UJ	0.0063 U	0.0004 U	0.00028 UJ	0.00027 U	0.00026 UJ	0.0003 U	0.00077 U	0.00026 U	0.00031 U	0.00037 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00065 U	0.00088 U	0.00029 U	0.00062 U	0.00059 UJ	0.0053 U	0.00059 U	0.00041 UJ	0.0004 U	0.00039 U	0.00045 U	0.0011 U	0.00038 U	0.00046 U	0.00054 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00016 U	0.00023 U	0.000074 U	0.00016 U	0.00015 UJ	0.0044 U	0.00015 U	0.0001 U	0.0001 U	0.000096 U	0.00011 U	0.00029 U	0.000097 U	0.00012 U	0.00014 U
1,2-Dichlorobenzene	0.03	0.00019 U	0.00026 U	0.00065	0.00018 U	0.00018 UJ	0.0051 U	0.00018 U	0.00016 J	0.00012 U	0.00011 U	0.00013 U	0.00034 U	0.00011 U	0.00014 U	0.00016 U
1,2-Dichloroethane	0.000048	0.00015 U	0.00021 U	0.000068 U	0.00014 U	0.00014 UJ	0.0058 U	0.00014 U	0.000096 U	0.000093 U	0.000088 U	0.0001 U	0.00027 U	0.000089 U	0.00011 U	0.00013 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--	--	--	--							
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFDS-003	CFDS-005	CFDS-005	CFDS-005-DUP	CFDS-007	CFDS-007	CFDS-013	CFDS-013	CFMW-025A	CFMW-026	CFMW-028A	CFMW-028A	CFMW-028A-DUP	CFMW-032A	CFMW-032A-DUP
Sample Depth		2-3 ft	2-3 ft	6-8 ft	2-3 ft	3-4 ft	8-10 ft	2-3 ft	5-7 ft	10-12 ft	10-12 ft	10-12 ft	4.5-6 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		4/12/2016	4/12/2016	7/15/2016	4/12/2016	4/12/2016	7/14/2016	4/15/2016	7/14/2016	7/13/2016	6/14/2016	6/30/2016	6/30/2016	6/30/2016	8/8/2016	8/8/2016
1,2-Dichloropropane	0.000047	0.00023 U	0.00032 U	0.00011 U	0.00022 U	0.00021 UJ	0.0042 U	0.00021 U	0.00015 U	0.00014 U	0.00014 U	0.00016 U	0.00041 U	0.00014 U	0.00017 U	0.0002 U
1,3-Dichlorobenzene	--	0.00016 U	0.00023 U	0.00074 U	0.00016 U	0.00015 UJ	0.0077 U	0.00015 U	0.0001 UJ	0.00011 U	0.00096 U	0.00011 U	0.00029 U	0.00007 U	0.00012 U	0.00014 U
1,4-Dichlorobenzene	0.00046	0.00018 U	0.00024 U	0.00016 J	0.00017 U	0.00016 UJ	0.0077 U	0.00016 U	0.00011 UJ	0.00011 U	0.0001 U	0.00012 U	0.00031 U	0.00011 U	0.00013 U	0.00015 U
2-Hexanone	0.00088	0.0013 J	0.0018 U	0.00058 U	0.0015 J	0.0012 UJ	0.017 U	0.0012 U	0.00082 U	0.00079 U	0.00075 U	0.00089 U	0.0023 U	0.00076 U	0.00092 U	0.0011 U
Acetone	0.29	0.12	0.18	0.019	0.14	0.12 T	0.025 U	0.047	0.059 J+	0.0057	0.022 J+	0.0097	0.046	0.0081	0.017	0.019
Benzene	0.00023	0.00052 J	0.0011 J	0.00028 J	0.00082 J	0.00051 J-	0.0044 U	0.0025 U	0.0006 J+	0.0003 J	0.00069 J	0.00032 J	0.00048 U	0.00027 J	0.0002 U	0.00023 U
Bromochloromethane	0.0021	0.00023 U	0.00032 U	0.00011 U	0.00022 U	0.00021 UJ	0.007 U	0.00021 U	0.00015 U	0.00014 U	0.00014 U	0.00016 U	0.00041 U	0.00014 U	0.00017 U	0.0002 U
Bromodichloromethane	0.000036	0.00052 U	0.00071 U	0.00023 U	0.0005 U	0.00048 UJ	0.0035 U	0.00048 U	0.00033 U	0.00032 U	0.0003 U	0.00036 U	0.00092 U	0.00031 U	0.00037 U	0.00044 U
Bromoform	0.00087	0.00018 U	0.00024 U	0.00008 U	0.00017 U	0.00016 UJ	0.0042 UJ	0.00016 U	0.00011 U	0.00011 U	0.0001 U	0.00012 U	0.00031 U	0.00011 U	0.00013 U	0.00015 U
Bromomethane	0.00019	0.00044 U	0.0006 U	0.0002 UJ	0.00042 U	0.0004 UJ	0.0042 U	0.0004 U	0.00029 U	0.00027 U	0.00026 U	0.0003 U	0.00077 U	0.00026 U	0.00031 U	0.00037 U
Carbon Disulfide	0.024	0.00059 U	0.0012 J	0.00095 J-	0.00056 UJ	0.00086 J-	0.0051 UJ	0.00054 U	0.006 J+	0.00036 U	0.0004 J	0.00041 U	0.001 U	0.00035 U	0.00042 UJ	0.0017 J
Carbon Tetrachloride	0.00018	0.00059 U	0.00081 U	0.00027 U	0.00056 U	0.00054 UJ	0.0077 U	0.00049 U	0.00039 U	0.00036 U	0.00034 U	0.00041 U	0.001 U	0.00035 U	0.00042 U	0.00049 U
Chlorobenzene	0.0053	0.00019 U	0.00026 U	0.00009 U	0.00018 U	0.00018 UJ	0.0056 U	0.00018 U	0.00012 U	0.00012 U	0.00011 U	0.00013 U	0.0012 J	0.00011 U	0.00014 U	0.00016 U
Chloroethane	0.59	0.00048 U	0.00066 U	0.00022 U	0.00046 U	0.00044 UJ	0.0085 U	0.00043 U	0.00031 U	0.0003 U	0.00028 U	0.00033 U	0.00084 U	0.00028 U	0.00034 U	0.0004 U
Chloroform	0.000061	0.00029 U	0.00039 U	0.00013 U	0.00028 U	0.00026 UJ	0.0051 U	0.00026 U	0.00018 U	0.00018 U	0.00017 U	0.0002 U	0.00051 U	0.00017 U	0.00021 U	0.00024 U
Chloromethane	0.0049	0.00052 UT	0.00071 UT	0.00023 U	0.0005 UT	0.00048 UT	0.0051 U	0.00048 UT	0.00033 U	0.00032 U	0.0003 U	0.00036 U	0.00092 U	0.00031 U	0.00037 U	0.00044 U
Cis-1,2-Dichloroethylene	0.0011	0.0003 U	0.00041 U	0.00014 U	0.00029 U	0.00028 UJ	0.006 U	0.00028 U	0.00019 U	0.00019 U	0.00018 U	0.00021 U	0.00053 U	0.00018 U	0.00022 U	0.00025 U
Cis-1,3-Dichloropropene	--	0.00021 U	0.00028 U	0.00009 U	0.0002 U	0.00019 UJ	0.0042 U	0.00019 U	0.00013 U	0.00013 U	0.00012 U	0.00014 U	0.00036 U	0.00012 U	0.00015 U	0.00017 U
Cyclohexane	1.3	0.00063 U	0.00086 U	0.00028 UJ	0.0006 U	0.00058 UJ	[illegible] U	0.00058 U	0.0004 U	0.00086	0.0021 J+	0.00074 J	0.001 U	0.0007 J	0.00045 U	0.00053 U
Dibromochloromethane	0.00023	0.00021 U	0.00028 U	0.00009 U	0.0002 U	0.00019 UJ	[illegible] UJ	0.00019 U	0.00013 U	0.00013 U	0.00012 U	0.00014 U	0.00036 U	0.00012 U	0.00015 U	0.00017 U
Dichlorodifluoromethane	0.03	0.00044 U	0.0006 U	0.0002 U	0.00042 U	0.0004 UJ	0.0033 U	0.0004 U	0.00028 U	0.00027 U	0.00026 U	0.0003 U	0.00077 U	0.00026 U	0.00031 U	0.00037 U
Ethylbenzene	0.0017	0.00025 U	0.00034 U	0.00011 U	0.00024 U	0.00023 UJ	0.095	0.00023 U	0.00067 J+	0.00044 J	0.001	0.00022 J	0.00043 U	0.00025 J	0.00018 U	0.00021 U
Isopropylbenzene (Cumene)	0.074	0.00023 U	0.00032 U	0.00011 U	0.00022 U	0.00021 UJ	0.0074 U	0.00021 U	0.00015 U	0.00014 U	0.00014 U	0.00016 U	0.00041 U	0.00014 U	0.00017 U	0.0002 U
M,P-Xylene	--	0.00015 U	0.00021 U	0.00015 J	0.00014 U	[illegible]	0.48	0.00014 U	0.0018 J+	0.0016	0.0036	0.00091 J	0.00037 J	0.00082	0.00011 U	0.00013 U
Methyl Acetate	0.41	0.0012 U	0.0017 UJ	0.0072	0.0087 J	0.004 J+	0.013 U	0.0017 J+	0.0037 J+	0.00076 U	0.00072 U	0.00086 U	0.0022 U	0.00073 U	0.00088 U	0.001 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.019	0.022	0.0028 J	0.024	0.018 T	0.051 U	0.0063	0.012 J+	0.00065 U	0.0037 J	0.00073 U	0.0019 U	0.00062 U	0.00076 U	0.00088 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0036 J	0.0042 U	0.0014 U	0.0029 U	0.0065 J-	0.015 U	0.0028 U	0.0019 U	0.0019 U	0.0018 U	0.0021 U	0.0054 U	0.0018 U	0.0022 U	0.0025 U
Methylcyclohexane	--	0.00069 U	0.00094 U	0.00031 U	0.00066 U	0.00063 UJ	0.0051 U	0.00063 U	0.00044 U	0.0016	0.0032 J	0.0012	0.0012 U	0.0012	0.00049 U	0.00057 U
Methylene Chloride	0.0027	0.0032	0.0006 U	0.0002 U	0.00042 U	0.00084 J-	0.0049 U	0.0004 U	0.00028 U	0.00017 U	0.00026 U	0.0003 U	0.0026	0.00026 U	0.00031 U	0.00037 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00021 U	0.0003 U	0.00009 U	0.0002 U	0.0002 UJ	0.15	0.0002 U	0.0017 J+	0.00052 J	0.0011	0.00026 J	0.00039 U	0.00025 J	0.00016 U	0.00018 U
Styrene	0.13	0.00021 U	0.00028 U	0.00009 U	0.0002 U	0.00019 UJ	0.004 U	0.00019 U	0.00013 U	0.00013 U	0.00012 U	0.00014 U	0.00036 U	0.00012 U	0.00015 U	0.00017 U
Tert-Butyl Methyl Ether	0.0032	0.00023 U	0.00032 U	0.00011 U	0.00022 U	0.00021 UT	0.002 U	0.00021 U	0.00015 U	0.00014 U	0.00014 U	0.00016 U	0.00041 U	0.00014 U	0.00017 U	0.0002 U
Tetrachloroethylene (PCE)	0.0018	0.00038 U	0.00053 U	0.00017 U	0.00037 U	0.00035 UJ	0.0084 U	0.00035 U	0.00024 U	0.00024 U	0.00022 U	0.00027 U	0.0011 J	0.00023 U	0.00028 U	0.00032 U
Toluene	0.076	0.00068 J	0.00095 J	0.00027 J	0.00076 J	0.00054 J-	0.0058 U	0.00024 U	0.0014 J+	0.0019	0.0043	0.0012	0.00053 J	0.0011	0.00019 U	0.00022 U
Trans-1,2-Dichloroethene	0.011	0.00054 U	0.00073 U	0.00024 U	0.00061 U	0.00049 UJ	0.0042 U	0.00049 U	0.00034 U	0.00032 U	0.00031 U	0.00037 U	0.00094 U	0.00032 U	0.00038 U	0.00045 U
Trans-1,3-Dichloropropene	--	0.00014 U	0.00019 U	0.00006 U	0.00013 U	0.00013 UJ	0.0044 U	0.00013 U	0.00087 U	0.00084 U	0.00008 U	0.00095 U	0.0024 U	0.00081 U	0.00098 U	0.00011 U
Trichloroethylene (TCE)	0.0001	0.00036 U	0.00049 U	[illegible]	0.00034 U	0.00033 UJ	0.0051 U	0.00033 U	0.00023 U	0.00022 U	0.00021 U	0.00025 U	0.00063 U	0.00021 U	0.00026 U	0.0002 U
Trichlorofluoromethane	0.33	0.00047 U	0.00064 U	[illegible] UJ	0.00045 U	0.00043 UJ	0.0035 U	0.00043 U	0.0003 U	0.00029 U	0.00027 U	0.00032 U	0.00082 U	0.00028 U	0.00033 U	0.00039 U
Vinyl Chloride	0.0000065	0.00054 U	0.00073 U	0.00024 U	0.00061 U	0.00049 UJ	0.0047 U	0.00049 U	0.00034 U	0.00033 U	0.00031 U	0.00037 U	0.00094 U	0.00032 U	0.00038 U	0.00045 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID		CFMW-033	CFMW-034	CFMW-035	CFMW-037	CFMW-038	CFMW-040	CFMW-042	CFMW-043	CFMW-044A	CFMW-045A	CFMW-047	CFMW-049A	CFMW-050	CFMW-053A	CFMW-054
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		7/1/2016	5/31/2016	6/1/2016	6/24/2016	6/25/2016	6/28/2016	6/16/2016	6/15/2016	7/20/2016	8/12/2016	6/21/2016	8/20/2016	6/22/2016	8/17/2016	6/20/2016
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	2.6E-07 J	3.1E-07 J	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	1.01E-06 J	1.12E-06 J	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	2.1E-08 U	2.7E-08 U	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	2.4E-08 U	3.5E-08 J	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	2.1E-08 U	2.1E-08 U	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	3.8E-08 J	2.6E-08 J	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	1.9E-08 U	9.6E-08 J	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	2.3E-08 U	1.5E-08 U	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	6.4E-08 J	6.3E-08 J	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	2.6E-08 U	2.4E-08 U	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	4.1E-08 U	3.5E-08 U	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	2.4E-08 U	1.5E-08 U	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	2.7E-08 U	2.5E-08 U	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	9.3E-08 J	1.1E-07 J	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	3.2E-08 U	2.9E-08 U	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	7.3E-07 J	8.3E-07 J	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	1.78E-06 J	2.04E-06 J	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	2.4E-07 J	2.7E-07 J	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	0.0000002 J	3.6E-07 J	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	2.4E-08 U	9.7E-07 J	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	7.13E-06 J	0.0000071 J	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	4.1E-08 U	3.5E-08 U	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	7.5E-08 J	7.3E-08 J	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	2.1E-07 J	1.9E-07 J	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	5.2E-08 J	4.6E-08 J	--	--	--	--	--	--	--	--	--
METALS (mg/kg)																
Aluminum	3000	6930	7620	6380	9270	8820	9360	6210	6730	5470	7060	7150	8490	9180	8720	7550
Antimony	0.035	0.33 UJ	0.32 U	0.41 UJ	0.42 U	0.43 U	0.37 UJ	0.41 UJ	0.34 UJ	0.42 UJ	0.41 U	0.41 UJ	0.26 UJ	0.44 U	0.36 UJ	0.4 UJ
Arsenic	0.0015	3.4	3.1	3.5	4.4	3.7	13.1	5.2 J	3.2	5.5	3.3	3.3	3.9 J	4.5	3.1	2.9
Barium	16	59.9 J	51.1	42.9	74.9	114	91.6	77.3	91.3	63	120	67.7 J	66 J	84.6	110	166 J
Beryllium	1.9	0.29 J	0.37	0.28 J	0.44	0.37 J	0.55	0.27 J	0.31 J	0.33 J	0.31 J	0.28 J	0.25 J	0.42 J	0.37	0.29 J
Cadmium	0.069	0.25 U	0.24 U	0.31 U	0.32 U	0.33 U	0.28 U	0.31 U	0.26 U	0.32 U	0.31 U	0.31 U	0.19 U	0.33 U	0.27 U	0.3 U
Calcium	--	31200	41300	35600	39400	27800	5850	32900	25600	88200	34500	32100 J	17800 J	36100	55900	45900 J
Chromium, Total	--	8.8	8.2	9.6	9.7	12.1	11 J-	8.3	10.1	6.7 J+	9.2	8.9 J	9.5	10.7	12.3	17.3 J
Cobalt	0.027	4.5	4.8	4.4	5	4.9	7.5 J-	4.3	4.9	3.1	4.6	4.5	6	6.2	4.9	4.1
Copper	2.8	9.7 J	10.9	11.2	13.8	20	21.2 J-	10.3 J	21.5 J+	11.4 J+	13.5	9.8	14.3 J	32.6 J	16.6 J-	9.8
Iron	35	11900	12300	11400	14700	13300	16600	10300	10200	10900	13400	10800	13300	15700	14400	12100
Lead	400	4.5	5.3	5.1	6.6	6.4	22 J-	5.6	6.9 J+	5.2 J	5.8 J	6.6 J	6.2 J	8.6	6.6	4.6 J
Magnesium	--	12200	11600	11100	12300	9720	9030	9960	8660	15500	12200	9830	11100	12200	15900	13900
Manganese	2.8	324	310	313	436	445	480	297	248 J	417	378	372	337	448	376	301
Mercury	0.0033	0.014 J+	0.027	0.012 J	0.016 J	0.012 J	0.017	0.011 J	0.012 U	0.012 U	0.026	0.017	0.018	0.017	0.022	0.014 J
Nickel	2.6	8.8	9.9	8.4	10.8	15.1	13 J-	8.1	10.3	6.3	10.1	9.1	12.1	11.4	11.3	8.4
Potassium	--	693 J+	703 J+	642	656	733	984	673	898	584 J+	565	802	702 J+	651	1070 J+	1310
Selenium	0.052	0.31 U	0.3 U	0.38 U	0.4 U	0.4 U	0.35 U	0.38 U	0.32 U	0.39 U	0.38 UJ	0.39 U	0.24 U	0.41 U	0.33 U	0.37 U
Silver	0.08	0.61 U	0.59 U	0.75 U	0.77 U	0.79 U	0.68 U	0.75 U	0.63 U	0.76 U	0.74 U	0.76 U	0.51 U	0.8 U	0.65 U	0.73 U
Sodium	--	33.2 J	29.9 U	38.4 J	39.5 U	44.3 J	34.3 U	38.7 J	33 J	38.8 U	63.7 J	38.6 U	35.4 J	41 U	59.7 J	106
Thallium	0.0014	0.13 U	0.12 U	0.15 U	0.16 U	0.16 U	0.14 U	0.15 U	0.13 U	0.16 U	0.15 U	0.16 U	0.1 U	0.17 U	0.13 J	0.15 U
Vanadium	8.6	6.3	9	6.6	8.5	8.3	9.4	5.3	9.5	5.4 J	6.6 J-	5.6	6.9	10.3 J	7.9	7.5
Zinc	37	29.3	32.2	28.5	37.6	31	36.6	26.3	25.3	23.3	27.4	30.3	38.1	39.5	31.5	27.3
PESTICIDES (mg/kg)																
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID		CFMW-033	CFMW-034	CFMW-035	CFMW-037	CFMW-038	CFMW-040	CFMW-042	CFMW-043	CFMW-044A	CFMW-045A	CFMW-047	CFMW-049A	CFMW-050	CFMW-053A	CFMW-054
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		7/1/2016	5/31/2016	6/1/2016	6/24/2016	6/25/2016	6/28/2016	6/16/2016	6/15/2016	7/20/2016	8/12/2016	6/21/2016	8/20/2016	6/22/2016	8/17/2016	6/20/2016
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.0094 U	0.0096 U	0.0093 U	0.0095 U	0.0094 U	0.0099 U	0.0092 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0091 U	0.0095 U	0.0091 U	0.009 U
PCB-1221 (Aroclor 1221)	0.00008	0.0094 U	0.0096 U	0.0093 U	0.0095 U	0.0094 U	0.0099 U	0.0092 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0091 U	0.0095 U	0.0091 U	0.009 U
PCB-1232 (Aroclor 1232)	0.00008	0.0094 U	0.0096 U	0.0093 U	0.0095 U	0.0094 U	0.0099 U	0.0092 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0091 U	0.0095 U	0.0091 U	0.009 U
PCB-1242 (Aroclor 1242)	0.0012	0.0094 U	0.0096 U	0.0093 U	0.0095 U	0.0094 U	0.0099 U	0.0092 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0091 U	0.0095 U	0.0091 U	0.009 U
PCB-1248 (Aroclor 1248)	0.0012	0.0094 U	0.0096 U	0.0093 U	0.0095 U	0.0094 U	0.0099 U	0.0092 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0091 U	0.0095 U	0.0091 U	0.009 U
PCB-1254 (Aroclor 1254)	0.002	0.0097 U	0.0099 U	0.0096 U	0.0098 U	0.0098 U	0.01 U	0.0095 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0094 U	0.0098 U	0.0094 U	0.0093 U
PCB-1260 (Aroclor 1260)	0.0055	0.0097 U	0.0099 U	0.0096 U	0.0098 U	0.0098 U	0.01 U	0.0095 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0094 U	0.0098 U	0.0094 U	0.0093 U
PCB-1262 (Aroclor 1262)	--	0.0097 U	0.0099 U	0.0096 U	0.0098 U	0.0098 U	0.01 U	0.0095 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0094 U	0.0098 U	0.0094 U	0.0093 U
PCB-1268 (Aroclor 1268)	--	0.0097 U	0.0099 U	0.0096 U	0.0098 U	0.0098 U	0.01 U	0.0095 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0094 U	0.0098 U	0.0094 U	0.0093 U
Polychlorinated Biphenyl (PCBs)	--	0.0097 U	0.0099 U	0.0096 U	0.0098 U	0.0098 U	0.01 U	0.0095 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0094 U	0.0098 U	0.0094 U	0.0093 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.026 U	0.026 U	0.026 U	0.027 U	0.026 U	0.027 U	0.025 U	0.026 U	0.027 U	0.025 U	0.026 U	0.025 U	0.026 U	0.025 U	0.025 U
1,4-Dioxane (P-Dioxane)	0.000094	0.094 U	0.096 U	0.092 U	0.095 U	0.094 U	0.098 U	0.091 U	0.092 U	0.095 U	0.092 U	0.093 U	0.09 U	0.094 U	0.09 U	0.089 U
2,3,4,6-Tetrachlorophenol	0.018	0.033 U	0.033 UJ	0.033 UJ	0.035 U	0.033 U	0.034 U	0.032 UJ	0.032 U	0.034 U	0.032 U	0.033 U	0.032 UJ	0.033 U	0.032 UJ	0.031 U
2,4,5-Trichlorophenol	0.4	0.035 U	0.035 UJ	0.034 U	0.035 U	0.035 U	0.036 U	0.034 UJ	0.034 U	0.035 U	0.034 U	0.035 U	0.034 U	0.035 U	0.033 U	0.033 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.01 UJ	0.0098 U	0.01 U	0.01 U	0.01 U	0.0097 U	0.0098 U	0.01 U	0.0097 U	0.0099 U	0.0096 U	0.01 U	0.0096 U	0.0095 U
2,4-Dichlorophenol	0.0023	0.0080 U	0.0084 U	0.0083 U	0.0083 U	0.0083 U	0.0086 U	0.0081 U	0.0081 U	0.0084 U	0.0081 U	0.0082 U	0.009 U	0.0083 U	0.0079 U	0.0079 U
2,4-Dimethylphenol	0.042	0.077 U	0.078 U	0.0 [illegible]	0.078 U	0.077 U	0.08 U	0.075 U	0.076 U	0.078 U	0.075 U	0.077 U	0.074 U	0.078 U	0.074 U	0.074 U
2,4-Dinitrophenol	0.0044	0.26 U	0.27 UJ	[illegible]	0.27 U	0.26 U	0.28 U	0.26 UJ	0.26 U	0.27 U	0.26 U	0.26 U	0.25 UJ	0.27 UJ	0.25 UJR	0.25 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.019 U	0.018 U	0.018 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U	0.018 U	0.018 U
2-Chloronaphthalene	0.39	0.0079 U	0.0081 U	0.0078 U	0.008 U	0.0079 U	0.0083 U	0.0078 U	0.0078 U	0.0081 U	0.0078 U	0.0079 U	0.0077 U	0.008 U	0.0076 U	0.0076 U
2-Chlorophenol	0.0089	0.0089 U	0.009 U	0.0088 U	0.009 U	0.0089 U	0.0092 U	0.0087 U	0.0088 U	0.0091 U	0.0087 U	0.0089 U	0.0086 U	0.009 U	0.0086 U	0.0085 U
2-Methylnaphthalene	0.019	0.0077 U	0.0078 U	0.0076 U	0.0078 U	0.0077 U	0.0081 U	0.021 J	0.078 J	0.0079 U	0.0076 U	0.0077 U	0.0075 U	0.0078 U	0.0074 U	0.0074 U
2-Methylphenol (O-Cresol)	0.075	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U
2-Nitrophenol	--	0.012 U	0.012 U	0.012 UJ	0.012 U	0.012 U	0.012 U	0.011 UJ	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U
3- And 4- Methylphenol (Total)	--	0.0093 U	0.0095 U	0.0092 U	0.0094 U	0.0093 U	0.0097 U	0.0091 U	0.0092 U	0.0095 U	0.0091 U	0.0093 U	0.009 U	0.0094 U	0.009 U	0.0089 U
3,3'-Dichlorobenzidine	0.00082	0.039 U	0.04 U	0.039 U	0.039 U	0.039 U	0.041 U	0.038 U	0.039 U	0.04 U	0.038 U	0.039 U	0.038 U	0.039 U	0.038 U	0.037 U
3-Nitroaniline	--	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U
4,6-Dinitro-2-Methylphenol	0.00026	0.093 U	0.095 UJ	0.092 UJ	0.094 U	0.093 U	0.098 U	0.091 UJ	0.092 U	0.095 U	0.091 U	0.093 U	0.09 UJ	0.094 UJ	0.09 UJ	0.089 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.014 U	0.014 U
4-Chloroaniline	0.00016	0.009 U	0.0091 U	0.0089 U	0.0091 U	0.009 U	0.0094 U	0.0088 U	0.0089 U	0.0092 U	0.0088 U	0.009 U	0.0087 U	0.0091 U	0.0087 U	0.0086 U
4-Chlorophenyl Phenyl Ether	--	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
4-Nitroaniline	0.0016	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U
4-Nitrophenol	--	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.18 U	0.16 U	0.17 U	0.17 U	0.16 U	0.17 U	0.16 U	0.17 U	0.16 U	0.16 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID		CFMW-033	CFMW-034	CFMW-035	CFMW-037	CFMW-038	CFMW-040	CFMW-042	CFMW-043	CFMW-044A	CFMW-045A	CFMW-047	CFMW-049A	CFMW-050	CFMW-053A	CFMW-054
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		7/1/2016	5/31/2016	6/1/2016	6/24/2016	6/25/2016	6/28/2016	6/16/2016	6/15/2016	7/20/2016	8/12/2016	6/21/2016	8/20/2016	6/22/2016	8/17/2016	6/20/2016
Acenaphthene	0.55	0.0085 U	0.0086 U	0.0084 U	0.019 J	0.0085 U	0.0088 U	0.0083 U	0.0083 U	0.0085 U	0.0083 U	0.0084 U	0.0082 U	0.0085 U	0.0081 U	0.0081 U
Acenaphthylene	--	0.009 U	0.0091 U	0.0089 U	0.0091 U	0.009 U	0.0094 U	0.0088 U	0.0089 U	0.0091 U	0.0088 U	0.009 U	0.0087 U	0.0091 U	0.0087 U	0.0086 U
Acetophenone	0.058	0.0076 U	0.0077 U	0.0075 U	0.0077 U	0.0076 U	0.008 U	0.0074 U	0.0075 U	0.0078 U	0.0075 U	0.0076 U	0.0074 U	0.0077 U	0.0073 U	0.0073 U
Anthracene	5.8	0.033 U	0.034 U	0.033 U	0.034 U	0.033 U	0.035 U	0.032 U	0.033 U	0.034 U	0.033 U	0.033 U	0.032 U	0.033 U	0.032 U	0.032 U
Atrazine	0.0002	0.016 U	0.016 U	0.015 U	0.016 U	0.016 U	0.019 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U
Benzaldehyde	0.0041	0.027 U	0.027 U	0.026 U	0.027 U	0.027 U	0.028 U	0.026 U	0.026 U	0.027 U	0.026 U	0.027 U	0.026 U	0.027 U	0.026 U	0.026 U
Benzo(A)Anthracene	0.011	0.029 U	0.052	0.029 U	0.15	0.13	0.053	0.029 U	0.029 U	0.03 U	0.074	0.029 U	0.028 U	0.029 U	0.028 U	0.028 U
Benzo(A)Pyrene	0.029	0.024 J	0.038	0.01 U	0.17	0.16	0.063	0.01 U	0.01 U	0.011 U	0.09	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U
Benzo(B)Fluoranthene	0.3	0.03 J	0.14	0.013 U	0.25	0.28	0.15	0.013 U	0.013 U	0.014 U	0.19	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U
Benzo(G,H,I)Perylene	--	0.02 U	0.058 J	0.02 U	0.12 J	0.17 J	0.1 J	0.02 U	0.02 U	0.02 U	0.091 J	0.02 U	0.019 U	0.02 U	0.019 U	0.019 U
Benzo(K)Fluoranthene	2.9	0.015 U	0.036	0.015 U	0.11	0.088	0.047	0.015 U	0.015 U	0.016 U	0.075	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Benzyl Butyl Phthalate	0.24	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.03 U	0.029 U	0.03 U	0.03 U	0.031 U	0.029 U	0.029 U	0.03 U	0.029 U	0.03 U	0.029 U	0.03 U	0.029 U	0.029 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0083 U	0.0084 U	0.0082 U	0.0083 U	0.0083 U	0.0086 U	0.0081 U	0.0081 U	0.0084 U	0.0081 U	0.0082 U	0.008 U	0.0083 U	0.0079 U	0.0079 U
Bis(2-Chloroisopropyl) Ether	0.026	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.014 U	0.013 U	0.014 U	0.02 J	0.013 U
Caprolactam	0.25	0.025 U	0.026 U	0.025 U	0.026 UJ	0.025 UJ	0.0[illegible] U	0.025 U	0.025 U	0.026 U	0.025 U	0.025 U	0.024 U	0.025 UJ	0.024 U	0.024 U
Carbazole	--	0.0087 U	0.0088 U	0.0086 U	0.025 J	0.0087 U	0.019 J	0.0085 U	0.0085 U	0.0088 U	0.014 J	0.0086 U	0.0084 U	0.0087 U	0.0083 U	0.0083 U
Chrysene	9	0.026 J	0.069 J	0.0094 U	0.19 J	0.19 J	0.09 J	0.0093 U	0.0094 U	0.0097 U	0.13 J	0.0095 U	0.0092 U	0.0096 U	0.0092 U	0.0091 U
Dibenz(A,H)Anthracene	0.096	0.018 U	0.023 J	0.018 U	0.032 J	0.038	0.019 J	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.017 U
Dibenzofuran	0.015	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U
Diethyl Phthalate	0.61	0.01 U	0.01 U	0.0098 U	0.01 U	0.01	0.01 U	0.0097 U	0.0098 U	0.01 U	0.0097 U	0.0099 U	0.0095 U	0.01 U	0.0096 U	0.0095 U
Dimethyl Phthalate	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01	0.011 U	0.0099 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.0098 U	0.01 U	0.0098 U	0.0097 U
Di-N-Butyl Phthalate	0.23	0.02 J	0.011 U	0.01 U	0.011 U	0.011 U	0.011 J	0.01 U	0.01 U	0.011 U	0.01 U	0.034 J	0.01 U	0.011 U	0.015 J	0.019 J
Di-N-Octylphthalate	5.7	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.017 U	0.018 U	0.018 U	0.017 U	0.018 U	0.017 U	0.018 U	0.017 U	0.017 U
Fluoranthene	8.9	0.03 J	0.058 J	0.01 U	0.24 J	0.2 J	0.085 J	0.01 U	0.01 U	0.011 U	0.17 J	0.01 U	0.01 UJ	0.01 U	0.01 U	0.0099 U
Fluorene	0.54	0.0076 U	0.0077 U	0.0075 U	0.014 J	0.0076 U	0.008 U	0.0074 U	0.0075 U	0.0078 U	0.0075 U	0.0076 U	0.0074 U	0.0077 U	0.0073 U	0.0073 U
Hexachlorobenzene	0.00012	0.014 U	0.014 UJ	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Hexachlorobutadiene	0.00027	0.0099 U	0.01 U	0.0097 U	0.009[illegible] U	0.0099 U	0.01 U	0.0096 U	0.0097 U	0.01 U	0.0096 U	0.0098 U	0.0095 U	0.0099 U	0.0095 U	0.0094 U
Hexachlorocyclopentadiene	0.00013	0.022 U	0.022 U	0.022 U	[illegible] U	0.022 U	0.023 U	0.021 U	0.021 U	0.022 U	0.021 U	0.022 U	0.021 UJ	0.022 U	0.021 U	0.021 U
Hexachloroethane	0.0002	0.013 U	0.013 U	0.013 U	[illegible] U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.012 U	0.013 U	0.012 U	0.012 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.023 U	0.06	0.023 U	0.13	0.15	0.1	0.023 U	0.023 U	0.024 U	0.078	0.023 U	0.022 U	0.023 U	0.022 U	0.022 U
Isophorone	0.026	0.0075 U	0.0076 U	0.0074 U	0.0076 U	0.0075 U	0.0079 U	0.0073 U	0.0074 U	0.0077 U	0.0074 U	0.0075 U	0.0073 U	0.0076 U	0.0072 U	0.0072 U
Naphthalene	0.00054	0.0089 U	0.009 U	0.0088 U	0.009 U	0.0089 U	0.0093 U	0.022 J	0.086 J	0.0091 U	0.0087 U	0.0089 U	0.0086 U	0.009 U	0.0086 U	0.0085 U
Nitrobenzene	0.000092	0.011 U	0.011 U	0.01[illegible] U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	[illegible]	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.032 U	0.031 U	0.032 U	0.032 U	0.033 U	0.031 UJ	0.031 U	0.032 U	0.031 U	0.032 U	0.031 U	0.032 UJ	0.031 U	0.03 U
Pentachlorophenol	0.000057	0.042 U	0.043 UJ	0.042 UJ	0.043 U	0.042 U	0.044 U	0.041 UJ	0.042 U	0.043 U	0.041 U	0.042 U	0.041 UJ	0.043 UJ	0.041 UJ	0.04 U
Phenanthrene	--	0.015 J	0.034 J	0.0092 U	0.15 J	0.082 J	0.037 J	0.0091 U	0.0092 U	0.0095 U	0.065 J	0.0093 U	0.009 U	0.0094 U	0.009 U	0.0089 U
Phenol	0.33	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U
Pyrene	1.3	0.034 J	0.078 J	0.016 U	0.26 J	0.23 J	0.086 J	0.016 U	0.016 U	0.016 U	0.16 J	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00035 U	0.00022 U	0.00025 U	0.00028 U	0.0003 U	0.00032 U	0.00019 U	0.0003 U	0.00037 U	0.00034 U	0.00031 U	0.00037 U	0.00032 U	0.00025 UJ	0.00029 U
1,1,2,2-Tetrachloroethane	0.00003	0.00016 U	0.00015 U	0.00016 U	0.00012 U	0.00013 U	0.00014 U	0.000087 U	0.00013 U	0.00016 U	0.00015 U	0.00014 U	0.00016 U	0.00015 U	0.00016 UJ	0.00013 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00041 U	0.00028 U	0.0004 U	0.00032 U	0.00035 U	0.00037 U	0.00022 UJ	0.00034 U	0.00042 U	0.00039 U	0.00036 U	0.00048 U	0.00038 U	0.00041 UJ	0.00033 U
1,1,2-Trichloroethane	0.000013	0.00026 U	0.00024 U	0.00026 U	0.0002 U	0.00022 U	0.00024 U	0.00014 U	0.00022 U	0.00027 U	0.00025 U	0.00023 U	0.00027 U	0.00024 U	0.00026 UJ	0.00021 U
1,1-Dichloroethane	0.00078	0.00032 U	0.00029 U	0.00031 U	0.00025 U	0.00027 U	0.00029 U	0.00017 U	0.00026 U	0.00033 U	0.0003 U	0.00028 U	0.00033 U	0.00029 U	0.00031 UJ	0.00026 U
1,1-Dichloroethene	0.01	0.00038 U	0.00035 U	0.00038 U	0.0003 U	0.00032 U	0.00034 U	0.00021 U	0.00032 U	0.00039 U	0.0003 U	0.00033 U	0.0004 U	0.00035 U	0.00038 UJ	0.00031 U
1,2,3-Trichlorobenzene	0.0021	0.0001 U	0.000094 U	0.0001 UJ	0.00008 U	0.000087 U	0.000092 U	0.000056 U	0.000086 U	0.00011 UJ	0.000099 U	0.000089 U	0.00011 UJ	0.000094 U	0.0001 UJ	0.000082 U
1,2,4-Trichlorobenzene	0.0012	0.0008 U	0.00027 U	0.00029 UJ	0.00023 U	0.00025 U	0.00027 U	0.00016 UJ	0.00025 U	0.00031 U	0.00029 U	0.00026 U	0.00031 UJ	0.00027 U	0.00029 UJ	0.00024 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00044 U	0.0004 U	0.00043 U	0.00034 U	0.00037 U	0.0004 U	0.00024 U	0.00037 U	0.00045 U	0.00042 U	0.00038 U	0.00045 U	0.0004 U	0.00043 U	0.00035 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00011 U	0.0001 U	0.00011 U	0.000088 U	0.000095 U	0.0001 U	0.000061 U	0.000094 U	0.00012 U	0.00011 U	0.000098 U	0.00012 U	0.0001 U	0.00011 UJ	0.000009 U
1,2-Dichlorobenzene	0.03	0.00013 U	0.00012 U	0.00013 U	0.0001 U	0.00011 U	0.00012 U	0.000072 UJ	0.00011 U	0.00013 U	0.00013 U	0.00011 U	0.00014 UJ	0.00012 U	0.00013 UJ	0.00011 U
1,2-Dichloroethane	0.000048	0.0001 U	0.000094 U	0.0001 U	0.00008 U	0.000087 U	0.000092 U	0.000056 U	0.000086 U	0.00011 U	0.000099 U	0.000089 U	0.00011 U	0.000094 U	0.0001 U	0.000083 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-033	CFMW-034	CFMW-035	CFMW-037	CFMW-038	CFMW-040	CFMW-042	CFMW-043	CFMW-044A	CFMW-045A	CFMW-047	CFMW-049A	CFMW-050	CFMW-053A	CFMW-054
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		7/1/2016	5/31/2016	6/1/2016	6/24/2016	6/25/2016	6/28/2016	6/16/2016	6/15/2016	7/20/2016	8/12/2016	6/21/2016	8/20/2016	6/22/2016	8/17/2016	6/20/2016
1,2-Dichloropropane	0.000047	0.00016 U	0.00015 U	0.00016 U	0.00012 U	0.00013 U	0.00014 U	0.00087 U	0.00013 U	0.00015 U	0.00015 U	0.00014 U	0.00016 U	0.00015 U	0.00016 UJ	0.00012 U
1,3-Dichlorobenzene	--	0.00011 U	0.0008 U	0.00011 U	0.00008 U	0.00009 U	0.0001 U	0.00061 U	0.00094 U	0.0011 U	0.0011 U	0.00098 U	0.00012 U	0.0001 U	0.00011 UJ	0.00009 U
1,4-Dichlorobenzene	0.00046	0.00012 U	0.00011 U	0.00012 U	0.00009 U	0.0001 U	0.00011 U	0.00066 UJ	0.0001 U	0.00013 U	0.00012 U	0.00011 U	0.00013 U	0.00011 U	0.00012 UJ	0.00009 U
2-Hexanone	0.00088	0.0008 U	0.0008 U	0.00086 U	0.00069 U	0.00074 U	0.00079 U	0.0048 U	0.00073 U	0.0009 U	0.00084 U	0.00076 U	0.0009 U	0.00081 U	0.00087 UJ	0.00071 U
Acetone	0.29	0.011	0.0091 U	0.00098 U	0.013	0.011	0.014 J+	0.0057	0.0063	0.014 J+	0.017	0.013 J+	0.001 U	0.016 J+	0.012 J	0.011 J+
Benzene	0.00023	0.00026 J	0.00023 J	0.00018 U	0.00044 J	0.00043 J	0.00035 J	0.00019 J	0.00048 J	0.00052 J	0.00046 J	0.00056 J	0.0019 U	0.00065 J	0.00062 J	0.00072 J
Bromochloromethane	0.0021	0.00016 U	0.0015 U	0.00016 U	0.00012 U	0.00013 U	0.0014 U	0.00087 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0016 U	0.0015 U	0.0016 UJ	0.0013 U
Bromodichloromethane	0.000036	0.0035 U	0.0032 U	0.0035 U	0.0028 U	0.0003 U	0.0032 U	0.0019 U	0.0003 U	0.0037 U	0.0034 U	0.0031 U	0.0037 U	0.0033 U	0.0035 UJ	0.0029 U
Bromoform	0.00087	0.00012 U	0.00011 U	0.00012 U	0.00009 U	0.0001 U	0.00011 U	0.00066 U	0.0001 U	0.00013 UJ	0.00012 U	0.00011 U	0.00013 U	0.00011 U	0.00012 U	0.00008 U
Bromomethane	0.00019	0.0003 U	0.00027 U	0.00029 U	0.00023 U	0.00025 U	0.00027 U	0.00016 U	0.00025 UJ	0.00031 U	0.00029 U	0.00026 UJ	0.00031 U	0.00027 U	0.00029 U	0.00024 U
Carbon Disulfide	0.024	0.00055 J	0.0037 U	0.0004 U	0.0031 U	0.00044 J	0.00037 J	0.00056	0.0034 U	0.0041 U	0.0006 J	0.00095	0.0042 U	0.0037 U	0.0004 UJ	0.00098
Carbon Tetrachloride	0.00018	0.0004 U	0.0037 U	0.0004 U	0.0031 U	0.0034 U	0.0036 UJ	0.0019 U	0.0034 U	0.0041 U	0.0029 U	0.0035 U	0.0042 U	0.0037 U	0.0004 U	0.0032 U
Chlorobenzene	0.0053	0.0013 U	0.0012 U	0.0013 U	0.001 U	0.0011 U	0.0012 U	0.0008 U	0.0011 U	0.0013 U	0.0013 U	0.0011 U	0.0014 U	0.0012 U	0.0013 UJ	0.0011 U
Chloroethane	0.59	0.0033 U	0.0028 U	0.0032 U	0.0026 U	0.0028 U	0.0029 U	0.0018 U	0.0027 UJ	0.0034 U	0.0031 U	0.0028 U	0.0034 U	0.0003 U	0.0032 U	0.0026 U
Chloroform	0.000061	0.002 U	0.0018 U	0.0019 U	0.0015 U	0.0017 U	0.0018 U	0.0011 U	0.0016 U	0.002 U	0.0019 U	0.0017 U	0.002 U	0.0018 U	0.0019 UJ	0.0016 U
Chloromethane	0.0049	0.0035 U	0.0032 U	0.0035 U	0.0028 U	0.0003 U	0.0032 UJ	0.0019 UJ	0.0003 UJ	0.0037 U	0.0034 U	0.0031 U	0.0037 U	0.0033 U	0.0035 U	0.0029 U
Cis-1,2-Dichloroethylene	0.0011	0.002 U	0.0019 U	0.002 U	0.0016 U	0.0017 U	0.0018 U	0.0011 U	0.0017 U	0.0021 U	0.002 U	0.0018 U	0.0021 U	0.0019 U	0.002 UJ	0.0017 U
Cis-1,3-Dichloropropene	--	0.0014 U	0.0013 U	0.0014 U	0.0011 U	0.0012 U	0.0013 U	0.0007 U	0.0012 U	0.0014 U	0.0013 U	0.0012 U	0.0015 U	0.0013 U	0.0014 UJ	0.0011 U
Cyclohexane	1.3	0.00072 J	0.00078 J	0.00042 U	0.0009	0.00081	0.0037 U	0.00082	0.0036 U	0.0014	0.0012	0.0037 U	0.0045 U	0.00082 J	0.0042 U	0.0027
Dibromochloromethane	0.00023	0.0014 U	0.0013 U	0.0014 U	0.0011 U	0.0012 U	0.0013 U	0.0007 U	0.0012 U	0.0014 U	0.0013 U	0.0012 U	0.0015 U	0.0013 U	0.0014 U	0.0011 U
Dichlorodifluoromethane	0.03	0.0003 U	0.00027 U	0.00029 U	0.00023 U	0.00025 U	0.00027 U	0.00016 UJ	0.00025 UJ	0.00031 UJ	0.00029 U	0.00026 U	0.00031 U	0.00027 U	0.00029 UJ	0.00024 U
Ethylbenzene	0.0017	0.0017 U	0.00029 J	0.0017 U	0.00016 J	0.0014 U	0.0015 U	0.00015 J-	0.00052 J	0.00034 J	0.00043 J	0.00054 J	0.0017 U	0.00033 J	0.00029 J	0.0013
Isopropylbenzene (Cumene)	0.074	0.0016 U	0.0015 U	0.0016 U	0.0012 U	0.0013 U	0.0014 U	0.0008 UJ	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0016 U	0.0015 U	0.0016 UJ	0.00019 J
M,P-Xylene	--	0.00043 J	0.0011	0.00015 J	0.0004 J	0.0008 U	0.00021 J	0.00065 J-	0.0018	0.0013	0.00092	0.0014	0.0011 U	0.00096	0.00044 J	0.0033
Methyl Acetate	0.41	0.0084 U	0.0077 U	0.0088 U	0.0066 U	0.0072 U	0.0076 U	0.0046 U	0.0007 U	0.0087 U	0.0081 U	0.0073 U	0.0087 U	0.0077 U	0.0083 U	0.0068 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0072 U	0.0066 U	0.0071 U	0.0019 J	0.0017 J	0.002 J	0.0039 U	0.0006 U	0.0074 U	0.0029 J	0.0025 J	0.0075 U	0.0019 J	0.0029 J	0.0019 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0021 U	0.0019 U	0.002 U	0.0016 U	0.0018 U	0.0019 U	0.0011 U	0.0017 U	0.0021 U	0.002 U	0.0018 U	0.0021 U	0.0019 U	0.002 UJ	0.0017 U
Methylcyclohexane	--	0.00053 J	0.0015	0.00046 U	0.0011	0.00049 J	0.00042 J	0.00077 J-	0.0022	0.0018	0.0013	0.0017	0.0048 U	0.0011	0.0017 J	0.0047
Methylene Chloride	0.0027	0.0003 U	0.00027 U	0.00029 U	0.00023 U	0.00025 U	0.00027 U	0.00016 U	0.00025 U	0.00031 U	0.00029 U	0.00026 U	0.00031 U	0.00027 U	0.00029 UJ	0.00024 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00016 J	0.00035 J	0.0015 U	0.00015 J	0.0013 U	0.0012 U	0.00017 J-	0.00052 J	0.00038 J	0.00036 J	0.00057 J	0.0015 U	0.00033 J	0.00017 J	0.0011
Styrene	0.13	0.0014 U	0.0013 U	0.0014 U	0.0011 U	0.0012 U	0.0012 U	0.0007 UJ	0.0012 U	0.0014 U	0.0013 U	0.0012 U	0.0015 U	0.0012 U	0.0014 UJ	0.0011 U
Tert-Butyl Methyl Ether	0.0032	0.0016 U	0.0015 U	0.0016 U	0.0012 U	0.0013 U	0.0014 U	0.0008 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0016 U	0.0015 U	0.0016 UJ	0.0013 U
Tetrachloroethylene (PCE)	0.0018	0.0026 U	0.0024 U	0.0026 U	0.0002 U	0.0022 U	0.0024 U	0.0014 UJ	0.0022 U	0.0027 U	0.0025 U	0.0023 U	0.0027 U	0.0024 U	0.0026 UJ	0.0021 U
Toluene	0.076	0.00091 J	0.0014	0.00024 J	0.00091	0.00085	0.00061 J	0.00063	0.0022	0.0018	0.0015	0.002	0.00033 J	0.0015	0.0011 J	0.0044
Trans-1,2-Dichloroethene	0.011	0.0036 U	0.0033 U	0.0035 U	0.0028 U	0.0031 U	0.0033 U	0.002 U	0.0030 U	0.0038 U	0.0035 U	0.0032 U	0.0038 U	0.0033 U	0.0036 UJ	0.0029 U
Trans-1,3-Dichloropropene	--	0.00093 U	0.00085 U	0.00092 U	0.00073 U	0.00079 U	0.00084 U	0.00051 U	0.00078 U	0.00096 U	0.00089 U	0.00081 U	0.00097 U	0.00086 U	0.00092 UJ	0.00075 U
Trichloroethylene (TCE)	0.0001	0.0024 U	0.0022 U	0.0025 U	0.0019 U	0.0021 U	0.0022 U	0.0013 UJ	0.0002 U	0.0025 U	0.0023 U	0.0021 U	0.0025 U	0.0022 U	0.0024 UJ	0.0002 U
Trichlorofluoromethane	0.33	0.0032 U	0.0029 U	0.0031 U	0.0025 U	0.0027 U	0.0029 U	0.0017 U	0.0026 U	0.0033 U	0.0003 U	0.0028 U	0.0033 U	0.0029 U	0.0031 UJ	0.0026 U
Vinyl Chloride	0.0000065	0.0026 U	0.0023 U	0.0026 U	0.0028 U	0.0031 U	0.0033 UJ	0.0002 U	0.0003 U	0.0038 U	0.0035 U	0.0032 U	0.0038 U	0.0032 UJ	0.0036 UJ	0.0029 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-010	CFSB-012	CFSB-013	CFSB-038	CFSB-040	CFSB-042	CFSB-044	CFSB-045	CFSB-046	CFSB-048	CFSB-049	CFSB-050	CFSB-051	CFSB-052	CFSB-053
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/21/2016	5/28/2016	5/19/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016	5/21/2016	5/20/2016	5/20/2016	5/28/2016	5/21/2016	5/21/2016	5/20/2016	5/31/2016
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (mg/kg)																
Aluminum	3000	7310	8110	6240 J	6370 J	8000	6300	6640	7280 J	6720	6820	6030	5900 J	7430	6620	7650
Antimony	0.035	0.43 UJ	0.35 U	0.32 UJ	0.4 UJ	0.43 UJ	0.4 UJ	0.43 UJ	0.38 UJ	0.37 UJ	0.42 UJ	0.4 U	0.37 UJ	0.43 UJ	0.39 UJ	0.41 UJ
Arsenic	0.0015	3.1 J	3.7 J	2.8 J	3	4.3 J	4.4 J	3.9	2.9	3.5 J	3.3	3.4	3 J	6 J	4.9 J	4.1
Barium	16	121	62.7 J	68.9	83.5	56.4	54.1	58.5 J+	61.3	44.4	39.1 J+	44.3	42.7	65.4	82.3	57.6
Beryllium	1.9	0.33 J	0.33 J	0.33	0.25 J	0.38 J	0.29 J	0.37 J	0.29 J	0.3 J	0.38 J	0.21 J	0.23 J	0.33 J	0.35 J	0.38 J
Cadmium	0.069	0.32 U	0.26 U	0.25 U	0.31 U	0.33 U	0.3 U	0.33 U	0.29 U	0.28 U	0.32 U	0.3 U	0.28 U	0.32 U	0.29 U	0.31 U
Calcium	--	28800 J	35900 J	7110	19400 J	29400 J	59500 J	39200	31500 J	36000 J	33900	41400	28500 J	43200 J	30900 J	33200
Chromium, Total	--	12.1	14 J	9.7	8.8 J	11.8	7.9	8.6	9.8 J	12.1	8.5	7.8	7.8 J	10.8	9.5	10.8
Cobalt	0.027	4.6	5.2	6.3	4.3	5	4.4	5.3	4.2	4.3	4.5	3.9	4.3	5.4	5	4.6
Copper	2.8	11.2 J+	14.4	9.4 J	9.7 J	12.7 J+	9.3 J+	9.9	11.2 J	11.9 J+	9.8	8.3	13.5 J	14.1 J+	12.8 J+	15.6 J
Iron	35	12600	13100	12900	11400 J	13400	11000	13200	10900 J	12200	12300	10600	11200 J	12600	13800	12500
Lead	400	5.4 J	4.7	5.4	4.9 J	16.1 J	9 J	5.4	19.2 J	6.6 J	4.9	5.8	3.9 J	10.8 J	5.9 J	7.2 J
Magnesium	--	9810 J	12000 J	7520	8370 J	9810 J	12100 J	12600	9720 J	11400 J	10600	11300	9540 J	9730 J	10900 J	12800
Manganese	2.8	336	371 J	855 J	409	355	339	339	308	314	295	265	324	377	359	329
Mercury	0.0033	0.014 J	0.015	0.012 U	0.013 J	0.019	0.015 J	0.015 J	0.018	0.014 J	0.011 U	0.012 J	0.012 J	0.021	0.014 J	0.017
Nickel	2.6	10 J+	10.5 J	9.4	8.5 J	12.3 J+	8.4 J+	10.2	10.6 J	9.4 J+	9.3	8	9.2 J	10.9 J+	9.5 J+	9.9 J
Potassium	--	663 J	752 J	619	723	768 J	545 J	548	745	543 J	637	442	559 J	696 J	629 J	661
Selenium	0.052	0.4 U	0.33 U	0.3 U	0.38 U	0.41 U	0.37 U	0.4 U	0.36 U	0.35 U	0.39 U	0.37 U	0.34 U	0.4 U	0.36 U	0.38 U
Silver	0.08	0.78 U	0.64 U	0.59 U	0.74 U	0.79 U	0.73 U	0.79 U	0.7 U	0.68 U	0.76 U	0.73 U	0.67 U	0.78 U	0.71 U	0.75 U
Sodium	--	47.5 J	71.9 J	30.3 U	44 J	150	37.4 U	76 J	293	34.8 U	58.5 J	37.1 U	37.4 J	90.9 J	58.4 J	52.8 J
Thallium	0.0014	0.16 U	0.13 U	0.12 U	0.15 U	0.16 U	0.15 U	0.16 U	0.14 U	0.14 U	0.16 U	0.15 U	0.14 U	0.16 U	0.13 U	0.15 U
Vanadium	8.6	9	10 J	7.1	7 J	9.2	5.8	10.8	8.5 J	7.8	9.3	5.4	7 J	7.1	8.4	9.1
Zinc	37	30.9 J	33	33	28.7 J	40.9 J	26.6 J	31.3	39.5 J	30.3 J	32.1	27.1	28.9 J	44.7 J	36.7	30.8
PESTICIDES (mg/kg)																
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-010	CFSB-012	CFSB-013	CFSB-038	CFSB-040	CFSB-042	CFSB-044	CFSB-045	CFSB-046	CFSB-048	CFSB-049	CFSB-050	CFSB-051	CFSB-052	CFSB-053
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/21/2016	5/28/2016	5/19/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016	5/21/2016	5/20/2016	5/20/2016	5/28/2016	5/21/2016	5/21/2016	5/20/2016	5/31/2016
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.0093 U	0.0093 U	0.0093 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0093 U	0.0094 U	0.0096 U	0.0092 U	0.0092 U	0.0094 U	0.0094 U	0.0094 U
PCB-1221 (Aroclor 1221)	0.00008	0.0093 U	0.0093 U	0.0093 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0093 U	0.0094 U	0.0096 U	0.0092 U	0.0092 U	0.0094 U	0.0094 U	0.0094 U
PCB-1232 (Aroclor 1232)	0.00008	0.0093 U	0.0093 U	0.0093 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0093 U	0.0094 U	0.0096 U	0.0092 U	0.0093 U	0.0094 U	0.0094 U	0.0094 U
PCB-1242 (Aroclor 1242)	0.0012	0.0093 U	0.0093 U	0.0093 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0093 U	0.0094 U	0.0096 U	0.0092 U	0.0093 U	0.0094 U	0.0094 U	0.0094 U
PCB-1248 (Aroclor 1248)	0.0012	0.0093 U	0.0092 U	0.0092 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0093 U	0.0094 U	0.0096 U	0.0092 U	0.0093 U	0.0094 U	0.0094 U	0.0094 U
PCB-1254 (Aroclor 1254)	0.002	0.0096 U	0.0096 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.0096 U	0.0096 U	0.0097 U	0.0099 U	0.0095 U	0.0096 U	0.0097 U	0.0097 U	0.0097 U
PCB-1260 (Aroclor 1260)	0.0055	0.0096 U	0.0096 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.0096 U	0.0096 U	0.0097 U	0.0099 U	0.0095 U	0.0096 U	0.0097 U	0.0097 U	0.0097 U
PCB-1262 (Aroclor 1262)	--	0.0096 U	0.0096 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.0096 U	0.0096 U	0.0097 U	0.0099 U	0.0095 U	0.0096 U	0.0097 U	0.0097 U	0.0097 U
PCB-1268 (Aroclor 1268)	--	0.0096 U	0.0096 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.0096 U	0.0096 U	0.0097 U	0.0099 U	0.0095 U	0.0096 U	0.0097 U	0.0097 U	0.0097 U
Polychlorinated Biphenyl (PCBs)	--	0.0096 U	0.0096 U	0.0097 U	0.0096 U	0.0097 U	0.0096 U	0.0096 U	0.0096 U	0.0097 U	0.0099 U	0.0095 U	0.0096 U	0.0097 U	0.0097 U	0.0097 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.026 U	0.026 U	0.026 U	0.026 U	0.13 U	0.026 U	0.026 U	0.051 U	0.026 U	0.026 U	0.025 UJ	0.026 U	0.026 U	0.026 U	0.026 UJ
1,4-Dioxane (P-Dioxane)	0.000094	0.092 U	0.092 U	0.093 U	0.092 U	0.47 U	0.092 U	0.093 U	0.18 U	0.094 U	0.095 U	0.091 UJ	0.092 U	0.094 U	0.093 U	0.093 UJ
2,3,4,6-Tetrachlorophenol	0.018	0.033 U	0.032 U	0.033 U	0.032 U	0.16 U	0.032 U	0.033 U	0.065 U	0.033 U	0.033 U	0.032 UJ	0.032 U	0.032 U	0.033 U	0.033 UJ
2,4,5-Trichlorophenol	0.4	0.034 U	0.034 U	0.035 U	0.034 U	0.17 U	0.034 U	0.035 U	0.069 U	0.035 U	0.035 U	0.034 UJ	0.034 U	0.035 U	0.035 U	0.035 UJ
2,4,6-Trichlorophenol	0.0012	0.0098 U	0.0098 U	0.0099 U	0.0098 U	0.05 U	0.0098 U	0.0099 U	0.02 U	0.01 U	0.01 U	0.0097 UJ	0.0098 U	0.01 U	0.0099 U	0.0099 UJ
2,4-Dichlorophenol	0.0023	0.0082 U	0.0081 U	0.0083 U	0.0081 U	0.041 U	0.0081 U	0.0082 U	0.016 U	0.0083 U	0.0084 U	0.008 UJ	0.0082 U	0.0083 U	0.0082 U	0.0082 UJ
2,4-Dimethylphenol	0.042	0.076 U	0.076 U	0.0	0.076 U	0.38 U	0.076 U	0.076 U	0.15 U	0.077 U	0.078 U	0.075 UJ	0.076 U	0.077 U	0.077 U	0.076 UJ
2,4-Dinitrophenol	0.0044	0.26 U	0.26 U	0.26 U	0.26 UJ	1.3 U	0.26 U	0.26 U	0.52 U	0.26 U	0.27 U	0.26 UJ	0.26 U	0.26 U	0.26 U	0.26 UJ
2,4-Dinitrotoluene	0.00032	0.014 U	0.014 U	0.014 U	0.014 U	0.069 U	0.014 U	0.014 U	0.027 U	0.014 U	0.014 U	0.014 UJ	0.014 U	0.014 U	0.014 U	0.014 UJ
2,6-Dinitrotoluene	0.000067	0.018 U	0.018 U	0.018 U	0.018 U	0.093 U	0.018 U	0.018 U	0.037 U	0.019 U	0.019 U	0.018 UJ	0.018 U	0.019 U	0.019 U	0.018 UJ
2-Chloronaphthalene	0.39	0.0078 U	0.0078 U	0.0079 U	0.0078 U	0.04 U	0.0078 U	0.0079 U	0.016 U	0.0079 U	0.008 U	0.0077 UJ	0.0078 U	0.0079 U	0.0079 U	0.0079 UJ
2-Chlorophenol	0.0089	0.0088 U	0.0087 U	0.0088 U	0.0088 U	0.044 U	0.0087 U	0.0088 U	0.018 U	0.0089 U	0.009 U	0.0087 UJ	0.0088 U	0.0089 U	0.0089 U	0.0089 UJ
2-Methylnaphthalene	0.019	0.031 J	0.0076 U	0.0077 U	0.0076 U	0.41 J	0.0088 J	0.29 J	0.059 J	0.0077 U	0.19 J	0.0075 UJ	0.0076 U	0.0077 U	0.0077 U	0.0077 UJ
2-Methylphenol (O-Cresol)	0.075	0.015 U	0.015 U	0.015 U	0.015 U	0.076 U	0.015 U	0.015 U	0.03 U	0.015 U	0.015 U	0.015 UJ	0.015 U	0.015 U	0.015 U	0.015 UJ
2-Nitroaniline	0.008	0.011 U	0.011 U	0.011 U	0.011 U	0.057 U	0.011 U	0.011 U	0.023 U	0.012 U	0.012 U	0.011 UJ	0.011 U	0.012 U	0.011 U	0.011 UJ
2-Nitrophenol	--	0.012 U	0.012 U	0.012 U	0.012 U	0.058 U	0.012 U	0.012 U	0.023 U	0.012 U	0.012 U	0.011 UJ	0.012 U	0.012 U	0.012 U	0.012 UJ
3- And 4- Methylphenol (Total)	--	0.0092 U	0.0092 U	0.0092 U	0.0092 U	0.046 U	0.0092 U	0.0092 U	0.018 U	0.0093 U	0.0094 U	0.0091 UJ	0.0092 U	0.0093 U	0.0093 U	0.0092 UJ
3,3'-Dichlorobenzidine	0.00082	0.039 U	0.038 U	0.039 U	0.038 U	0.19 U	0.038 U	0.039 U	0.077 U	0.039 U	0.04 U	0.038 UJ	0.039 U	0.039 U	0.039 U	0.039 UJ
3-Nitroaniline	--	0.01 U	0.01 U	0.01 U	0.01 U	0.052 U	0.01 U	0.01 U	0.02 U	0.01 U	0.011 U	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 UJ
4,6-Dinitro-2-Methylphenol	0.00026	0.092 U	0.092 U	0.093 U	0.092 UJ	0.46 U	0.092 U	0.093 U	0.18 U	0.093 U	0.095 U	0.091 UJ	0.092 U	0.093 U	0.093 U	0.092 UJ
4-Bromophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.011 U	0.055 U	0.011 U	0.011 U	0.022 U	0.011 U	0.011 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.011 UJ
4-Chloro-3-Methylphenol	0.17	0.015 U	0.015 U	0.015 U	0.015 U	0.075 U	0.015 U	0.015 U	0.03 U	0.015 U	0.015 U	0.015 UJ	0.015 U	0.015 U	0.015 U	0.015 UJ
4-Chloroaniline	0.00016	0.0089 U	0.0089 U	0.0089 U	0.0089 U	0.045 U	0.0088 U	0.0089 U	0.018 U	0.009 U	0.0091 U	0.0088 UJ	0.0089 U	0.009 U	0.009 U	0.0089 UJ
4-Chlorophenyl Phenyl Ether	--	0.01 U	0.01 U	0.01 U	0.01 U	0.052 U	0.01 U	0.01 U	0.021 U	0.01 U	0.011 U	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 UJ
4-Nitroaniline	0.0016	0.013 U	0.013 U	0.013 U	0.013 U	0.066 U	0.013 U	0.013 U	0.026 U	0.013 U	0.013 U	0.013 UJ	0.013 U	0.013 U	0.013 U	0.013 UJ
4-Nitrophenol	--	0.17 U	0.17 U	0.17 U	0.17 U	0.84 U	0.17 U	0.17 U	0.33 U	0.17 U	0.17 U	0.16 UJ	0.17 U	0.17 U	0.17 U	0.17 UJ

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-010	CFSB-012	CFSB-013	CFSB-038	CFSB-040	CFSB-042	CFSB-044	CFSB-045	CFSB-046	CFSB-048	CFSB-049	CFSB-050	CFSB-051	CFSB-052	CFSB-053
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/21/2016	5/28/2016	5/19/2016	5/21/2016	5/20/2016	5/20/2016	5/20/2016	5/21/2016	5/20/2016	5/20/2016	5/28/2016	5/21/2016	5/21/2016	5/20/2016	5/31/2016
Acenaphthene	0.55	0.045 J	0.0083 U	0.0084 U	0.0083 U	3.1	0.064 J	0.09 J	0.49 J	0.0085 U	0.062 J	0.0082 UJ	0.011 J	0.051 J	0.011 J	0.0084 UJ
Acenaphthylene	--	0.0089 U	0.0089 U	0.0089 U	0.0089 U	0.045 U	0.0088 U	0.0089 U	0.016 U	0.0091 U	0.0091 U	0.0088 UJ	0.0089 U	0.009 U	0.009 U	0.0089 UJ
Acetophenone	0.058	0.0075 U	0.0075 U	0.0076 U	0.0075 U	0.038 U	0.0075 U	0.0076 U	0.015 U	0.0076 U	0.0077 U	0.0074 UJ	0.0075 U	0.0077 J	0.0076 U	0.0076 UJ
Anthracene	5.8	0.067 J	0.033 U	0.033 U	0.033 U	4.6	0.2 J	0.033 U	0.93	0.033 U	0.034 U	0.032 UJ	0.033 U	0.14 J	0.033 U	0.033 UJ
Atrazine	0.0002	0.015 U	0.015 U	0.015 U	0.015 U	0.077 U	0.015 U	0.015 U	0.031 U	0.016 U	0.016 U	0.015 UJ	0.015 U	0.016 U	0.015 U	0.015 UJ
Benzaldehyde	0.0041	0.026 U	0.026 U	0.026 U	0.026 U	0.13 U	0.026 U	0.026 U	0.05 U	0.027 U	0.027 U	0.026 UJ	0.026 U	0.027 U	0.027 U	0.026 UJ
Benzo(A)Anthracene	0.011	0.29	0.029 U	0.029 U	0.029 U	19	0.81	0.092	5.6	0.14	0.031 J	0.028 UJ	0.1	1.1	0.14	0.029 UJ
Benzo(A)Pyrene	0.029	0.33	0.03 J	0.01 U	0.029 J	23	0.97	0.091	7.6	0.15	0.029 J	0.01 UJ	0.13	1.1	0.14	0.011 UJ
Benzo(B)Fluoranthene	0.3	0.48	0.029 J	0.014 U	0.11	25	1.3	0.13	10	0.22	0.037	0.013 UJ	0.18	1.8	0.17	0.014 UJ
Benzo(G,H,I)Perylene	--	0.36	0.023 J+	0.02 U	0.028 J	26 J+	0.83 J+	0.06 J	11 J+	0.15 J+	0.029 J	0.02 UJ	0.086 J	1.1 J+	0.12 J+	0.02 UJ
Benzo(K)Fluoranthene	2.9	0.15	0.015 U	0.015 U	0.015 U	12	0.43	0.054	3.3	0.092	0.018 J	0.015 UJ	0.08	0.59	0.074	0.015 UJ
Benzyl Butyl Phthalate	0.24	0.011 U	0.011 U	0.011 U	0.011 U	0.054 U	0.011 U	0.011 U	0.061 J	0.011 U	0.011 U	0.011 UJ	6.3	0.056 J	0.011 U	0.011 UJ
Biphenyl (Diphenyl)	0.00087	0.029 U	0.029 U	0.03 U	0.029 U	0.15 U	0.029 U	0.054 J	0.059 U	0.03 U	0.033 J	0.029 UJ	0.029 U	0.03 U	0.03 U	0.03 UJ
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.011 U	0.054 U	0.011 U	0.011 U	0.021 U	0.011 U	0.011 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.011 UJ
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0082 U	0.0081 U	0.0082 U	0.0081 U	0.041 U	0.0081 U	0.0082 U	0.016 U	0.0083 U	0.0084 U	0.008 UJ	0.0082 U	0.0083 U	0.0082 U	0.0082 UJ
Bis(2-Chloroisopropyl) Ether	0.026	0.014 U	0.014 U	0.014 U	0.014 U	0.072 U	0.014 U	0.014 U	0.028 U	0.014 U	0.015 U	0.014 UJ	0.014 U	0.014 U	0.014 U	0.014 UJ
Bis(2-Ethylhexyl) Phthalate	1.3	0.013 U	0.013 U	0.014 U	0.013 U	0.068 U	0.012 U	0.014 U	0.027 U	0.014 U	0.014 U	0.013 UJ	0.062 J	0.051 J	0.014 U	0.014 UJ
Caprolactam	0.25	0.025 U	0.025 U	0.025 U	0.025 U	0.13 UJ	0.025 U	0.025 U	0.05 U	0.025 UJ	0.026 U	0.025 UJ	0.025 UJ	0.025 UJ	0.025 UJ	0.025 UJ
Carbazole	--	0.053 J	0.0085 U	0.0086 U	0.0085 U	3.4	0.16 J	0.01 J	0.81	0.019 J	0.0088 U	0.0085 UJ	0.015 J	0.11 J	0.028 J	0.0086 UJ
Chrysene	9	0.63	0.038 J	0.0094 U	0.062 J	24	1.1	0.11 J	7.3	0.18 J	0.027 J	0.015 J-	0.13 J	1.4	0.17 J	0.0095 UJ
Dibenz(A,H)Anthracene	0.096	0.098	0.018 U	0.018 U	0.018 U	6.2 J+	0.21 J+	0.018 U	2.3 J+	0.044 J+	0.018 U	0.018 UJ	0.021 J	0.31 J+	0.035 J+	0.018 UJ
Dibenzofuran	0.015	0.02 J	0.01 U	0.01 U	0.01 U	1.1 J	0.025 J	0.068 J	0.22 J	0.011 U	0.036 J	0.01 UJ	0.01 U	0.021 J	0.011 U	0.011 UJ
Diethyl Phthalate	0.61	0.0098 U	0.0098 U	0.0099 U	0.0098 U	0.05 U	0.0098 U	0.0099 U	0.02 U	0.01 U	0.01 U	0.0097 UJ	0.0099 U	0.01 U	0.0099 U	0.0099 UJ
Dimethyl Phthalate	--	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.02 U	0.01 U	0.01 U	0.0099 UJ	0.01 U	0.01 U	0.01 U	0.01 UJ
Di-N-Butyl Phthalate	0.23	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.021 U	0.01 U	0.011 U	0.01 UJ	0.66	0.01 U	0.01 U	0.01 UJ
Di-N-Octylphthalate	5.7	0.018 U	0.017 U	0.018 U	0.018 U	0.09 U	0.017 U	0.018 U	0.035 U	0.018 U	0.018 U	0.017 UJ	0.018 U	0.018 U	0.018 U	0.018 UJ
Fluoranthene	8.9	0.82	0.03 J	0.01 U	0.047 J	38	1.7	0.12 J	11	0.21 J	0.029 J	0.01 UJ	0.18 J	1.7	0.4	0.01 UJ
Fluorene	0.54	0.037 J	0.0075 U	0.0076 U	0.0075 U	2.3	0.051 J	0.043 J	0.37 J	0.0076 U	0.022 J	0.0074 UJ	0.0089 J	0.036 J	0.0087 J	0.0076 UJ
Hexachlorobenzene	0.00012	0.014 U	0.014 U	0.014 U	0.014 U	0.071 U	0.014 U	0.014 U	0.028 U	0.014 U	0.014 U	0.014 UJ	0.014 U	0.014 U	0.014 U	0.014 UJ
Hexachlorobutadiene	0.00027	0.0097 U	0.0097 U	0.0098 U	0.0097 U	0.049 U	0.0097 U	0.0098 U	0.019 U	0.0099 U	0.01 U	0.0096 UJ	0.0097 U	0.0098 U	0.0098 U	0.0098 UJ
Hexachlorocyclopentadiene	0.00013	0.022 U	0.021 UJ	0.022 U	0.022 U	0.11 U	0.021 U	0.022 U	0.043 U	0.022 U	0.022 U	0.021 UJ	0.022 U	0.022 U	0.022 U	0.022 UJ
Hexachloroethane	0.0002	0.013 U	0.013 U	0.013 U	0.013 U	0.064 U	0.012 U	0.013 U	0.025 U	0.013 U	0.013 U	0.012 UJ	0.012 U	0.012 U	0.013 U	0.013 UJ
Indeno(1,2,3-C,D)Pyrene	0.98	0.33	0.023 J	0.023 U	0.028 J	25 J+	0.82 J+	0.06 J+	10 J+	0.16 J+	0.026 J+	0.023 UJ	0.086	1.1 J+	0.13 J+	0.023 UJ
Isophorone	0.026	0.0074 U	0.0074 U	0.0074 U	0.0074 U	0.037 U	0.0074 U	0.0074 U	0.015 U	0.0075 U	0.0076 U	0.0073 UJ	0.0074 U	0.0075 U	0.076 J	0.0075 UJ
Naphthalene	0.00054	0.019 J	0.0087 U	0.0088 U	0.0088 U	1.1 J	0.02 J	0.61	0.23 J	0.0089 U	0.51	0.0087 UJ	0.0096 J	0.014 J	0.0089 U	0.0088 UJ
Nitrobenzene	0.000092	0.011 U	0.011 U	0.011 U	0.011 U	0.055 U	0.011 U	0.011 U	0.022 U	0.011 U	0.011 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.011 UJ
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	0.012 U	0.012 U	0.058 U	0.012 U	0.012 U	0.023 U	0.012 U	0.012 U	0.011 UJ	0.012 U	0.012 U	0.012 U	0.012 UJ
N-Nitrosodiphenylamine	0.067	0.031 U	0.031 U	0.031 U	0.031 U	0.16 U	0.031 U	0.031 U	0.063 U	0.032 U	0.032 U	0.031 UJ	0.031 U	0.032 U	0.032 U	0.032 UJ
Pentachlorophenol	0.000057	0.042 U	0.042 U	0.042 U	0.042 UJ	0.21 U	0.042 U	0.042 U	0.083 U	0.042 U	0.043 U	0.041 UJ	0.042 U	0.042 U	0.042 U	0.042 UJ
Phenanthrene	--	0.5	0.022 J	0.0092 U	0.023 J	25	0.95	0.094 J	4.7	0.11 J	0.03 J	0.0091 UJ	0.11 J	0.66	0.32 J	0.0092 UJ
Phenol	0.33	0.011 U	0.011 U	0.011 U	0.011 U	0.057 U	0.011 U	0.011 U	0.023 U	0.011 U	0.012 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.011 UJ
Pyrene	1.3	0.83	0.037 J	0.016 U	0.055 J	33	1.6	0.15 J	8.8	0.21 J	0.037 J	0.018 J-	0.18 J	1.6	0.36	0.016 UJ
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00036 U	0.0047 U	0.00023 U	0.00086 U	0.0039 U	0.0004 U	0.00046 U	0.00071 U	0.00042 U	0.00037 U	0.00031 U	0.00067 U	0.00037 U	0.00034 U	0.0003 U
1,1,2,2-Tetrachloroethane	0.00003	0.00016 U	0.00021 U	0.00015 U	0.00038 U	0.00018 U	0.00018 U	0.00021 U	0.00032 U	0.00019 U	0.00016 U	0.00014 U	0.0003 U	0.00017 U	0.00015 U	0.00013 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00042 U	0.00055 U	0.00028 U	0.00059 U	0.00046 U	0.00046 U	0.00054 U	0.00082 U	0.00049 U	0.00042 U	0.00035 U	0.00078 U	0.00043 U	0.00039 U	0.00035 U
1,1,2-Trichloroethane	0.000013	0.00027 U	0.00035 U	0.00024 U	0.00063 U	0.00029 U	0.00029 U	0.00034 U	0.00052 U	0.00031 U	0.00027 U	0.00023 U	0.00049 U	0.00027 U	0.00025 U	0.00022 U
1,1-Dichloroethane	0.00078	0.00032 U	0.00042 U	0.0003 U	0.00077 U	0.00035 U	0.00035 U	0.00041 U	0.00064 U	0.00038 U	0.00033 U	0.00027 U	0.0006 U	0.00033 U	0.0003 U	0.00027 U
1,1-Dichloroethene	0.01	0.00039 U	0.00051 U	0.00036 U	0.00092 U	0.00043 U	0.00043 U	0.0005 U	0.00077 U	0.00045 U	0.0004 U	0.00033 U	0.00072 U	0.0004 U	0.00036 U	0.00032 U
1,2,3-Trichlorobenzene	0.0021	0.0001 U	0.00014 U	0.000096 U	0.00025 U	0.00011 U	0.00011 U	0.00013 U	0.00021 U	0.00012 U	0.00011 U	0.000089 U	0.00019 U	0.00011 U	0.000098 U	0.000086 U
1,2,4-Trichlorobenzene	0.0012	0.0003 U	0.0004 U	0.00028 U	0.00072 U	0.00033 U	0.00033 U	0.00039 U	0.0006 U	0.00035 U	0.00031 U	0.00026 U	0.00057 U	0.00031 U	0.00028 U	0.00025 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00044 U	0.00058 U	0.00041 U	0.0011 U	0.00049 U	0.00049 U	0.00057 U	0.00088 U	0.00052 U	0.00045 U	0.00038 U	0.0008 U	0.00046 U	0.00042 U	0.00037 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00011 U	0.00015 U	0.0001 U	0.00027 U	0.00012 U	0.00012 U	0.00015 U	0.00022 U	0.00013 U	0.00012 U	0.000097 U	0.00021 U	0.00012 U	0.00011 U	0.000094 U
1,2-Dichlorobenzene	0.03	0.00013 U	0.00017 U	0.00012 U	0.00032 U	0.00015 U	0.00015 U	0.00017 U	0.00026 U	0.00016 U	0.00013 U	0.00011 U	0.00025 U	0.00014 U	0.00012 U	0.00011 U
1,2-Dichloroethane	0.000048	0.0001 U	0.00014 U	0.000096 U	0.00025 U	0.00011 U	0.00011 U	0.00013 U	0.00021 U	0.00012 U	0.00011 U	0.000089 U	0.00019 U	0.00011 U	0.000098 U	0.000086 U

Preliminary - Under EPA and IDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Subsurface Soil (mg/kg)**	**CFSB-010**	**CFSB-012**	**CFSB-013**	**CFSB-038**	**CFSB-040**	**CFSB-042**	**CFSB-044**	**CFSB-045**	**CFSB-046**	**CFSB-048**	**CFSB-049**	**CFSB-050**	**CFSB-051**	**CFSB-052**	**CFSB-053**
Sample Depth		**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**	**10-12 ft**
Chemical Name		**5/21/2016**	**5/28/2016**	**5/19/2016**	**5/21/2016**	**5/20/2016**	**5/20/2016**	**5/20/2016**	**5/21/2016**	**5/20/2016**	**5/20/2016**	**5/28/2016**	**5/21/2016**	**5/21/2016**	**5/20/2016**	**5/31/2016**
1,2-Dichloropropane	0.000047	0.00016 U	0.00021 U	0.00015 U	0.00038 U	0.00018 U	0.00018 U	0.00021 U	0.00032 U	0.00019 U	0.00016 U	0.00014 U	0.0003 U	0.00017 U	0.00015 U	0.00013 U
1,3-Dichlorobenzene	--	0.00011 U	0.00015 U	0.0001 U	0.00027 U	0.00012 U	0.00012 U	0.00015 U	0.00022 U	[illegible]	0.00012 U	0.000097 U	0.00021 U	0.00012 U	0.00011 U	0.000094 U
1,4-Dichlorobenzene	0.00046	0.00012 U	0.00016 U	0.00011 U	0.00029 U	0.00014 U	0.00014 U	0.00016 U	0.00024 U	0.00014 U	0.00013 U	0.0001 U	0.00023 U	0.00013 U	0.00012 U	0.0001 U
2-Hexanone	0.00088	0.00089 U	0.0012 U	0.00082 U	0.0021 U	0.00098 U	0.00098 U	0.0011 U	0.0018 U	0.001 U	0.00091 U	0.00076 U	0.0017 U	0.00092 U	0.00083 U	0.00074 U
Acetone	0.29	0.013	0.014	0.0086	0.041	0.011	0.0082	0.0053 J	0.03	0.0061	0.0067	0.024	0.017	0.016	0.0093	0.0077
Benzene	0.00023	0.00048 J	0.00031 J	0.00031 J	0.00082 J	0.00035 J	0.00021 U	0.00056 J	0.00048 J	0.00024 J	0.00044 J	0.00016 U	0.00036 J	0.00028 J	0.00042 J	0.00022 J
Bromochloromethane	0.0021	0.00016 U	0.00021 U	0.00015 U	0.00038 U	0.00018 U	0.00018 U	0.00021 U	[illegible]	0.00019 U	0.00016 U	0.00014 U	0.0003 U	0.00017 U	0.00015 U	0.00013 U
Bromodichloromethane	0.000036	0.00036 U	0.00047 U	0.00033 U	0.00086 U	0.00039 U	0.0004 U	0.00046 U	0.00071 U	0.00042 U	0.00037 U	0.00031 U	0.00067 U	0.00037 U	0.00034 U	0.0003 U
Bromoform	0.00087	0.00012 U	0.00016 U	0.00011 U	0.00029 U	0.00014 U	0.00014 U	0.00016 U	0.00024 U	0.00014 U	0.00013 U	0.0001 U	0.00023 U	0.00013 U	0.00012 U	0.0001 U
Bromomethane	0.00019	0.0003 U	0.0004 U	0.00028 U	0.00072 U	0.00033 U	0.00033 U	0.00039 U	0.0006 UJ	0.00035 U	0.00031 U	0.00026 U	0.00057 UJ	0.00031 U	0.00028 U	0.00025 U
Carbon Disulfide	0.024	0.00052 J	0.00063 J	0.00058 J	0.0012 J	0.00045 U	0.00045 U	0.00052 U	0.0024	0.00056 J	0.00041 U	0.00039 J	0.00076 U	0.003	0.00042 J	0.0012
Carbon Tetrachloride	0.00018	0.00041 U	0.00053 U	0.00037 U	0.00097 U	0.00045 U	0.00045 U	[illegible]	0.0008 U	0.00048 U	0.00041 U	0.00035 U	0.00076 U	0.00042 U	0.00038 U	0.00034 U
Chlorobenzene	0.0053	0.00013 U	0.00017 U	0.00012 U	0.00032 U	0.00015 U	0.00015 U	[illegible]	0.00026 U	0.00016 U	0.00013 U	0.00011 U	0.00025 U	0.00014 U	0.00012 U	0.00011 U
Chloroethane	0.59	0.00033 U	0.00043 U	0.0003 U	0.00079 U	0.00036 U	0.00036 U	[illegible]	0.00066 U	0.00039 U	0.00034 U	0.00028 U	0.00062 U	0.00034 U	0.00031 U	0.00027 U
Chloroform	0.000061	0.0002 U	0.00026 U	0.00018 U	0.00047 U	0.00022 U	0.00022 U	0.00026 U	0.00039 U	0.00023 U	0.0002 U	0.00017 U	0.00037 U	0.00021 U	0.00019 U	0.00016 U
Chloromethane	0.0049	0.00036 U	0.00047 U	0.00033 U	0.00086 U	0.00039 U	0.0004 U	0.00046 U	0.00071 UJ	0.00042 U	0.00037 U	0.00031 U	0.00067 UJ	0.00037 U	0.00034 U	0.0003 U
Cis-1,2-Dichloroethylene	0.0011	0.00021 U	0.00027 U	0.00019 U	0.0005 U	0.00023 U	0.00023 U	0.00027 U	0.00041 U	0.00024 U	0.00021 U	0.00018 U	0.00039 U	0.00022 U	0.0002 U	0.00017 U
Cis-1,3-Dichloropropene	--	0.00014 U	0.00019 U	0.00013 U	0.00034 U	0.00016 U	[illegible]	0.00018 U	0.00028 U	0.00017 U	0.00014 U	0.00012 U	0.00027 U	0.00015 U	0.00013 U	0.00012 U
Cyclohexane	1.3	0.00074 J	0.00057 U	0.0004 U	0.001 U	0.00089 J	0.00072 J	0.0018	0.00086 U	0.00051 U	0.00087 J	0.00037 U	0.0011 J	0.00045 U	0.00097	0.00036 U
Dibromochloromethane	0.00023	0.00014 U	0.00019 U	0.00013 U	0.00034 U	0.00016 U	[illegible]	0.00018 U	0.00028 U	0.00017 U	0.00014 U	0.00012 U	0.00027 U	0.00015 U	0.00013 U	0.00012 U
Dichlorodifluoromethane	0.03	0.0003 U	0.0004 U	0.00028 U	0.00072 U	0.00033 U	0.00033 U	0.00039 U	0.0006 U	0.00035 U	0.00031 U	0.00026 U	0.00057 U	0.00031 U	0.00028 U	0.00025 U
Ethylbenzene	0.0017	0.00019 J	0.00022 U	0.00016 U	0.00041 U	0.00045 J	0.00038 J	0.00068 J	0.00038 J	0.0002 U	0.00048 J	0.00015 U	0.00051 J	0.00018 U	0.00037 J	0.00018 J
Isopropylbenzene (Cumene)	0.074	0.00016 U	0.00021 U	0.00015 U	0.00038 U	0.00018 U	0.00018 U	0.00021 U	0.00032 U	0.00019 U	0.00016 U	0.00014 U	0.0003 U	0.00017 U	0.00015 U	0.00013 U
M,P-Xylene	--	0.00061 J	0.00049 J	0.0002 J	0.00035 J	0.0013	0.0011	0.0021	0.0011 J	0.00057 J	0.0015	0.00019 J	0.0017 J	0.0006 J	0.0013	0.00049 J
Methyl Acetate	0.41	0.00085 U	0.0011 U	0.00078 U	0.0089 J	[illegible]	0.00094 U	0.0011 U	0.0017 U	0.001 U	0.00087 U	0.00073 U	0.0016 U	0.00088 U	0.0008 U	0.00071 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.00073 U	0.00096 U	0.00067 U	0.0017 U	0.0008 U	0.0008 U	0.00094 U	0.0034 J	0.00085 U	0.00074 U	0.0023 J	0.0014 U	0.00075 U	0.00068 U	0.0006 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0021 U	0.0028 U	0.0019 U	0.005 U	0.0023 U	0.0023 U	0.0027 U	0.0042 U	0.0025 U	0.0021 U	0.0018 U	0.0039 U	0.0022 U	0.002 U	0.0017 U
Methylcyclohexane	--	0.001	0.00062 U	0.00043 U	0.0011 U	0.0018	0.0013	0.0034	0.0013 J	0.001 J	0.0016	0.0004 U	0.0017 J	0.00066 J	0.0018	0.00076 J
Methylene Chloride	0.0027	0.0003 U	0.0004 U	0.00028 U	0.00072 U	0.00033 U	0.00033 U	0.00039 U	0.00082 J	0.00035 U	0.00031 U	0.00026 U	0.0024	0.00031 U	0.00028 U	0.00025 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00021 J	0.0002 U	0.00014 U	[illegible]	0.00046 J	0.00037 J	0.00068 J	0.00046 J	0.00021 J	0.00049 J	0.00013 U	0.00053 J	0.00022 J	0.0004 J	0.00017 J
Styrene	0.13	0.00014 U	0.00019 U	0.00013 U	[illegible]	0.00016 U	0.00016 U	0.00018 U	0.00028 U	0.00017 U	0.00014 U	0.00012 U	0.00027 U	0.00015 U	0.00013 U	0.00012 U
Tert-Butyl Methyl Ether	0.0032	0.00016 U	0.00021 U	0.00015 U	[illegible]	0.00018 U	0.00018 U	0.00021 U	0.00032 U	0.00019 U	0.00016 U	0.00014 U	0.0003 U	0.00017 U	0.00015 U	0.00013 U
Tetrachloroethylene (PCE)	0.0018	0.00027 U	0.00035 U	0.00024 U	0.00063 U	0.00029 U	0.00029 U	0.00034 U	0.00052 U	0.00031 U	0.00027 U	0.00023 U	0.00049 U	0.00027 U	0.00025 U	0.00022 U
Toluene	0.076	0.0013	0.00082 J	0.00039 J	0.001 J	0.0018	0.0017	0.0028	0.0018 J	0.00096 J	0.0022	0.00024 J	0.0022	0.00073 J	0.0021	0.00082
Trans-1,2-Dichloroethene	0.011	0.00037 U	0.00048 U	0.00034 U	0.00088 U	0.00041 U	0.00041 U	0.00047 U	0.00073 U	0.00043 U	0.00038 U	0.00031 U	0.00069 U	0.00038 U	0.00035 U	0.00031 U
Trans-1,3-Dichloropropene	--	0.000095 U	0.00012 U	[illegible]	0.00023 U	0.0001 U	0.0001 U	0.00012 U	0.00019 U	0.00011 U	0.000096 U	0.000081 U	0.00018 U	0.000098 U	0.000089 U	0.000078 U
Trichloroethylene (TCE)	0.0001	0.00025 U	0.00032 U	[illegible]	0.00059 U	0.00027 U	0.00027 U	0.00032 U	0.00049 U	0.00029 U	0.00025 U	0.00021 U	0.00046 U	0.00025 U	0.00023 U	0.0002 U
Trichlorofluoromethane	0.33	0.00032 U	0.00042 U	[illegible]	0.00077 U	0.00035 U	0.00035 U	0.00041 U	0.00064 U	0.00038 U	0.00033 U	0.00027 U	0.0006 U	0.00033 U	0.0003 U	0.00027 U
Vinyl Chloride	0.0000065	0.00037 U	0.00048 U	0.00034 U	0.00088 U	0.00041 U	0.00041 U	0.00047 U	0.00073 U	0.00043 U	0.00038 U	0.00031 U	0.00069 U	0.00038 U	0.00035 U	0.00031 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-054	CFSB-055	CFSB-057	CFSB-059	CFSB-060	CFSB-062	CFSB-064	CFSB-065	CFSB-066	CFSB-068	CFSB-069	CFSB-071	CFSB-071-DUP	CFSB-073	CFSB-074
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/27/2016	6/2/2016	6/3/2016	6/2/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	6/1/2016	6/1/2016
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.61E-06 J	1.34E-06 J
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0000065	6.82E-06
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.5E-08 U	6.3E-08 UJ
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0000001 J	2.8E-07 J
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3E-08 U	6.9E-08 UJ
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.9E-08 J	1.2E-07 J
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0000003 J	4.2E-07 J
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.5E-08 U	7.2E-08 UJ
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.6E-07 J	5.7E-08 UJ
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.6E-08 U	1.7E-07 UJ
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9E-08 J	1.3E-07 UJ
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.5E-08 U	6.9E-08 UJ
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.7E-08 U	1.7E-07 UJ
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.3E-08 J	8.1E-07 J
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	3E-08 U	1.6E-07 UJ
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.52E-06	3.49E-06 J
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0000108	0.0000129
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.64E-06 J	2.02E-06 J
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	1.17E-06 J	1.35E-06 J
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.72E-06 J	2.16E-06 J
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0000528	0.0000583
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9E-08 J	1.3E-07 UJ
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.9E-07 J	1.7E-07 UJ
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.7E-07 J	8.1E-07 J
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.7E-08 J	1.6E-07 UJ
METALS (mg/kg)																
Aluminum	3000	8560	8090	8600	7850	8510	6880 J	6540	6180 J	2840	7870	6840	5130	4740	6920	8610
Antimony	0.035	0.34 U	0.36 UJ	0.43 UJ	0.34 UJ	0.33 U	0.41 UJ	0.36 UJ	0.33 UJ	0.34 U	0.34 U	0.41 UJ	0.45 UJ	0.34 U	0.34 UJ	0.42 UJ
Arsenic	0.0015	3.7 J	3.1	3.8	3.5	3.7 J	3.2 J	3.8	3.4 J	1.6 J	3.6 J	3.4	2.7	2.5 J	2.3	3.5
Barium	16	60.9 J	71.5	66.8	66.2	73.7 J	44.8 J	79.1	111 J	28.7 J	37.5 J	261	65.6	52.5 J	58.5	109
Beryllium	1.9	0.36	0.48	0.33 J	0.34	0.31 J	0.41	0.45	0.7	0.13 J	0.19 J	0.3 J	0.27 J	0.25 J	0.25 J	0.3 J
Cadmium	0.069	0.26 U	0.27 U	0.32 U	0.26 U	0.25 U	0.31 U	0.28 U	0.29 U	0.26 U	0.25 U	0.31 U	0.34 U	0.26 U	0.26 U	0.32 U
Calcium	--	25000 J	33100	38400	41800	38200 J	35600	28100	37800	14000 J	33800 J	63700	49700 J	27700 J	48200	36100
Chromium, Total	--	8.8 J	8.5	9.1	10	8.9 J	8.7 J	9.5	8.4 J	6.9 J	10 J	13.7	8.9	6.6 J	9.2	9.9
Cobalt	0.027	4.8	4.9	5.1	5.3	4.9	4.5	5	4.9	1.9	3	6.6	4.6	4	4.5	4
Copper	2.8	12.8	12.6	17.7	14.6	12.6	14.6	18.5 J	36.7	4.3	9.4	13.3	9.4	10.7	9	11.3
Iron	35	13000	11000	13400	13500	13200	13000 J	10500	11200 J	4860	11600	13700	10600	9090	11400	11500
Lead	400	8.5	8.3	7.2 J	5.9	6.3	4.8 J	6.4 J	5.4 J	2.2	4.6	6	4.1	2.5	4.8	6.1
Magnesium	--	12200 J	10600	12900	12700	14500 J	11600	10200	15100	5150 J	11200 J	12100	23000 J	7820 J	9930	13300
Manganese	2.8	362 J	576	362	336	402 J	276 J	350	402 J	200 J	236 J	324	738 J	436 J	270	340
Mercury	0.0033	0.016 J	0.021	0.016	0.012 J	0.015 J+	0.013 J	0.02	0.012 J	0.028 J+	0.027 J+	0.012 U	0.013 U	0.012 U	0.016 J	0.012 J
Nickel	2.6	9.6 J	12.3	11.9 J	10.3	10.6 J	9.1	10	8.7	4.5 J	8.4 J	13.1	7.6	6.4 J	8.7	11.7
Potassium	--	776 J	779	749	763	741 J	532	827 J+	661	359 J	617 J	645	530	398 J	659 J+	786
Selenium	0.052	0.32 U	0.34 U	0.4 U	0.32 U	0.31 U	0.38 U	0.34 U	0.36 U	0.32 U	0.31 U	0.39 U	0.42 U	0.31 U	0.32 U	0.39 U
Silver	0.08	0.63 U	0.66 U	0.78 U	0.63 U	0.61 U	0.75 U	0.67 U	0.71 U	0.63 U	0.61 U	0.75 U	0.82 U	0.61 U	0.62 U	0.76 U
Sodium	--	34.9 J	112	58.6 J	32 U	36.1 J	38.8 J	46.7 J	50.2 J	35.3 J	31.4 U	68.6 J	54.5 J	31.4 UJ	31.7 U	39.1 U
Thallium	0.0014	0.13 U	0.14 U	0.16 U	0.13 U	0.12 U	0.15 U	0.14 U	0.15 U	0.13 U	0.13 U	0.15 U	0.17 U	0.13 U	0.13 U	0.16 U
Vanadium	8.6	8.5 J	8	8	9	7.6 J	8.6 J	6.4	9.3 J	3.2 J	6.8 J	12.9	6.9	4.7 J	9.7	7.7
Zinc	37	32.3	32.6	35.7	35.7	37.8	31.3 J	25.7	32.1 J	11.3	30.9	30.2	25.8	26.8	26.5	31.2
PESTICIDES (mg/kg)																
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-054	CFSB-055	CFSB-057	CFSB-059	CFSB-060	CFSB-062	CFSB-064	CFSB-065	CFSB-066	CFSB-068	CFSB-069	CFSB-071	CFSB-071-DUP	CFSB-073	CFSB-074
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/27/2016	6/2/2016	6/3/2016	6/2/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	6/1/2016	6/1/2016
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.0095 U	0.01 U	0.0095 U	0.0095 U	0.0093 U	0.0095 U	0.0095 U	0.0095 U	0.0092 U	0.0092 U	0.0096 U	0.01 U	0.0094 U	0.0092 U	0.0092 U
PCB-1221 (Aroclor 1221)	0.00008	0.0095 U	0.01 U	0.0095 U	0.0095 U	0.0093 U	0.0095 U	0.0095 U	0.0095 U	0.0092 U	0.0092 U	0.0096 U	0.01 U	0.0094 U	0.0092 U	0.0092 U
PCB-1232 (Aroclor 1232)	0.00008	0.0095 U	0.01 U	0.0095 U	0.0095 U	0.0093 U	0.0095 U	0.0095 U	0.0095 U	0.0092 U	0.0092 U	0.0096 U	0.01 U	0.0094 U	0.0092 U	0.0092 U
PCB-1242 (Aroclor 1242)	0.0012	0.0095 U	0.01 U	0.0095 U	0.0095 U	0.0093 U	0.0095 U	0.0095 U	0.0095 U	0.0092 U	0.0092 U	0.0096 U	0.01 U	0.0094 U	0.0092 U	0.0092 U
PCB-1248 (Aroclor 1248)	0.0012	0.0095 U	0.01 U	0.0095 U	0.0095 U	0.0093 U	0.0095 U	0.0095 U	0.0095 U	0.0092 U	0.0092 U	0.0096 U	0.01 U	0.0094 U	0.0092 U	0.0092 U
PCB-1254 (Aroclor 1254)	0.002	0.0098 U	0.01 U	0.0099 U	0.0098 U	0.0096 U	0.0098 U	0.0099 U	0.0098 U	0.0096 U	0.0095 U	0.0099 U	0.01 U	0.0097 U	0.0096 U	0.0095 U
PCB-1260 (Aroclor 1260)	0.0055	0.0098 U	0.01 U	0.0099 U	0.0098 U	0.0096 U	0.0098 U	0.0099 U	0.0098 U	0.0096 U	0.0095 U	0.0099 U	0.01 U	0.0097 U	0.0096 U	0.0095 U
PCB-1262 (Aroclor 1262)	--	0.0098 U	0.01 U	0.0099 U	0.0098 U	0.0096 U	0.0098 U	0.0099 U	0.0098 U	0.0096 U	0.0095 U	0.0099 U	0.01 U	0.0097 U	0.0096 U	0.0095 U
PCB-1268 (Aroclor 1268)	--	0.0098 U	0.01 U	0.0099 U	0.0098 U	0.0096 U	0.0098 U	0.0099 U	0.0098 U	0.0096 U	0.0095 U	0.0099 U	0.01 U	0.0097 U	0.0096 U	0.0095 U
Polychlorinated Biphenyl (PCBs)	--	0.0098 U	0.01 U	0.0099 U	0.0098 U	0.0096 U	0.0098 U	0.0099 U	0.0098 U	0.0096 U	0.0095 U	0.0099 U	0.01 U	0.0097 U	0.0096 U	0.0095 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.026 U	0.028 U	0.026 UJ	0.027 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.025 U	0.026 U	0.028 U	0.026 U	0.026 U	0.025 U
1,4-Dioxane (P-Dioxane)	0.000094	0.094 U	0.1 U	0.094 UJ	0.094 U	0.092 U	0.094 U	0.094 U	0.094 U	0.092 U	0.091 U	0.095 U	0.1 U	0.092 U	0.092 U	0.092 U
2,3,4,6-Tetrachlorophenol	0.018	0.033 U	0.035 U	0.033 UJ	0.035 U	0.032 U	0.032 U	0.033 U	0.033 U	0.032 U	0.032 U	0.033 U	0.035 U	0.032 U	0.032 U	0.032 U
2,4,5-Trichlorophenol	0.4	0.035 U	0.037 U	0.035 UJ	0.035 U	0.034 U	0.035 U	0.035 U	0.035 U	0.034 U	0.034 U	0.035 U	0.037 U	0.035 U	0.034 U	0.034 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.011 U	0.01 UJ	0.01 U	0.0098 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.0097 U	0.01 U	0.011 U	0.0099 U	0.0098 U	0.0097 U
2,4-Dichlorophenol	0.0023	0.0083 U	0.0092 U	0.0083 UJ	0.0083 U	0.0081 U	0.0083 U	0.0083 U	0.0083 U	0.0081 U	0.0081 U	0.0084 U	0.0089 U	0.0082 U	0.0081 U	0.0081 U
2,4-Dimethylphenol	0.042	0.077 U	0.093 U	0.076 UJ	0.077 U	0.076 U	0.078 U	0.077 U	0.077 U	0.075 U	0.075 U	0.078 U	0.082 U	0.076 U	0.076 U	0.075 U
2,4-Dinitrophenol	0.0044	0.27 U	0.28 U	0.26 UJ	0.27 U	0.26 U	0.27 U	0.27 U	0.27 U	0.26 U	0.26 U	0.27 U	0.28 U	0.26 U	0.26 U	0.26 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.015 U	0.014 UJ	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.02 U	0.019 UJ	0.019 U	0.018 U	0.019 U	0.019 U	0.019 U	0.018 U	0.018 U	0.019 U	0.02 U	0.019 U	0.018 U	0.018 U
2-Chloronaphthalene	0.39	0.008 U	0.0085 U	0.008 UJ	0.008 U	0.0078 U	0.008 U	0.008 U	0.008 U	0.0078 U	0.0078 U	0.008 U	0.0085 U	0.0079 U	0.0078 U	0.0078 U
2-Chlorophenol	0.0089	0.0089 U	0.0095 U	0.009 UJ	0.009 U	0.0088 U	0.009 U	0.009 U	0.009 U	0.0087 U	0.0087 U	0.009 U	0.0095 U	0.0088 U	0.0087 U	0.0087 U
2-Methylnaphthalene	0.019	0.0078 U	0.017 J	0.0078 UJ	0.0078 U	0.0076 U	0.0078 U	0.0078 U	0.0078 U	0.0076 U	0.0075 U	0.0078 U	0.0083 U	0.0077 U	0.0076 U	0.0076 U
2-Methylphenol (O-Cresol)	0.075	0.015 U	0.016 U	0.015 UJ	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.012 UJ	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U
2-Nitrophenol	--	0.012 U	0.013 U	0.012 UJ	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.013 U	0.012 U	0.012 U	0.011 U
3- And 4- Methylphenol (Total)	--	0.0094 U	0.01 U	0.0094 UJ	0.0094 U	0.0092 U	0.0094 U	0.0094 U	0.0094 U	0.0091 U	0.0091 U	0.0094 U	0.01 U	0.0093 U	0.0091 U	0.0091 U
3,3'-Dichlorobenzidine	0.00082	0.039 U	0.042 U	0.039 UJ	0.039 U	0.038 U	0.039 U	0.039 U	0.039 U	0.038 U	0.038 U	0.04 U	0.042 U	0.039 U	0.038 U	0.038 U
3-Nitroaniline	--	0.01 U	0.011 U	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.094 U	0.1 U	0.094 UJ	0.094 U	0.092 U	0.094 U	0.094 U	0.094 U	0.091 U	0.091 U	0.095 U	0.1 U	0.093 U	0.092 U	0.091 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.012 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.016 U	0.015 UJ	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U
4-Chloroaniline	0.00016	0.0091 U	0.0097 U	0.0091 UJ	0.0091 U	0.0089 U	0.0091 U	0.0091 U	0.009 U	0.0088 U	0.0088 U	0.0091 U	0.0095 U	0.0089 U	0.0088 U	0.0088 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 UJ	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U
4-Nitroaniline	0.0016	0.013 U	0.014 U	0.013 UJ	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.012 U	0.013 U	0.013 U
4-Nitrophenol	--	0.17 U	0.18 U	0.17 UJ	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.16 U	0.16 U	0.17 U	0.18 U	0.17 U	0.17 U	0.16 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-054	CFSB-055	CFSB-057	CFSB-059	CFSB-060	CFSB-062	CFSB-064	CFSB-065	CFSB-066	CFSB-068	CFSB-069	CFSB-071	CFSB-071-DUP	CFSB-073	CFSB-074
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/27/2016	6/2/2016	6/3/2016	6/2/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	6/1/2016	6/1/2016
Acenaphthene	0.55	0.0085 U	0.16 J	0.0085 UJ	0.0085 U	0.0084 J	0.0085 U	0.0085 U	0.0085 U	0.0082 U	0.029 J	0.0086 U	0.0091 U	0.0084 U	0.0083 U	0.0091 J
Acenaphthylene	--	0.0091 U	0.0097 U	0.0091 UJ	0.0091 U	0.0089 U	0.0091 U	0.0091 U	0.009 U	0.0088 U	0.0088 U	0.0091 U	0.0095 U	0.0089 U	0.0088 U	0.0088 U
Acetophenone	0.058	0.0077 U	0.0082 U	0.0077 UJ	0.0077 U	0.0075 U	0.0077 U	0.0077 U	0.0077 U	0.0075 U	0.0074 U	0.0077 U	0.0082 U	0.0076 U	0.0075 U	0.0075 U
Anthracene	5.8	0.033 U	0.22 J	0.034 UJ	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.07 J	0.034 U	0.036 U	0.033 U	0.033 U	0.033 U
Atrazine	0.0002	0.016 U	0.017 U	0.016 UJ	0.016 U	0.015 U	0.016 U	0.016 U	0.016 U	0.015 U	0.015 U	0.016 U	0.017 U	0.015 U	0.015 U	0.015 U
Benzaldehyde	0.0041	0.027 U	0.029 U	0.027 UJ	0.027 U	0.026 U	0.027 U	0.027 U	0.027 U	0.026 U	0.026 U	0.027 U	0.029 U	0.027 U	0.026 U	0.026 U
Benzo(A)Anthracene	0.011	0.029 U	0.65	0.054 J-	0.029 U	0.23	0.029 U	0.029 U	0.029 U	0.2	0.26	0.03 U	0.031 U	0.029 U	0.068	0.22
Benzo(A)Pyrene	0.029	0.011 U	0.74	0.063 J-	0.021 J	0.28	0.011 U	0.011 U	0.011 U	0.17	0.28	0.011 U	0.011 U	0.011 U	0.08	0.31
Benzo(B)Fluoranthene	0.3	0.014 U	1.1	0.11 J-	0.034 J	0.37	0.014 U	0.014 U	0.014 U	0.29	0.35	0.014 U	0.015 U	0.014 U	0.15	0.49
Benzo(G,H,I)Perylene	--	0.02 U	0.81 J+	0.067 J-	0.022 J+	0.21 J	0.02 U	0.02 U	0.02 U	0.17 J	0.26 J	0.02 U	0.022 U	0.02 U	0.097 J	0.34
Benzo(K)Fluoranthene	2.9	0.015 U	0.41	0.029 J-	0.015 U	0.11	0.015 U	0.015 U	0.015 U	0.12	0.15	0.015 U	0.016 U	0.015 U	0.06	0.19
Benzyl Butyl Phthalate	0.24	0.011 U	0.012 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.022 J+	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.032 U	0.03 UJ	0.03 U	0.029 U	0.03 U	0.03 U	0.03 U	0.029 U	0.029 U	0.03 U	0.032 U	0.03 U	0.029 U	0.029 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.012 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0083 U	0.0089 U	0.0083 UJ	0.0083 U	0.0081 U	0.0083 U	0.0083 U	0.0083 U	0.0081 U	0.0081 U	0.0084 U	0.0088 U	0.0082 U	0.0081 U	0.0081 U
Bis(2-Chloroisopropyl) Ether	0.026	0.014 U	0.015 U	0.015 UJ	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.1 J+	0.072 J	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.013 U	0.013 U	0.014 U	0.015 U	0.014 U	0.013 U	0.013 U
Caprolactam	0.25	0.025 U	0.027 U	0.025 UJ	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.026 U	0.027 U	0.025 U	0.025 U	0.025 U
Carbazole	--	0.0087 U	0.17 J	0.01 J-	0.0087 U	0.019 J	0.01 U	0.0087 U	0.0087 U	0.035 J	0.089 J	0.0088 U	0.0092 U	0.0086 U	0.013 J	0.043 J
Chrysene	9	0.0096 U	0.91	0.07 J-	0.025 J	0.25 J	0.0096 U	0.0096 U	0.0096 U	0.33 J	0.37	0.0097 U	0.01 U	0.0095 U	0.11 J	0.32 J
Dibenz(A,H)Anthracene	0.096	0.018 U	0.2 J+	0.018 UJ	0.018 U	0.055	0.018 U	0.018 U	0.018 U	0.049	0.062	0.018 U	0.019 U	0.018 U	0.018 U	0.063
Dibenzofuran	0.015	0.011 U	0.064 J	0.011 UJ	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.015 J	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U
Diethyl Phthalate	0.61	0.01 U	0.011 U	0.01 UJ	0.01 U	0.0098 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.0097 U	0.01 U	0.011 U	0.0099 U	0.0098 U	0.0097 U
Dimethyl Phthalate	--	0.01 U	0.011 U	0.01 UJ	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0099 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.011 U	0.011 UJ	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U	0.011 U	0.012 U	0.01 U	0.01 U	0.01 U
Di-N-Octylphthalate	5.7	0.018 U	0.019 U	0.018 UJ	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.017 U	0.017 U	0.018 U	0.019 U	0.018 U	0.017 U	0.017 U
Fluoranthene	8.9	0.01 U	1.4	0.093 J-	0.027 J	0.27 J	0.01 U	0.01 U	0.01 U	0.34	0.71	0.012 J	0.011 U	0.01 U	0.1 J	0.38
Fluorene	0.54	0.0077 U	0.11 J	0.0077 UJ	0.0077 U	0.0075 U	0.0077 U	0.0077 U	0.0077 U	0.0075 U	0.023 J	0.0077 U	0.0082 U	0.0076 U	0.0075 U	0.0075 U
Hexachlorobenzene	0.00012	0.014 U	0.015 U	0.014 UJ	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U
Hexachlorobutadiene	0.00027	0.0099 U	0.011 U	0.0099 UJ	0.009 U	0.0097 U	0.0099 U	0.0099 U	0.0099 U	0.0096 U	0.0096 U	0.01 U	0.011 U	0.0098 U	0.0097 U	0.0096 U
Hexachlorocyclopentadiene	0.00013	0.022 UJ	0.023 UJ	0.022 UJ	0.022 U	0.021 U	0.022 U	0.022 U	0.022 U	0.021 U	0.021 U	0.022 U	0.022 U	0.022 U	0.021 U	0.021 U
Hexachloroethane	0.0002	0.013 U	0.014 U	0.013 UJ	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.023 U	0.76	0.068 J	0.023 J	0.22	0.023 U	0.023 U	0.023 U	0.17	0.25	0.024 U	0.025 U	0.023 U	0.072	0.25
Isophorone	0.026	0.0076 U	0.0081 U	0.0076 UJ	0.0076 U	0.0074 U	0.0076 U	0.0076 U	0.0076 U	0.0074 U	0.0073 U	0.0076 U	0.008 U	0.0075 U	0.0074 U	0.0074 U
Naphthalene	0.00054	0.0089 U	0.04 J	0.009 U	0.009 U	0.0088 U	0.009 U	0.009 U	0.0089 U	0.0087 U	0.011 J	0.009 U	0.0095 U	0.0088 U	0.0087 U	0.0087 U
Nitrobenzene	0.000092	0.011 U	0.012 U	0.011 UJ	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.013 U	0.012 UJ	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.013 U	0.012 U	0.012 U	0.011 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.034 U	0.032 UJ	0.032 U	0.031 U	0.032 U	0.032 U	0.032 U	0.031 U	0.031 U	0.032 U	0.034 U	0.032 U	0.031 U	0.031 U
Pentachlorophenol	0.000057	0.043 U	0.045 U	0.043 UJ	0.043 U	0.042 U	0.043 U	0.043 U	0.043 U	0.041 U	0.041 U	0.043 U	0.045 U	0.042 U	0.042 U	0.041 U
Phenanthrene	--	0.0094 U	1	0.059 J-	0.012 J	0.091 J	0.0094 U	0.0094 U	0.0094 U	0.12 J	0.36	0.01 J	0.01 U	0.0093 U	0.042 J	0.15 J
Phenol	0.33	0.011 U	0.012 U	0.012 UJ	0.012 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U
Pyrene	1.3	0.016 U	1.4	0.1 J-	0.029 J	0.36 J+	0.016 U	0.016 U	0.016 U	0.35 J+	0.59 J+	0.016 U	0.017 U	0.016 U	0.11 J	0.39
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00039 U	0.00041 U	0.00034 U	0.00028 U	0.00035 U	0.00032 U	0.00037 U	0.00029 U	0.00031 U	0.00032 U	0.00032 U	0.00039 U	0.00032 U	0.00029 U	0.00043 U
1,1,2,2-Tetrachloroethane	0.00003	0.00017 U	0.00018 U	0.00015 U	0.00013 U	0.00016 U	0.00014 U	0.00017 U	0.00013 U	0.00014 U	0.00014 U	0.00014 U	0.00017 U	0.00015 U	0.00017 U	0.00019 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00044 U	0.00047 U	0.00039 U	0.00033 U	0.00041 U	0.00037 U	0.00043 U	0.00034 U	0.00036 U	0.00037 U	0.00037 U	0.00045 U	0.00038 U	0.00045 U	0.0005 U
1,1,2-Trichloroethane	0.000013	0.00028 U	0.0003 U	0.00025 U	0.00021 U	0.00026 U	0.00024 U	0.00027 U	0.00021 U	0.00023 U	0.00023 U	0.00024 U	0.00028 U	0.00024 U	0.00029 U	0.00032 U
1,1-Dichloroethane	0.00078	0.00034 U	0.00036 U	0.0003 U	0.00025 U	0.00031 U	0.00029 U	0.00033 U	0.00026 U	0.00028 U	0.00028 U	0.00029 U	0.00035 U	0.00029 U	0.00035 U	0.00039 U
1,1-Dichloroethene	0.01	0.00041 U	0.00044 U	0.00036 U	0.0003 U	0.00038 U	0.00035 U	0.0004 U	0.00031 U	0.00034 U	0.00034 U	0.00035 U	0.00042 U	0.00035 U	0.00042 U	0.00047 U
1,2,3-Trichlorobenzene	0.0021	0.00011 U	0.00012 U	0.000097 U	0.000082 U	0.0001 U	0.000093 U	0.00011 U	0.000084 U	0.00009 U	0.000091 U	0.000094 U	0.00011 U	0.000094 U	0.00011 U	0.00013 U
1,2,4-Trichlorobenzene	0.0012	0.00032 U	0.00034 U	0.00028 U	0.00024 U	0.0003 U	0.00027 U	0.00031 U	0.00024 U	0.00026 U	0.00027 U	0.00027 U	0.00033 U	0.00027 U	0.00033 U	0.00036 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00047 U	0.0005 U	0.00042 U	0.00035 U	0.00043 U	0.0004 U	0.00046 U	0.00036 U	0.00039 U	0.00039 U	0.0004 U	0.00048 U	0.0004 U	0.00048 U	0.00053 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00012 U	0.00013 U	0.00011 U	0.000089 U	0.00011 U	0.0001 U	0.00012 U	0.000092 U	0.000098 U	0.0001 U	0.0001 U	0.00012 U	0.0001 U	0.00012 U	0.00014 U
1,2-Dichlorobenzene	0.03	0.00014 U	0.00015 U	0.00012 U	0.0001 U	0.00013 U	0.00012 U	0.00014 U	0.00011 U	0.00011 U	0.00012 U	0.00012 U	0.00014 U	0.00012 U	0.00014 U	0.00016 U
1,2-Dichloroethane	0.000048	0.00011 U	0.00012 U	0.000097 U	0.000082 U	0.0001 U	0.000093 U	0.00011 U	0.000084 U	0.00009 U	0.000091 U	0.000094 U	0.00011 U	0.000094 U	0.00011 U	0.00013 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-054	CFSB-055	CFSB-057	CFSB-059	CFSB-060	CFSB-062	CFSB-064	CFSB-065	CFSB-066	CFSB-068	CFSB-069	CFSB-071	CFSB-071-DUP	CFSB-073	CFSB-074
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/28/2016	5/28/2016	5/28/2016	5/28/2016	5/27/2016	6/2/2016	6/3/2016	6/2/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	5/27/2016	6/1/2016	6/1/2016
1,2-Dichloropropane	0.000047	0.00017 U	0.00018 U	0.00015 U	0.00013 U	0.00016 U	0.00014 U	0.00017 U	0.00013 U	0.00014 U	0.00014 U	0.00014 U	0.00017 U	0.00015 U	0.00017 U	0.00019 U
1,3-Dichlorobenzene	--	0.00012 U	0.00013 U	0.00011 U	0.000089 U	0.00011 U	0.0001 U	0.00012 U	0.000092 U	0.00011 U	0.0001 U	0.0001 U	0.00012 U	0.0001 U	0.00012 U	0.00014 U
1,4-Dichlorobenzene	0.00046	0.00013 U	0.00014 U	0.00011 U	0.000096 U	0.00012 U	0.00011 U	0.00013 U	0.000099 U	0.00011 U	0.00011 U	0.00011 U	0.00013 U	0.00011 U	0.00013 U	0.00015 U
2-Hexanone	0.00088	0.00094 U	0.001 U	0.00083 U	0.0007 U	0.00087 U	0.0008 U	0.00092 U	0.00072 U	0.00077 U	0.00078 U	0.0008 U	0.00095 U	0.00081 U	0.00095 U	0.011 U
Acetone	0.29	0.041	0.037	0.023	0.012	0.0047	0.0061	0.0072	0.0049	0.012	0.0089	0.0095	0.0056 J	0.017 J	0.0058	0.0081
Benzene	0.00023	0.0006 J	0.00037 J	0.00041 J	0.00042 J	0.00018 U	0.00053 J	0.0007	0.0027	0.00027 J	0.00021 J	0.00023 J	0.00047 J	0.00035 J	0.00022 J	0.00026 J
Bromochloromethane	0.0021	0.00017 U	0.00018 U	0.00015 U	0.00013 U	0.00016 U	0.00014 U	0.00017 U	0.00013 U	0.00014 U	0.00014 U	0.00014 U	0.00017 U	0.00015 U	0.00017 U	0.00019 U
Bromodichloromethane	0.000036	0.00038 U	0.00041 U	0.00034 U	0.00028 U	0.00035 U	0.00032 U	0.00037 U	0.00029 U	0.00031 U	0.00032 U	0.00032 U	0.00039 U	0.00033 U	0.00039 U	0.00043 U
Bromoform	0.00087	0.00013 U	0.00014 U	0.00011 U	0.000096 U	0.00012 U	0.00011 U	0.00013 U	0.000099 U	0.00011 U	0.00011 U	0.00011 U	0.00013 U	0.00011 U	0.00013 U	0.00015 U
Bromomethane	0.00019	0.00032 U	0.00063 J	0.00028 U	0.00024 U	0.0003 U	0.00027 U	0.00031 U	0.00024 U	0.00026 U	0.00027 U	0.00027 U	0.00033 U	0.00027 U	0.00033 U	0.00036 U
Carbon Disulfide	0.024	0.0014	0.0014	0.00055 J	0.00022 U	0.0004 U	0.00056 J	0.00077 J	0.00038 J	0.00061 J	0.00044 J	0.00066 J	0.00044 U	0.00037 U	0.00063 J	0.00079 J
Carbon Tetrachloride	0.00018	0.00040 U	0.00046 U	0.00038 U	0.00032 U	0.0004 U	0.00036 U	0.00042 U	0.00033 U	0.00035 U	0.00036 U	0.00037 U	0.00044 U	0.00037 U	0.00044 U	0.00049 U
Chlorobenzene	0.0053	0.00014 U	0.00015 U	0.00012 U	0.0001 U	0.00013 U	0.00012 U	0.00014 U	0.00011 U	0.00011 U	0.00012 U	0.00012 U	0.00014 U	0.00012 U	0.00014 U	0.00016 U
Chloroethane	0.59	0.00035 U	0.00038 U	0.00031 U	0.00026 U	0.00032 U	0.0003 U	0.00034 U	0.00027 U	0.00029 U	0.00029 U	0.0003 U	0.00035 U	0.0003 U	0.00036 UJ	0.0004 UJ
Chloroform	0.000061	0.00021 U	0.00023 U	0.00019 U	0.00016 U	0.00019 U	0.00018 U	0.00021 U	0.00016 U	0.00017 U	0.00017 U	0.00018 U	0.00021 U	0.00018 U	0.00022 U	0.00024 U
Chloromethane	0.0049	0.00038 U	0.00041 U	0.00034 U	0.00028 U	0.00035 U	0.00032 U	0.00037 U	0.00029 U	0.00031 U	0.00032 U	0.00032 U	0.00039 U	0.00033 U	0.00039 U	0.00043 U
Cis-1,2-Dichloroethylene	0.0011	0.00022 U	0.00024 U	0.00019 U	0.00016 U	0.0002 U	0.00019 U	0.00021 U	0.00017 U	0.00018 U	0.00018 U	0.00019 U	0.00022 U	0.00019 U	0.00023 U	0.00025 U
Cis-1,3-Dichloropropene	--	0.00015 U	0.00016 U	0.00013 U	0.00011 U	0.00014 U	0.00013 U	0.00015 U	0.00011 U	0.00012 U	0.00012 U	0.00013 U	0.00015 U	0.00013 U	0.00015 U	0.00017 U
Cyclohexane	1.3	0.0014 J+	0.00049 J+	0.00076 J+	0.0011 J+	0.00043 U	0.0016	0.00045 U	0.0062	0.00075 J+	0.00048 J+	0.00058 J+	0.0011 J+	0.0011 J+	0.00047 U	0.00052 U
Dibromochloromethane	0.00023	0.00015 U	0.00016 U	0.00013 U	0.00011 U	0.00014 U	0.00013 U	0.00015 U	0.00011 U	0.00012 U	0.00012 U	0.00013 U	0.00015 U	0.00013 U	0.00015 U	0.00017 U
Dichlorodifluoromethane	0.03	0.00032 U	0.00034 U	0.00028 U	0.00024 U	0.0003 U	0.00027 U	0.00031 U	0.00024 U	0.00026 U	0.00027 U	0.00027 U	0.00033 U	0.00027 U	0.00033 U	0.00036 U
Ethylbenzene	0.0017	0.00054 J	0.00019 U	0.0003 J	0.00043 J	0.00017 U	0.00053 J	0.00018 U	0.0029	0.00021 J	0.00015 U	0.00015 U	0.00045 J	0.00027 J	0.00018 U	0.0002 U
Isopropylbenzene (Cumene)	0.074	0.00017 U	0.00018 U	0.00015 U	0.00013 U	0.00016 U	0.00014 U	0.00017 U	0.00037 J	0.00014 U	0.00014 U	0.00014 U	0.00017 U	0.00015 U	0.00017 U	0.00019 U
M,P-Xylene	--	0.0018	0.00055 J	0.00099	0.0014	0.00016 J	0.0018	0.00032 J	0.0081	0.00076 J	0.00041 J	0.00058 J	0.0017	0.0011	0.00039 J	0.00051 J
Methyl Acetate	0.41	0.0009 U	0.0009 U	0.0008 U	0.00067 U	0.0007 U	0.0006 U	0.0008 U	0.0006 U	0.0007 U	0.0007 U	0.0007 U	0.0008 U	0.0007 U	0.0009 U	0.001 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0033 J	0.0031 J	0.0025 J	0.0013 J	0.0021 U	0.0065 U	0.0075 U	0.0059 U	0.0015 J	0.0014 J	0.0015 J	0.0078 UJ	0.0015 J	0.0079 U	0.0088 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0022 U	0.0024 U	0.002 U	0.0016 U	0.0021 U	0.0019 U	0.0022 U	0.0017 U	0.0018 U	0.0018 U	0.0019 U	0.0023 U	0.0019 U	0.0023 U	0.0025 U
Methylcyclohexane	--	0.0023	0.00061 J	0.0012	0.0019	0.00046 U	0.0027	0.00049 U	0.012	0.001	0.00056 J	0.0008 J	0.0018	0.0022	0.00051 U	0.00089 J
Methylene Chloride	0.0027	0.00031 U	0.00034 U	0.00028 U	0.00024 U	0.0003 U	0.00027 U	0.00031 U	0.00024 U	0.00026 U	0.00027 U	0.00027 U	0.00033 U	0.00027 U	0.00033 U	0.00036 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00063 J	0.0003 J	0.00032 J	0.00047 J	0.00015 U	0.00059 J	0.00016 U	0.0028	0.00024 J	0.00017 J	0.00016 J	0.00058 J	0.0003 J	0.00016 U	0.00021 J
Styrene	0.13	0.00015 U	0.00016 U	0.00013 U	0.00011 U	0.00014 U	0.00013 U	0.00015 U	0.00011 U	0.00012 U	0.00012 U	0.00013 U	0.00015 U	0.00013 U	0.00015 U	0.00017 U
Tert-Butyl Methyl Ether	0.0032	0.00017 U	0.00018 U	0.00015 U	0.00013 U	0.00016 U	0.00014 U	0.00017 U	0.00013 U	0.00014 U	0.00014 U	0.00014 U	0.00017 U	0.00015 U	0.00017 U	0.00019 U
Tetrachloroethylene (PCE)	0.0018	0.00028 U	0.0003 U	0.00025 U	0.00021 U	0.00026 U	0.00024 U	0.00027 U	0.00021 U	0.00023 U	0.00023 U	0.00024 U	0.00028 U	0.00024 U	0.00028 U	0.00032 U
Toluene	0.076	0.0026	0.00076 J	0.0015	0.002	0.00031 J	0.0026	0.00041 J	0.012	0.0011	0.00059 J	0.00077 J	0.0022 J	0.0013 J	0.00066 J	0.00088 J
Trans-1,2-Dichloroethene	0.011	0.00039 U	0.00042 U	0.00034 U	0.00029 U	0.00036 U	0.00033 U	0.00038 U	0.0003 U	0.00032 U	0.00032 U	0.00033 U	0.0004 U	0.00033 U	0.0004 U	0.00044 U
Trans-1,3-Dichloropropene	--	0.0001 U	0.00011 U	0.00009 U	0.000074 U	0.000092 U	0.000085 U	0.000098 U	0.000076 U	0.000082 U	0.000083 U	0.000085 U	0.0001 U	0.000086 U	0.0001 U	0.00011 U
Trichloroethylene (TCE)	0.0001	0.00026 U	0.00028 U	0.00023 U	0.00019 U	0.00024 U	0.00022 U	0.00025 U	0.0002 U	0.00021 U	0.00022 U	0.00022 U	0.00026 U	0.00022 U	0.00027 U	0.0002 U
Trichlorofluoromethane	0.33	0.00034 U	0.00036 U	0.00029 U	0.00025 U	0.00031 U	0.00029 U	0.00033 U	0.00026 U	0.00028 U	0.00028 U	0.00029 U	0.00035 U	0.00029 U	0.00035 U	0.00039 U
Vinyl Chloride	0.0000065	0.00039 U	0.00042 U	0.00034 U	0.00029 U	0.00036 U	0.00033 U	0.00038 U	0.0003 U	0.00032 U	0.00032 U	0.00033 U	0.0004 U	0.00032 U	0.0004 U	0.00044 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-075	CFSB-079	CFSB-080	CFSB-082	CFSB-084	CFSB-086	CFSB-087	CFSB-088	CFSB-092	CFSB-094	CFSB-095	CFSB-097	CFSB-098	CFSB-099	CFSB-100
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/1/2016	6/1/2016	6/1/2016	6/1/2016	5/27/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	1.99E-06 J	9.4E-07 J	0.000018	2.4E-08 U	2E-08 U	2.38E-06 J	8.5E-07 J	1.9E-08 U	2.1E-08 U	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	5.89E-06	3.99E-06 J	0.0000798	3.4E-08 U	0.0000006 J	0.0000132	0.0000031 J	9.4E-07 J	2.4E-08 U	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	4.9E-08 U	2.6E-08 U	2.4E-07 U	3E-08 U	2.4E-08 U	2.9E-07 J	2.4E-08 U	2.3E-08 U	2E-08 U	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	0.0000004 J	4.6E-08 U	2.35E-06 J	5.3E-08 J	4.2E-08 U	3.4E-07 J	2.5E-07 J	7.5E-08 J	4E-08 U	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	0.0000003 J	6.4E-08 J	4.7E-07 J	2.8E-08 U	2.7E-08 U	0.0000002 J	9.8E-08 J	5.7E-08 J	3.3E-08 U	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	2.9E-07 J	4.2E-08 U	8.4E-07 J	2.9E-08 U	2.8E-08 U	1.6E-07 J	4.6E-08 U	5.5E-08 J	3.6E-08 U	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	4.9E-07 J	1.6E-07 J	2.53E-06 J	7.6E-08 J	2.4E-08 U	6.2E-07 J	2.3E-07 J	1.3E-07 J	3E-08 U	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	1.6E-07 J	4.4E-08 U	1.1E-07 U	3.3E-08 U	4.1E-08 U	5.2E-08 U	4.9E-08 U	3.1E-08 U	3.8E-08 U	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	5.1E-07 J	0.0000001 J	9.9E-07 J	2.4E-08 U	3.1E-08 J	3.8E-07 J	1.7E-07 J	9.9E-08 J	2.6E-08 U	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	0.0000002 J	3E-08 U	5.4E-07 J	5.3E-08 U	2.6E-08 U	1.2E-07 J	1.4E-07 J	3.8E-08 U	2.5E-08 U	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	1.7E-07 J	3.2E-08 U	1.6E-07 J	3.8E-08 U	4E-08 U	1.7E-07 J	4.9E-08 J	7.8E-08 J	3.2E-08 U	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	1.7E-07 J	4.5E-08 U	3.6E-07 J	3.1E-08 U	4.1E-08 U	1.1E-07 J	9.7E-08 J	4.4E-08 J	3.8E-08 U	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	1.5E-07 J	3.1E-08 U	4.8E-07 J	5.3E-08 U	2.7E-08 U	1.1E-07 J	1.1E-07 J	3.9E-08 U	2.6E-08 U	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	4.9E-07 J	1.7E-07 J	2.8E-07 J	3.1E-08 U	3.1E-08 U	3.3E-07 J	5.4E-07 J	6.9E-08 J	2.1E-08 U	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	3.6E-08 U	2.9E-08 U	2.8E-08 U	3E-08 U	3E-08 U	3.1E-08 U	3.2E-08 U	3.4E-08 U	3.1E-08 U	--	--	--	--	--	--
Heptachlorodibenzofurans	--	0.0000058	2.85E-06 J	0.000066	7.7E-07 J	7.5E-07 J	7.46E-06	2.27E-06 J	8.9E-07 J	2.4E-07 J	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	0.0000105	6.85E-06	0.000142	2.05E-06 J	1.16E-06 J	0.0000227	6.27E-06	1.68E-06 J	6.4E-07 J	--	--	--	--	--	--
Hexachlorodibenzofuran	--	3.01E-06 J	7.7E-07 J	0.0000458	2.6E-07 J	4.2E-08 U	3.47E-06 J	1.06E-06 J	2.3E-07 J	4E-08 U	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	2.33E-06 J	7.9E-07 J	8.49E-06	4.1E-07 J	1.7E-07 J	3.75E-06 J	1.33E-06 J	6.4E-07 J	9.2E-08 U	--	--	--	--	--	--
Octachlorodibenzofuran	--	5.31E-06 J	2.33E-06 J	0.0000234	2.3E-08 U	4.6E-08 U	8.11E-06 J	1.84E-06 J	3.9E-08 U	2.6E-08 U	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	0.0000403	0.0000333	0.00116	0.0000131	4.22E-06 J	0.0000803	0.0000245	6.25E-06 J	2.39E-06 J	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	2.2E-07 J	3.2E-08 U	1.6E-07 J	3.8E-08 U	4E-08 U	4.6E-07 J	2.9E-07 J	7.8E-08 J	4.2E-08 J	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	8.7E-07 J	0.0000002 J	6.56E-06	3.3E-08 U	3.7E-08 J	1.15E-06 J	7.8E-07 J	3.9E-08 U	2.6E-08 U	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	2.23E-06	3.6E-07 J	1.23E-06	3.1E-08 U	3.1E-08 U	1.51E-06	1.86E-06	6.9E-08 J	2.1E-08 U	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	2.8E-07 J	1.2E-07 J	2.5E-07 J	1.5E-07 J	1.5E-08 U	0.0000004 J	3.8E-07 J	3.4E-08 U	3.1E-08 U	--	--	--	--	--	--
METALS (mg/kg)																
Aluminum	3000	12500	3950	7730	8890	6750	7330	9240	7270	3860	9420	6250	5720	5360	3660	3720
Antimony	0.035	0.34 UJ	0.31 UJ	0.37 UJ	0.44 UJ	0.36 U	0.43 UJ	0.34 UJ	0.34 UJ	0.32 UJ	0.33 UJ	0.34 UJ	0.31 UJ	0.33 UJ	0.31 UJ	0.35 UJ
Arsenic	0.0015	3.5	2.9	3.9	5.3	2.3 J	3.6	3.8 J	3.6 J	3.4 J	6.4	3.7	5.3	2.8	2.1	2.9
Barium	16	103	76.9	47.9	60.9	103 J	76	93.7	96.2	61.1	69.6	95.8	112	90	30.8	119
Beryllium	1.9	0.44	0.31	0.34 J	0.41 J	0.28 J	0.31 J	0.45	0.36	0.21 J	0.44	0.34	0.29 J	0.21 J	0.097 J	0.25 J
Cadmium	0.069	0.26 U	0.24 U	0.28 U	0.34 U	0.27 U	0.33 U	0.26 U	0.26 U	0.25 U	0.25 U	0.29 J	0.24 U	0.25 U	0.24 U	0.26 U
Calcium	--	22600	17800	30200	15000	31500 J	43200	22100	42000	51700	29800	130000	52300	33900	21000	33800
Chromium, Total	--	10.2	6.7	10.2	9.6	7.1 J	8.8 J+	15.2	12.2	5.1	11.7	9.4	9.1	15.3	5.2	9
Cobalt	0.027	5.5	7	4.1	5.4	4.2	4.2	4.8 J-	5 J-	2.2 J-	5.5	3.7	3.7	4.1	2.2	3.7
Copper	2.8	11.8	5.5	18.2	16.8	11.3	12.4	13.4 J+	12.5 J+	5.5 J+	13.9 J	10.1 J+	8.6 J+	10.8 J+	4.1 J+	6.2 J+
Iron	35	15500	8610	11200	14600	10100	10000	11700	12500	6550	13300	8980	8630	8260	6490	8580
Lead	400	8.3	3	5.4	8.7	4.3	7.4 J-	7 J	4.9 J	7.4 J	9.6 J	6.3	5	4.3	3.3	3.3
Magnesium	--	10800	9680	9040	9070	9100 J	12700	9830	14300	7380	13600	10900	13200	11100	8170	15400
Manganese	2.8	353	316	256	351	366 J	331	302	296	192	481	345	379	218	176	328
Mercury	0.0033	0.018	0.016 J	0.016 J	0.022	0.019	0.013 J+	0.017 J+	0.012 U	0.012 J+	0.064	0.013 J	0.015 J	0.013 J	0.014 J	0.013 J
Nickel	2.6	14	12.7	12	10.8	8 J	10.5	15.4	10.3	4.6	10.4	7.9	7.8	7.4	4.7	6.5
Potassium	--	860 J+	467 J+	572	649	539 J	663	949 J+	790 J+	461 J+	710	699 J+	641 J+	465 J+	389 J+	527 J+
Selenium	0.052	0.32 U	0.29 U	0.35 U	0.42 U	0.33 U	0.4 U	0.32 U	0.32 U	0.3 U	0.31 U	0.32 U	0.29 U	0.31 U	0.3 U	0.32 U
Silver	0.08	0.62 U	0.57 U	0.68 U	0.81 U	0.65 U	0.79 U	0.63 U	0.62 U	0.59 U	0.61 U	0.63 U	0.57 U	0.6 U	0.58 U	0.64 U
Sodium	--	46.8 J	29 U	34.6 U	41.6 U	33.3 U	40.3 U	43.1 J	53.7 J	35.8 J	59.3 J	38.9 J	29.3 U	30.8 U	29.4 U	32.8 J
Thallium	0.0014	0.13 U	0.12 U	0.14 U	0.17 U	0.13 U	0.16 U	0.13 U	0.13 U	0.12 U	0.13 U	0.13 U	0.12 U	0.12 U	0.12 U	0.13 U
Vanadium	8.6	11.8	4.6	7.5	12.5	5.9 J	6.9	9.4	9.1	4.1	7.5	10.5	5.3	5.4	3.2	4.8
Zinc	37	45.1	19.7	30.1	34.6	28.9	32.7	52.3	30.9	15.6	38.5	33.5	24.1	20.1	16.1	22.6
PESTICIDES (mg/kg)																
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and DEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-075	CFSB-079	CFSB-080	CFSB-082	CFSB-084	CFSB-086	CFSB-087	CFSB-088	CFSB-092	CFSB-094	CFSB-095	CFSB-097	CFSB-098	CFSB-099	CFSB-100
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/1/2016	6/1/2016	6/1/2016	6/1/2016	5/27/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.0096 U	0.0094 U	0.0094 U	0.0099 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0092 U	0.0099 U	0.0091 U	0.0092 U	0.0093 U	0.0097 U
PCB-1221 (Aroclor 1221)	0.00008	0.0096 U	0.0094 U	0.0094 U	0.0099 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0092 U	0.0099 U	0.0091 U	0.0092 U	0.0093 U	0.0097 U
PCB-1232 (Aroclor 1232)	0.00008	0.0096 U	0.0094 U	0.0094 U	0.0099 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0092 U	0.0099 U	0.0091 U	0.0092 U	0.0093 U	0.0097 U
PCB-1242 (Aroclor 1242)	0.0012	0.0096 U	0.0094 U	0.0094 U	0.0099 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0092 U	0.0099 U	0.0091 U	0.0092 U	0.0093 U	0.0097 U
PCB-1248 (Aroclor 1248)	0.0012	0.0096 U	0.0094 U	0.0094 U	0.0099 U	0.0094 U	0.0093 U	0.0094 U	0.0093 U	0.0093 U	0.0092 U	0.0099 U	0.0091 U	0.0092 U	0.0093 U	0.0097 U
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.0097 U	0.0097 U	0.01 U	0.0097 U	0.0097 U	0.0097 U	0.0096 U	0.0096 U	0.0095 U	0.01 U	0.0094 U	0.0096 U	0.0097 U	0.01 U
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.0097 U	0.0097 U	0.01 U	0.0097 U	0.0097 U	0.0097 U	0.0096 U	0.0096 U	0.0095 U	0.01 U	0.0094 U	0.0096 U	0.0097 U	0.01 U
PCB-1262 (Aroclor 1262)	--	0.01 U	0.0097 U	0.0097 U	0.01 U	0.0097 U	0.0097 U	0.0097 U	0.0096 U	0.0096 U	0.0095 U	0.01 U	0.0094 U	0.0096 U	0.0097 U	0.01 U
PCB-1268 (Aroclor 1268)	--	0.01 U	0.0097 U	0.0097 U	0.01 U	0.0097 U	0.0097 U	0.0097 U	0.0096 U	0.0096 U	0.0095 U	0.01 U	0.0094 U	0.0096 U	0.0097 U	0.01 U
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.0097 U	0.0097 U	0.01 U	0.0097 U	0.0097 U	0.0097 U	0.0096 U	0.0096 U	0.0095 U	0.01 U	0.0094 U	0.0096 U	0.0097 U	0.01 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.026 U	0.026 U	0.0[illegible] U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.027 U	0.025 U	0.026 U	0.026 U	0.027 U
1,4-Dioxane (P-Dioxane)	0.000094	0.096 U	0.093 U	0.093 U	[illegible] U	0.094 U	0.092 U	0.093 U	0.092 U	0.092 U	0.092 U	0.099 U	0.09 U	0.092 U	0.093 U	0.096 U
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.033 U	0.033 U	[illegible] U	0.033 U	0.032 U	0.033 U	0.032 U	0.032 U	0.032 U	0.035 U	0.032 U	0.032 U	0.033 U	0.034 U
2,4,5-Trichlorophenol	0.4	0.036 U	0.035 U	0.035 U	0.037 U	0.035 U	0.035 U	0.035 U	0.034 U	0.034 U	0.034 U	0.037 U	0.034 U	0.034 U	0.034 U	0.036 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.0099 U	0.0099 U	0.01 U	0.0099 U	0.0099 U	0.0099 U	0.0098 U	0.0098 U	0.0097 U	0.01 U	0.0096 U	0.0098 U	0.0099 U	0.01 U
2,4-Dichlorophenol	0.0023	0.0084 U	0.0082 U	0.0083 U	0.0087 U	0.0083 U	0.0082 U	0.0082 U	0.0081 U	0.0081 U	0.0081 U	0.0087 U	0.009 U	0.0081 U	0.0082 U	0.0085 U
2,4-Dimethylphenol	0.042	0.079 U	0.077 U	0.0[illegible]	0.081 U	0.077 U	0.076 U	0.077 U	0.076 U	0.076 U	0.075 U	0.081 U	0.074 U	0.076 U	0.076 U	0.079 U
2,4-Dinitrophenol	0.0044	0.27 U	0.26 U	[illegible]	0.28 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.28 U	0.25 U	0.26 U	0.26 U	0.27 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.014 U	[illegible]	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.013 U	0.014 U	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.02 U	0.018 U	0.018 U	0.018 U	0.019 U
2-Chloronaphthalene	0.39	0.0081 U	0.0079 U	0.0079 U	0.0084 U	0.0079 U	0.0079 U	0.0079 U	0.0078 U	0.0078 U	0.0078 U	0.0084 U	0.0075 U	0.0078 U	0.0079 U	0.0082 U
2-Chlorophenol	0.0089	0.0091 U	0.0089 U	0.0088 U	0.0094 U	0.0089 U	0.0088 U	0.0089 U	0.0087 U	0.0087 U	0.0087 U	0.0094 U	0.0086 U	0.0088 U	0.0088 U	0.0092 U
2-Methylnaphthalene	0.019	0.0079 U	0.0077 U	0.1 J	0.0081 U	0.0077 U	0.0077 U	0.0077 U	0.0076 U	0.0076 U	0.0088 J	0.0081 U	0.0074 U	0.0076 U	0.0077 U	0.008 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U
2-Nitrophenol	--	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.0095 U	0.0093 U	0.0093 U	0.0098 U	0.0093 U	0.0092 U	0.0093 U	0.0091 U	0.0092 U	0.0091 U	0.0098 U	0.009 U	0.0092 U	0.0092 U	0.0096 U
3,3'-Dichlorobenzidine	0.00082	0.04 U	0.039 U	0.039 U	0.041 U	0.039 U	0.039 U	0.039 U	0.038 U	0.038 U	0.038 U	0.041 U	0.038 U	0.038 U	0.039 U	0.04 U
3-Nitroaniline	--	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	0.096 U	0.093 U	0.093 U	0.098 U	0.093 U	0.093 U	0.093 U	0.092 U	0.092 U	0.091 U	0.098 U	0.09 U	0.092 U	0.092 U	0.096 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.014 U	0.015 U	0.015 U	0.015 U
4-Chloroaniline	0.00016	0.0092 U	0.009 U	0.0089 U	0.0095 U	0.009 U	0.0089 U	0.009 U	0.0088 U	0.0088 U	0.0088 U	0.0095 U	0.0087 U	0.0089 U	0.0089 U	0.0093 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
4-Nitroaniline	0.0016	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.012 U	0.013 U	0.013 U	0.014 U
4-Nitrophenol	--	0.17 U	0.17 U	0.17 U	0.18 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.16 U	0.18 U	0.16 U	0.17 U	0.17 U	0.17 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-075	CFSB-079	CFSB-080	CFSB-082	CFSB-084	CFSB-086	CFSB-087	CFSB-088	CFSB-092	CFSB-094	CFSB-095	CFSB-097	CFSB-098	CFSB-099	CFSB-100
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/1/2016	6/1/2016	6/1/2016	6/1/2016	5/27/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016
Acenaphthene	0.55	0.0087 U	0.0084 U	0.016 J	0.0089 U	0.0085 U	0.0084 U	0.015 J	0.0083 U	0.0082 U	0.038 J	0.0089 U	0.0082 U	0.0083 U	0.0084 U	0.0087 U
Acenaphthylene	--	0.0092 U	0.009 U	0.0089 U	0.0095 U	0.009 U	0.0089 U	0.009 U	0.0088 U	0.0087 U	0.0088 U	0.0095 U	0.0087 U	0.0089 U	0.0089 U	0.0092 U
Acetophenone	0.058	0.0078 U	0.0076 U	0.0076 U	0.008 U	0.0076 U	0.0076 U	0.0076 U	0.0075 U	0.0075 U	0.0075 U	0.008 U	0.0073 U	0.0075 U	0.0075 U	0.0079 U
Anthracene	5.8	0.034 U	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.039 J	0.033 U	0.033 U	0.047 J	0.035 U	0.032 U	0.033 U	0.033 U	0.034 U
Atrazine	0.0002	0.016 U	0.016 U	0.015 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U
Benzaldehyde	0.0041	0.027 U	0.027 U	0.026 U	0.028 U	0.027 U	0.026 U	0.027 U	0.026 U	0.026 U	0.026 U	0.028 U	0.026 U	0.026 U	0.026 U	0.027 U
Benzo(A)Anthracene	0.011	0.12	0.029 U	0.059	0.031 U	0.072	0.13	0.22	0.029 J	0.029 U	0.075	0.031 U	0.028 U	0.029 U	0.029 U	0.03 U
Benzo(A)Pyrene	0.029	0.18	0.035	0.074	0.011 U	0.088	0.16	0.31	0.026 J	0.01 U	0.06	0.012 J	0.01 U	0.01 U	0.01 U	0.011 U
Benzo(B)Fluoranthene	0.3	0.3	0.067	0.13	0.014 U	0.16	0.27	0.71	0.072	0.013 U	0.1	0.02 J	0.013 U	0.013 U	0.014 U	0.014 U
Benzo(G,H,I)Perylene	--	0.19 J	0.18 J	0.15 J	0.021 U	0.11 J	0.21 J	0.61	0.031 J	0.02 U	0.11 J	0.021 U	0.019 U	0.02 U	0.02 U	0.021 U
Benzo(K)Fluoranthene	2.9	0.11	0.038	0.058	0.016 U	0.058	0.11	0.21	0.015 U	0.015 U	0.042	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U
Benzyl Butyl Phthalate	0.24	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.043 J	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.01 U	0.011 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.031 U	0.03 U	0.03 U	0.031 U	0.03 U	0.03 U	0.03 U	0.029 U	0.029 U	0.029 U	0.031 U	0.029 U	0.029 U	0.03 U	0.031 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0084 U	0.0082 U	0.0082 U	0.0087 U	0.0083 U	0.0082 U	0.0082 U	0.0081 U	0.0081 U	0.0081 U	0.0087 U	0.008 U	0.0081 U	0.0082 U	0.0085 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 UJ	0.014 UJ	0.014 UJ	0.015 UJ
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.019 J	0.036 J	0.013 U	0.013 U	0.061 J	0.014 U	0.013 U	0.016 J	0.015 J	0.014 U
Caprolactam	0.25	0.026 U	0.025 U	0.025 U	0.026 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.027 U	0.024 U	0.025 U	0.025 U	0.026 U
Carbazole	--	0.027 J	0.012 J	0.015 J	0.0091 U	0.014 J	0.018 J	0.09 J	0.0085 U	0.0085 U	0.025 J	0.0092 U	0.0084 U	0.0085 U	0.0086 U	0.0089 U
Chrysene	9	0.21 J	0.045 J	0.08 J	0.01 U	0.099 J	0.2 J	0.44	0.042 J	0.0094 U	0.097 J	0.022 J	0.0092 U	0.0094 U	0.0094 U	0.0098 U
Dibenz(A,H)Anthracene	0.096	0.019 U	0.018 U	0.02 J	0.019 U	0.027 J	0.048	0.12	0.018 U	0.018 U	0.023 J+	0.019 U	0.018 U	0.018 U	0.018 U	0.019 U
Dibenzofuran	0.015	0.011 U	0.011 U	0.021 J	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U	0.015 J	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
Diethyl Phthalate	0.61	0.01 U	0.0099 U	0.0099 U	0.01 U	0.0099	0.0099 U	0.0099 U	0.0098 U	0.0098 U	0.0097 U	0.01 U	0.0096 U	0.0098 U	0.0099 U	0.01 U
Dimethyl Phthalate	--	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.0098 U	0.01 U	0.01 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.01 U	0.081 J	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
Di-N-Octylphthalate	5.7	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.017 U	0.017 U	0.017 U	0.019 U	0.017 U	0.018 U	0.018 U	0.018 U
Fluoranthene	8.9	0.21 J	0.044 J	0.087 J	0.014 J	0.097 J	0.23 J	0.37	0.044 J	0.01 U	0.18 J	0.021 J	0.01 U	0.01 U	0.01 U	0.011 U
Fluorene	0.54	0.0078 U	0.0076 U	0.013 J	0.008 U	0.0076 U	0.0076 U	0.011 J	0.0075 U	0.0075 U	0.03 J	0.008 U	0.0073 U	0.0075 U	0.0075 U	0.0079 U
Hexachlorobenzene	0.00012	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.015 U
Hexachlorobutadiene	0.00027	0.01 U	0.0098 U	0.0098 U	0.01 U	0.0098 U	0.0098 U	0.0098 U	0.0097 U	0.0097 U	0.0096 U	0.01 U	0.0095 U	0.0097 U	0.0097 U	0.01 U
Hexachlorocyclopentadiene	0.00013	0.022 U	0.022 U	0.022 U	0.023 U	0.022 U	0.022 U	0.022 U	0.021 U	0.021 U	0.021 UJ	0.023 UJ	0.021 U	0.021 U	0.022 U	0.022 U
Hexachloroethane	0.0002	0.013 U	0.013 U	0.013 U	0.015 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.012 U	0.013 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.15	0.093	0.081	0.024 U	0.097	0.19	0.54	0.025 J	0.023 U	0.083 J+	0.025 U	0.022 U	0.023 U	0.023 U	0.024 U
Isophorone	0.026	0.0077 U	0.0075 U	0.0075 U	0.0079 U	0.0075 U	0.0074 U	0.0075 U	0.0074 U	0.0074 U	0.0074 U	0.56	0.0072 U	0.0074 U	0.0074 U	0.0077 U
Naphthalene	0.00054	0.0091 U	0.0089 U	0.67	0.0094 U	0.0089 U	0.0088 U	0.0089 U	0.0087 U	0.0087 U	0.025 J	0.0094 U	0.0086 U	0.0088 U	0.0088 U	0.0092 U
Nitrobenzene	0.000092	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.011 U	0.012 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.032 U	0.032 U	0.033 U	0.032 U	0.031 U	0.032 U	0.031 U	0.031 U	0.031 U	0.033 U	0.031 U	0.031 U	0.031 U	0.033 U
Pentachlorophenol	0.000057	0.043 U	0.042 U	0.042 U	0.045 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.041 U	0.045 U	0.041 U	0.042 U	0.042 U	0.044 U
Phenanthrene	--	0.088 J	0.018 J	0.045 J	0.0098 U	0.047 J	0.079 J	0.17 J	0.025 J	0.0092 U	0.2 J	0.015 J	0.009 U	0.0092 U	0.0092 U	0.0096 U
Phenol	0.33	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U
Pyrene	1.3	0.21 J	0.047 J	0.093 J	0.017 U	0.13 J+	0.17 J	0.36	0.048 J	0.016 U	0.19 J	0.022 J	0.015 U	0.016 U	0.016 U	0.016 U
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.0004 J	0.00026 U	0.00034 U	0.00037 U	0.00031 U	0.00038 U	0.0003 U	0.00036 U	0.00033 U	0.00036 U	0.00041 U	0.00035 U	0.00037 U	0.00037 U	0.0003 U
1,1,2,2-Tetrachloroethane	0.00003	0.00016 U	0.00016 U	0.00015 U	0.00016 U	0.00014 U	0.00017 U	0.00013 U	0.00016 U	0.00015 U	0.00016 U	0.00018 U	0.00016 U	0.00017 U	0.00016 U	0.00013 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00042 U	0.00042 U	0.00039 U	0.00043 U	0.00036 U	0.00044 UJ	0.00034 U	0.00041 UJ	0.00038 U	0.00042 U	0.00048 U	0.00041 U	0.00043 U	0.00043 U	0.00034 U
1,1,2-Trichloroethane	0.000013	0.00027 U	0.00026 U	0.00025 U	0.00027 U	0.00023 U	0.00028 U	0.00022 U	0.00026 U	0.00024 U	0.00027 U	0.0003 U	0.00026 U	0.00027 U	0.00027 U	0.00022 U
1,1-Dichloroethane	0.00078	0.00033 U	0.00032 U	0.0003 U	0.00033 U	0.00028 U	0.00034 U	0.00027 U	0.00032 U	0.00029 U	0.00033 U	0.00037 U	0.00032 U	0.00033 U	0.00033 U	0.00026 U
1,1-Dichloroethene	0.01	0.00039 U	0.00039 U	0.00036 U	0.0004 U	0.00034 U	0.00041 U	0.00032 U	0.00038 U	0.00036 U	0.00039 U	0.00045 U	0.00038 U	0.0004 U	0.0004 U	0.00032 U
1,2,3-Trichlorobenzene	0.0021	0.0001 U	0.0001 U	0.000098 U	0.00011 U	0.000091 U	0.00011 U	0.000086 U	0.0001 U	0.000095 U	0.00011 U	0.00012 U	0.0001 U	0.00011 U	0.00011 U	0.000085 U
1,2,4-Trichlorobenzene	0.0012	0.00031 U	0.0003 U	0.00028 U	0.00031 U	0.00026 U	0.00032 U	0.00025 U	0.0003 U	0.00028 U	0.00031 U	0.00035 U	0.0003 U	0.00031 U	0.00031 U	0.00025 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00045 U	0.00044 U	0.00042 U	0.00046 U	0.00039 U	0.00047 U	0.00037 U	0.00044 U	0.00041 U	0.00045 U	0.00051 U	0.00044 U	0.00046 U	0.00046 U	0.00037 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00012 U	0.00011 U	0.00011 U	0.00012 U	0.000099 U	0.00012 U	0.000084 U	0.00011 U	0.0001 U	0.00012 U	0.00013 U	0.00011 U	0.00012 U	0.00012 U	0.000093 U
1,2-Dichlorobenzene	0.03	0.00013 U	0.00013 U	0.00012 U	0.00014 U	0.00012 U	0.00014 U	0.00011 U	0.00013 U	0.00012 U	0.00013 U	0.00015 U	0.00012 U	0.00014 U	0.00014 U	0.00011 U
1,2-Dichloroethane	0.000048	0.00011 U	0.0001 U	0.000098 U	0.00011 U	0.000091 U	0.00011 U	0.000086 U	0.0001 U	0.000095 U	0.00011 U	0.00012 U	0.0001 U	0.00011 U	0.00011 U	0.000085 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-075	CFSB-079	CFSB-080	CFSB-082	CFSB-084	CFSB-086	CFSB-087	CFSB-088	CFSB-092	CFSB-094	CFSB-095	CFSB-097	CFSB-098	CFSB-099	CFSB-100
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/1/2016	6/1/2016	6/1/2016	6/1/2016	5/27/2016	5/26/2016	5/26/2016	5/26/2016	5/26/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016	5/24/2016
1,2-Dichloropropane	0.000047	0.00016 U	0.00016 U	0.00015 U	0.00016 U	0.00014 U	0.00017 U	0.00013 U	0.00016 U	0.00015 U	0.00016 U	0.00018 U	0.00016 U	0.00017 U	0.00016 U	0.00012 U
1,3-Dichlorobenzene	--	0.00012 U	0.00011 U	0.00011 U	0.00012 U	0.00009 U	0.00012 U	0.00009 U	0.00011 U	0.00011 U	0.00012 U	0.00013 U	0.00011 U	0.00012 U	0.00012 U	0.00009 U
1,4-Dichlorobenzene	0.00046	0.00012 U	0.00012 U	0.00012 U	0.00013 U	0.00011 U	0.00013 U	0.0001 U	0.00012 U	0.00011 U	0.00012 U	0.00014 U	0.00012 U	0.00013 U	0.00013 U	0.0001 U
2-Hexanone	0.00088	0.0009 U	0.00089 U	0.00083 U	0.00091 U	0.00078 U	0.00094 U	0.00073 U	0.00086 U	0.00081 U	0.0009 U	0.001 U	0.00088 U	0.00092 U	0.00091 U	0.00073 U
Acetone	0.29	0.028	0.014	0.0098	0.049	0.0057	0.0062	0.0075	0.0042 J	0.0033 J	0.012	0.016	0.0051	0.0074	0.012	0.0082
Benzene	0.00023	0.00071 J	0.00036 J	0.00066 J	0.00019 U	0.00028 J	0.00023 J	0.00027 J	0.00[illegible] U	0.00017 U	0.00019 U	0.00028 J	0.00025 J	0.00057 J	0.00028 J	0.0008
Bromochloromethane	0.0021	0.00016 U	0.00016 U	0.00015 U	0.00016 U	0.00014 U	0.00017 U	0.00013 U	0.00016 U	0.00015 U	0.00016 U	0.00018 U	0.00016 U	0.00017 U	0.00016 U	0.00013 U
Bromodichloromethane	0.000036	0.00037 U	0.00036 U	0.00034 U	0.00037 U	0.00031 U	0.00038 U	0.0003 U	0.00037 U	0.00033 U	0.00036 U	0.00041 U	0.00035 U	0.00037 U	0.00037 U	0.0003 U
Bromoform	0.00087	0.00012 U	0.00012 U	0.00012 U	0.00013 U	0.00011 U	0.00013 U	0.0001 U	0.00012 U	0.00011 U	0.00012 U	0.00014 U	0.00012 U	0.00013 U	0.00013 U	0.0001 U
Bromomethane	0.00019	0.00031 U	0.0003 U	0.00028 U	0.00031 U	0.00026 U	0.00032 U	0.00025 U	0.0003 UJ	0.00028 UJ	0.00031 U	0.00035 U	0.0003 U	0.00031 U	0.00031 U	0.00025 U
Carbon Disulfide	0.024	0.0009 J	0.0016	0.00078 J	0.0017	0.00036 U	0.00081 J	0.00078	0.0004 U	0.00037 U	0.00041 U	0.00047 U	0.0004 U	0.00078 J	0.00042 U	0.00032 U
Carbon Tetrachloride	0.00018	0.00041 U	0.00041 U	0.00038 U	0.00042 U	0.00036 U	0.00043 U	0.00[illegible]	0.0004 U	0.00037 U	0.00041 U	0.00047 U	0.0004 U	0.00042 U	0.00042 U	0.00032 U
Chlorobenzene	0.0053	0.00013 U	0.00013 U	0.00012 U	0.00014 U	0.00012 U	0.00014 U	0.0[illegible]	0.00013 U	0.00012 U	0.00013 U	0.00015 U	0.00013 U	0.00014 U	0.00014 U	0.00011 U
Chloroethane	0.59	0.00034 UJ	0.00033 UJ	0.00031 UJ	0.00034 UJ	0.00029 U	0.00035 UJ	0.00027 UJ	0.00033 UJ	0.0003 UJ	0.00034 U	0.00038 U	0.00033 U	0.00034 U	0.00034 U	0.00027 U
Chloroform	0.000061	0.0002 U	0.0002 U	0.00019 U	0.0002 U	0.00017 U	0.00021 U	0.00016 U	0.0002 U	0.00018 U	0.0002 U	0.00023 U	0.0002 U	0.00021 U	0.0002 U	0.00016 U
Chloromethane	0.0049	0.00037 U	0.00036 U	0.00034 U	0.00037 U	0.00031 U	0.00038 U	0.0003 U	0.00036 U	0.00033 U	0.00036 U	0.00041 U	0.00035 U	0.00037 U	0.00037 U	0.0003 U
Cis-1,2-Dichloroethylene	0.0011	0.00021 U	0.00021 U	0.0002 U	0.00021 U	0.00018 U	0.00022 U	0.00017 U	0.00021 U	0.00019 U	0.00021 U	0.00024 U	0.00021 U	0.00022 U	0.00021 U	0.00017 U
Cis-1,3-Dichloropropene	--	0.00014 U	0.00014 U	0.00013 U	0.00015 U	0.00012 U	0.00[illegible] U	0.00012 U	0.00014 U	0.00013 U	0.00014 U	0.00016 U	0.00014 U	0.00015 U	0.00015 U	0.00012 U
Cyclohexane	1.3	0.0011	0.00043 U	0.0016	0.00045 U	0.0005 J+	0.00[illegible] UJ	0.00036 UJ	0.00043 UJ	0.0004 U	0.00044 U	0.0005 U	0.00058 J	0.0013	0.00076 J	0.0019
Dibromochloromethane	0.00023	0.00014 U	0.00014 U	0.00013 U	0.00015 U	0.00012 U	0.00[illegible] U	0.00012 U	0.00014 U	0.00013 U	0.00014 U	0.00016 U	0.00014 U	0.00015 U	0.00015 U	0.00012 U
Dichlorodifluoromethane	0.03	0.00031 U	0.0003 U	0.00028 U	0.00031 U	0.00026 U	0.00032 UJ	0.00025 UJ	0.0003 UJ	0.00028 U	0.00031 U	0.00035 U	0.0003 U	0.00031 U	0.00031 U	0.00025 U
Ethylbenzene	0.0017	0.00017 U	0.00017 U	0.00042 J	0.00017 U	0.00021 J	0.00018 U	0.00014 U	0.00017 J	0.00016 U	0.00017 U	0.0002 U	0.0002 J	0.0007 J	0.00034 J	0.00099
Isopropylbenzene (Cumene)	0.074	0.00016 U	0.00016 U	0.00015 U	0.00016 U	0.00014 U	0.00017 U	0.00013 U	0.00016 U	0.00015 U	0.00016 U	0.00018 U	0.00016 U	0.00017 U	0.00016 U	0.00015 J
M,P-Xylene	--	0.00043 J	0.00034 J	0.0012	0.00014 J	0.00053 J	0.0004 J	0.00086 U	0.00056 J	0.00059 J	0.00011 U	0.00042 J	0.00064 J	0.0019	0.0011	0.0031
Methyl Acetate	0.41	0.0087 U	0.0085 U	0.0008 U	0.014	0.0[illegible]	0.0009 U	0.0007 U	0.0084 U	0.0078 U	0.0086 U	0.0098 U	0.0084 U	0.0088 U	0.0087 U	0.0007 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0074 U	0.0073 U	0.0008 U	0.0017 J	0.0[illegible] U	0.0077 U	0.0006 U	0.0072 U	0.0067 U	0.0074 U	0.0084 U	0.0072 U	0.0075 U	0.0075 U	0.0006 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0021 U	0.0021 U	0.002 U	0.0022 U	0.0018 U	0.0022 U	0.0017 U	0.0021 U	0.0019 U	0.0021 U	0.0024 U	0.0021 U	0.0022 U	0.0021 U	0.0017 U
Methylcyclohexane	--	0.002	0.00047 U	0.0024	0.00048 U	0.0008 J	0.0005 J-	0.00039 J-	0.00078 J-	0.00071 J	0.00048 U	0.00066 J	0.001	0.0023	0.0015	0.0037
Methylene Chloride	0.0027	0.00031 U	0.0003 U	0.00028 U	0.00031 U	0.00026 U	0.00032 U	0.00025 U	0.0003 U	0.00028 U	0.00031 U	0.00035 U	0.0003 U	0.00031 U	0.00031 U	0.00025 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00015 U	0.00015 U	0.00044 J	0.00015 U	0.00019 J	0.00016 U	0.00012 U	0.00018 J	0.00018 J	0.00015 U	0.00017 U	0.00022 J	0.00064 J	0.00035 J	0.001
Styrene	0.13	0.00014 U	0.00014 U	0.00013 U	0.00[illegible] U	0.0012 U	0.00015 U	0.00012 U	0.00014 U	0.00013 U	0.00014 U	0.00016 U	0.00014 U	0.00015 U	0.00015 U	0.00012 U
Tert-Butyl Methyl Ether	0.0032	0.00016 U	0.00016 U	0.00015 U	0.00[illegible] U	0.0014 U	0.00017 U	0.00013 U	0.00016 U	0.00015 U	0.00016 U	0.00018 U	0.00016 U	0.00017 U	0.00016 U	0.00013 U
Tetrachloroethylene (PCE)	0.0018	0.00027 U	0.00026 U	0.00025 U	0.00027 U	0.00023 U	0.00028 U	0.00022 U	0.00026 U	0.00024 U	0.00027 U	0.0003 U	0.00026 U	0.00027 U	0.00027 U	0.00022 U
Toluene	0.076	0.0011	0.00062 J	0.0018	0.00033 J	0.0009	0.0006 J	0.00028 J	0.0009 J	0.00077 J	0.00025 J	0.0009 J	0.0011	0.0028	0.0014	0.0044
Trans-1,2-Dichloroethene	0.011	0.00037 U	0.00037 U	0.00035 U	0.00038 U	0.00032 U	0.00039 U	0.0003 U	0.00037 U	0.00034 U	0.00037 U	0.00042 U	0.00036 U	0.00038 U	0.00038 U	0.0003 U
Trans-1,3-Dichloropropene	--	0.00096 U	0.00094 U	0.00[illegible]	0.00097 U	0.00083 U	0.0001 U	0.00078 U	0.00094 U	0.00087 U	0.00096 U	0.0011 U	0.00093 U	0.00098 U	0.00097 U	0.00078 U
Trichloroethylene (TCE)	0.0001	0.00025 U	0.00025 U	0.00[illegible]	0.00025 U	0.00022 U	0.00026 U	0.0002 U	0.00024 U	0.00023 U	0.00025 U	0.0028 U	0.00024 U	0.00025 U	0.00025 U	0.0002 U
Trichlorofluoromethane	0.33	0.00033 U	0.00032 U	0.00[illegible] U	0.00033 U	0.00028 U	0.00034 UJ	0.00027 UJ	0.00032 UJ	0.00029 U	0.00033 U	0.0037 U	0.00032 U	0.00033 U	0.00033 U	0.00026 U
Vinyl Chloride	0.0000065	0.0037 U	0.0037 U	0.0035 U	0.0038 U	0.0032 U	0.0039 U	0.0003 U	0.0037 U	0.0034 U	0.0037 U	0.0042 U	0.0036 U	0.0038 U	0.0038 U	0.0003 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-121	CFSB-128	CFSB-129	CFSB-130	CFSB-131	CFMW-027	CFSB-014	CFSB-016	CFSB-019	CFSB-025	CFSB-026	CFSB-027	CFSB-028	CFSB-030	CFMW-002
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/18/2016	5/24/2016	5/24/2016	6/17/2016	6/17/2016	6/30/2016	6/2/2016	6/2/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	7/18/2016	6/13/2016	6/13/2016
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (mg/kg)																
Aluminum	3000	6570 J	5970	7600	21900	8000	9220	7050 J	5850	5590	11100	6420	10300	7760	5340	6320
Antimony	0.035	0.32 UJ	0.31 UJ	0.33 UJ	0.48 J	0.4 U	0.33 UJ	0.42 UJ	0.44 UJ	0.34 UJ	0.38 UJ	0.33 UJ	0.35 UJ	0.41 UJ	0.33 UJ	0.32 UJ
Arsenic	0.0015	4.6 J	2.5	2.5	3.7	3.1	3.6	4.3 J	3.3	1.7	6.8	4.2	5.4	3.4	1.3	3.2
Barium	16	69.3	185	78.8	122	53.9	67.3 J	71.1 J	46.1	36.3	77.9	56.4	92.7	66.6	22.7	29.5
Beryllium	1.9	0.37	0.31	0.39	1.1	0.36 J	0.36	0.3 J	0.23 J	0.21 J	0.53	0.22 J	0.49	0.58	0.19 J	0.25 J
Cadmium	0.069	0.24 U	0.23 U	0.25 U	0.34 U	0.32 J	0.25 U	0.32 U	0.34 U	0.26 U	0.29 U	0.25 U	0.26 U	0.31 U	0.25 U	0.25 U
Calcium	--	32300	36300	20200	34200 J	14400	120000	18100	21500	38500 J	53000 J	29100 J	29800 J	36800	14200 J	35500 J
Chromium, Total	--	9.3	9	7.9	14.6	8.4	7.5	10.8 J	6.5	5.9	9.4	7.2	12	10 J+	7.4	7.5
Cobalt	0.027	4.5	3.7	6.3	4.1 J+	4.4	2.9	4.9	4	3	5.3	4	5	4.5	3.2	3.4
Copper	2.8	14.8 J	10 J	9.2 J	8.8 J	11.1	9.4 J	17.5	8.7	4.3	9.7	8.1	11.2	10.6 J+	4.7	11.9
Iron	35	12800	8610	10700	13400	12600	9350	12300 J	9950	8480	13300	9560	13200	12500	6260	9650
Lead	400	6.1	5.3 J	4.9 J	6.9	6.6	5.8	7.3 J	5.4	3.1 J+	10.2 J+	5.3 J+	11 J+	5.6 J	2.2 J+	3.7 J+
Magnesium	--	9470	11200	9690	11600	8320	10100	9070	8830	7280	14500	9500	13000	12300	7140	12400
Manganese	2.8	396 J	338	249	351	267	331	327 J	237	204 J	352 J	259 J	407 J	360	177 J	270 J
Mercury	0.0033	0.013 J	0.012 U	0.013 J	0.012 U	0.012 U	0.025 J+	0.013 U	0.027	0.012 U	0.013 U	0.012 U	0.012 J	0.012 U	0.012 U	0.019
Nickel	2.6	8.4	7.5	9.6	8.9 J-	9.4	8.1	10.2	7.3	6.2 J+	13.5 J+	9.7 J+	16.8 J+	10	6.8 J+	7.3 J+
Potassium	--	670	869	783	2140	693	1630 J+	641	505	468	1350	610	899	899 J+	408	628
Selenium	0.052	0.3 U	0.29 U	0.31 U	0.42 U	0.37 U	0.31 U	0.39 U	0.42 U	0.32 U	0.38 J	0.31 U	0.32 U	0.38 U	0.31 U	0.3 U
Silver	0.08	0.56 U	0.56 U	0.61 U	0.82 U	0.73 U	0.6 U	0.76 U	0.81 U	0.62 U	0.69 U	0.6 U	0.63 U	0.75 U	0.61 U	0.59 U
Sodium	--	43.5 J	54.9 J	31.3 U	2110	882	30.8 U	38.9 U	41.5 U	31.9 U	35.3 U	30.8 U	32.3 U	38.2 U	31.1 U	37 J
Thallium	0.0014	0.13 U	0.12 U	0.13 U	0.17 U	0.15 U	0.16 J	0.16 U	0.17 U	0.13 U	0.21 J	0.12 U	0.21 J	0.15 U	0.13 U	0.12 U
Vanadium	8.6	10.5	7.2	7.8	12.3	8.2	8.1	6.9 J	5.9	5.8 J-	12.7 J-	8.5 J-	14.6 J-	14.4 J	4.1 J-	4.4 J-
Zinc	37	28.3	24.4	36	33.2	34.7	32.4	32.4 J	26.7	24.8 J-	42.2 J-	26.7 J-	45.1 J-	30.4	19.8 J-	40.3 J-
PESTICIDES (mg/kg)																
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-121	CFSB-128	CFSB-129	CFSB-130	CFSB-131	CFMW-027	CFSB-014	CFSB-016	CFSB-019	CFSB-025	CFSB-026	CFSB-027	CFSB-028	CFSB-030	CFMW-002
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/18/2016	5/24/2016	5/24/2016	6/17/2016	6/17/2016	6/30/2016	6/2/2016	6/2/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	7/18/2016	6/13/2016	6/13/2016
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.0093 U	0.0092 U	0.0092 U	0.0098 U	0.0096 U	0.0096 U	0.01 U	0.01 U	0.0095 U	0.01 U	0.0093 U	0.0097 U	0.0095 U	0.0094 U	0.0094 U
PCB-1221 (Aroclor 1221)	0.00008	0.0093 U	0.0092 U	0.0092 U	0.0098 U	0.0096 U	0.0096 U	0.01 U	0.01 U	0.0095 U	0.01 U	0.0093 U	0.0097 U	0.0095 U	0.0094 U	0.0094 U
PCB-1232 (Aroclor 1232)	0.00008	0.0093 U	0.0092 U	0.0092 U	0.0098 U	0.0096 U	0.0096 U	0.01 U	0.01 U	0.0095 U	0.01 U	0.0093 U	0.0097 U	0.0095 U	0.0094 U	0.0094 U
PCB-1242 (Aroclor 1242)	0.0012	0.0093 U	0.0092 U	0.0092 U	0.0098 U	0.0096 U	0.0096 U	0.01 U	0.01 U	0.0095 U	0.01 U	0.0093 U	0.0097 U	0.0095 U	0.0094 U	0.0094 U
PCB-1248 (Aroclor 1248)	0.0012	0.0093 U	0.0092 U	0.0092 U	0.0098 U	0.0096 U	0.0096 U	0.01 U	0.01 U	0.0095 U	0.01 U	0.0093 U	0.0097 U	0.0095 U	0.0094 U	0.0094 U
PCB-1254 (Aroclor 1254)	0.002	0.0096 U	0.0095 U	0.0095 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.0096 U	0.01 U	0.0098 U	0.0097 U	0.0097 U
PCB-1260 (Aroclor 1260)	0.0055	0.0096 U	0.0095 U	0.0095 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.0096 U	0.01 U	0.0098 U	0.0097 U	0.0097 U
PCB-1262 (Aroclor 1262)	--	0.0096 U	0.0095 U	0.0095 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.0096 U	0.01 U	0.0098 U	0.0097 U	0.0097 U
PCB-1268 (Aroclor 1268)	--	0.0096 U	0.0095 U	0.0095 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.0096 U	0.01 U	0.0098 U	0.0097 U	0.0097 U
Polychlorinated Biphenyl (PCBs)	--	0.0096 U	0.0095 U	0.0095 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.0096 U	0.01 U	0.0098 U	0.0097 U	0.0097 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.026 U	0.025 U	0.025 U	0.1 U	0.027 U	0.052 U	0.028 U	0.028 U	0.026 U	0.028 U	0.026 U	0.12 U	0.026 U	0.026 U	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	0.092 U	0.091 U	0.091 U	0.5 U	0.096 U	0.19 U	0.1 U	0.1 U	0.095 U	0.1 U	0.092 U	0.48 U	0.094 U	0.093 U	0.093 U
2,3,4,6-Tetrachlorophenol	0.018	0.032 U	0.032 U	0.032 U	0.17 U	0.034 U	0.067 U	0.035 U	0.035 U	0.033 U	0.035 U	0.032 U	0.17 U	0.033 U	0.033 U	0.033 U
2,4,5-Trichlorophenol	0.4	0.034 U	0.034 U	0.034 U	0.18 U	0.036 U	0.071 U	0.037 U	0.037 U	0.035 U	0.037 U	0.034 U	0.18 U	0.035 U	0.035 U	0.035 U
2,4,6-Trichlorophenol	0.0012	0.0098 U	0.0097 U	0.0097 U	0.052 U	0.01 U	0.02 U	0.011 U	0.011 U	0.01 U	0.011 U	0.0098 U	0.051 U	0.01 U	0.0099 U	0.0099 U
2,4-Dichlorophenol	0.0023	0.0091 U	0.0091 U	0.0091 U	0.043 U	0.0084 U	0.017 U	0.0088 U	0.0088 U	0.0083 U	0.0089 U	0.0081 U	0.043 U	0.0083 U	0.0082 U	0.0082 U
2,4-Dimethylphenol	0.042	0.076 U	0.075 U	0.075 U	0.4 U	0.079 U	0.16 U	0.082 U	0.082 U	0.078 U	0.083 U	0.076 U	0.4 U	0.077 U	0.077 U	0.077 U
2,4-Dinitrophenol	0.0044	0.26 U	0.26 U	0.26 U	1.4 U	0.27 U	0.54 U	0.28 U	0.28 U	0.27 U	0.28 U	0.26 U	1.4 U	0.27 U	0.26 U	0.26 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.014 U	0.014 U	0.072 U	0.014 U	0.028 U	0.015 U	0.015 U	0.014 U	0.015 U	0.014 U	0.071 U	0.014 U	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.018 U	0.018 U	0.018 U	0.096 U	0.019 U	0.038 U	0.02 U	0.02 U	0.019 U	0.02 U	0.018 U	0.095 U	0.019 U	0.019 U	0.019 U
2-Chloronaphthalene	0.39	0.0078 U	0.0078 U	0.0077 U	0.041 U	0.0081 U	0.016 U	0.0085 U	0.0085 U	0.008 U	0.0085 U	0.0078 U	0.041 U	0.008 U	0.0079 U	0.0079 U
2-Chlorophenol	0.0089	0.0088 U	0.0087 U	0.0087 U	0.046 U	0.0091 U	0.018 U	0.0095 U	0.0095 U	0.009 U	0.0096 U	0.0087 U	0.046 U	0.0089 U	0.0088 U	0.0089 U
2-Methylnaphthalene	0.019	0.0076 U	0.0075 U	0.0075 U	0.88 J	0.0096 J	0.037 J	0.0083 U	0.0083 U	0.022 J	0.0088 U	0.0076 U	0.079 J	0.0078 U	0.0077 U	0.0077 U
2-Methylphenol (O-Cresol)	0.075	0.015 U	0.015 U	0.015 U	0.079 U	0.016 U	0.031 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.079 U	0.015 U	0.015 U	0.015 U
2-Nitroaniline	0.008	0.011 U	0.011 U	0.011 U	0.06 U	0.012 U	0.024 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.059 UJ	0.012 U	0.011 U	0.011 U
2-Nitrophenol	--	0.012 U	0.011 U	0.011 U	0.061 U	0.012 U	0.024 U	0.013 U	0.013 U	0.012 U	0.013 U	0.012 U	0.061 U	0.012 U	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.0092 U	0.0091 U	0.0091 U	0.048 U	0.0095 U	0.019 U	0.01 U	0.01 U	0.0094 U	0.01 U	0.0092 U	0.048 U	0.0094 U	0.0093 U	0.0093 U
3,3'-Dichlorobenzidine	0.00082	0.038 U	0.038 U	0.038 U	0.2 U	0.04 U	0.08 U	0.042 U	0.042 U	0.039 U	0.042 U	0.038 U	0.2 U	0.039 U	0.039 U	0.039 U
3-Nitroaniline	--	0.01 U	0.01 U	0.01 U	0.054 U	0.011 U	0.021 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.053 U	0.01 U	0.01 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.092 U	0.091 U	0.091 U	0.48 U	0.095 U	0.19 U	0.1 U	0.1 U	0.094 U	0.1 U	0.092 U	0.48 U	0.094 U	0.093 U	0.093 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.057 U	0.011 U	0.023 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.057 U	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.015 U	0.015 U	0.078 U	0.015 U	0.031 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.077 U	0.015 U	0.015 U	0.015 U
4-Chloroaniline	0.00016	0.0089 U	0.0088 U	0.0088 U	0.047 U	0.0092 U	0.018 U	0.0096 U	0.0096 U	0.0091 U	0.0097 U	0.0088 U	0.046 U	0.009 U	0.0089 U	0.009 U
4-Chlorophenyl Phenyl Ether	--	0.01 U	0.01 U	0.01 U	0.054 U	0.011 U	0.021 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.054 U	0.011 U	0.01 U	0.01 U
4-Nitroaniline	0.0016	0.013 U	0.013 U	0.013 U	0.069 U	0.014 U	0.027 U	0.014 U	0.014 U	0.013 U	0.014 U	0.013 U	0.068 U	0.013 U	0.013 U	0.013 U
4-Nitrophenol	--	0.17 UJ	0.16 U	0.16 U	0.87 U	0.17 U	0.34 U	0.18 U	0.18 U	0.17 U	0.18 U	0.17 U	0.87 U	0.17 U	0.17 U	0.17 U

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Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-121	CFSB-128	CFSB-129	CFSB-130	CFSB-131	CFMW-027	CFSB-014	CFSB-016	CFSB-019	CFSB-025	CFSB-026	CFSB-027	CFSB-028	CFSB-030	CFMW-002
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/18/2016	5/24/2016	5/24/2016	6/17/2016	6/17/2016	6/30/2016	6/2/2016	6/2/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	7/18/2016	6/13/2016	6/13/2016
Acenaphthene	0.55	0.0083 U	0.0083 U	0.019 J	4.2	0.0086 U	0.55 J	0.0091 U	0.0091 U	0.077 J	0.0091 U	0.0083 U	0.94 J	0.0085 U	0.0084 U	0.0084 U
Acenaphthylene	--	0.0089 U	0.0088 U	0.0088 U	0.059 J	0.0092 U	0.018 U	0.0096 U	0.0096 U	0.0087 U	0.0097 U	0.0088 U	0.045 U	0.009 U	0.0089 U	0.009 U
Acetophenone	0.058	0.0075 U	0.0074 U	0.0074 U	0.039 U	0.0078 U	0.015 U	0.0082 U	0.0082 U	0.077 U	0.0082 U	0.0075 U	0.039 U	0.0077 U	0.0076 U	0.0076 U
Anthracene	5.8	0.033 U	0.032 U	0.037 J	5.5	0.034 U	0.66 J	0.036 U	0.036 U	0.12 J	0.036 U	0.033 U	1.9	0.033 U	0.033 U	0.033 U
Atrazine	0.0002	0.015 U	0.015 U	0.015 U	0.081 U	0.016 U	0.032 U	0.017 U	0.017 U	0.016 U	0.017 U	0.015 U	0.08 U	0.016 U	0.016 U	0.015 U
Benzaldehyde	0.0041	0.026 U	0.026 U	0.026 U	0.14 U	0.027 U	0.055 U	0.029 U	0.029 U	0.027 U	0.029 U	0.026 U	0.14 U	0.027 U	0.027 U	0.027 U
Benzo(A)Anthracene	0.011	0.029 U	0.061	0.26	8	0.03 U	5.7	0.031 U	0.031 U	1.1	0.031 U	0.036	12	0.029 U	0.029 U	0.029 U
Benzo(A)Pyrene	0.029	0.01 U	0.062	0.34	8	0.012 J	6.6	0.011 U	0.011 U	1.6	0.011 U	0.02 J	14	0.011 U	0.011 U	0.011 U
Benzo(B)Fluoranthene	0.3	0.013 U	0.083	0.41	9.4	0.03 J	8.1	0.025 J	0.015 U	2.1	0.015 U	0.044	17	0.014 U	0.014 U	0.014 U
Benzo(G,H,I)Perylene	--	0.02 U	0.052 J	0.33 J	3.9	0.021 U	6.5	0.022 U	0.022 U	1.6	0.022 U	0.02 U	9.3	0.02 U	0.02 U	0.02 U
Benzo(K)Fluoranthene	2.9	0.015 U	0.034	0.17	3.8	0.016 U	2.8	0.016 U	0.016 U	0.8	0.016 U	0.017 J	6.7	0.015 U	0.015 U	0.015 U
Benzyl Butyl Phthalate	0.24	0.011 U	0.011 U	0.011 U	0.056 U	0.011 U	0.022 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.056 U	0.011 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.029 U	0.029 U	0.029 U	0.27 J	0.03 U	0.061 U	0.032 U	0.032 U	0.03 U	0.032 U	0.029 U	0.15 U	0.03 U	0.03 U	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.056 U	0.011 U	0.022 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.056 U	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0081 U	0.0081 U	0.0081 U	0.043 U	0.0084 U	0.017 U	0.0088 U	0.0088 U	0.0083 U	0.0089 U	0.0081 U	0.043 U	0.0083 U	0.0082 U	0.0082 U
Bis(2-Chloroisopropyl) Ether	0.026	0.014 UJ	0.014 U	0.014 U	0.075 U	0.015 U	0.029 U	0.015 U	0.015 U	0.015 U	0.015 U	0.014 U	0.074 U	0.014 U	0.014 U	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.013 U	0.013 U	0.013 U	0.071 U	0.014 U	0.028 U	0.015 U	0.015 U	0.014 U	0.015 U	0.013 U	0.07 U	0.014 U	0.014 U	0.014 U
Caprolactam	0.25	0.025 U	0.025 U	0.025 U	0.13 UJ	0.026 UJ	0.05 U	0.027 U	0.027 U	0.025 U	0.027 U	0.025 UJ	0.13 U	0.025 U	0.025 UJ	0.025 U
Carbazole	--	0.0085 U	0.0088 J	0.038 J	2	0.0089 U	0.55 J	0.0093 U	0.0093 U	0.11 J	0.0093 U	0.0085 U	1.5 J	0.0087 U	0.0086 U	0.0086 U
Chrysene	9	0.0094 U	0.069 J	0.36	7.4	0.025 J	6.2	0.011 J	0.01 U	1.4	0.01 U	0.054 J	15	0.0096 U	0.0095 U	0.0095 U
Dibenz(A,H)Anthracene	0.096	0.018 U	0.018 U	0.07 J+	1.1	0.019 U	1.8	0.02 U	0.019 U	0.29	0.02 U	0.018 U	2.8	0.018 U	0.018 U	0.018 U
Dibenzofuran	0.015	0.01 U	0.01 U	0.01 U	1.9	0.011 U	0.091 J	0.011 U	0.011 U	0.017 J	0.011 U	0.01 U	0.26 J	0.011 U	0.011 U	0.011 U
Diethyl Phthalate	0.61	0.0098 U	0.0097 U	0.0097 U	0.052 U	0.01 U	0.02 U	0.011 U	0.011 U	0.01 U	0.011 U	0.0098 U	0.051 U	0.01 U	0.0099 U	0.0099 U
Dimethyl Phthalate	--	0.01 U	0.0099 U	0.0099 U	0.053 U	0.01 U	0.021 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.052 U	0.01 U	0.01 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.011 J	0.01 U	0.01 U	0.054 U	0.011 U	0.021 U	0.011 U	0.011 U	0.052 J	0.011 U	0.01 U	0.054 U	0.011 U	0.01 U	0.01 U
Di-N-Octylphthalate	5.7	0.018 U	0.017 U	0.017 U	0.097 U	0.018 U	0.036 U	0.019 U	0.019 U	0.018 U	0.019 U	0.017 U	0.092 U	0.018 U	0.018 U	0.018 U
Fluoranthene	8.9	0.01 U	0.092 J	0.44	25	0.026 J	7.4	0.014 J	0.011 U	1.7	0.011 U	0.12 J	20	0.01 U	0.01 U	0.01 U
Fluorene	0.54	0.0075 U	0.0086 J	0.011 J	3.7	0.0078 U	0.2 J	0.0082 U	0.0082 U	0.035 J	0.0082 U	0.0075 U	0.65 J	0.0077 U	0.0076 U	0.0076 U
Hexachlorobenzene	0.00012	0.014 U	0.014 U	0.014 U	0.073 U	0.014 U	0.029 U	0.015 U	0.015 U	0.014 U	0.015 U	0.014 U	0.072 U	0.014 U	0.014 U	0.014 U
Hexachlorobutadiene	0.00027	0.0097 U	0.0096 U	0.0096 U	0.05 U	0.01 U	0.02 U	0.011 U	0.011 U	0.01 U	0.011 U	0.0097 U	0.051 U	0.0099 U	0.0098 U	0.0098 U
Hexachlorocyclopentadiene	0.00013	0.021 U	0.021 UJ	0.021 UJ	0.11 U	0.022 U	0.045 U	0.023 U	0.023 U	0.022 U	0.023 U	0.021 U	0.11 U	0.022 U	0.022 U	0.022 U
Hexachloroethane	0.0002	0.013 U	0.013 U	0.013 U	0.06 U	0.013 U	0.026 U	0.014 U	0.014 U	0.013 U	0.014 U	0.013 U	0.066 U	0.013 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.023 U	0.052 J+	0.31 J+	5	0.024 U	6.8	0.025 U	0.025 U	1.5	0.025 U	0.023 U	10	0.023 U	0.023 U	0.023 U
Isophorone	0.026	0.0074 U	0.0073 U	0.0073 U	2.1	1.7	0.015 U	0.0081 U	0.008 U	0.0076 U	0.0081 U	0.0074 U	0.039 U	0.0076 U	0.0075 U	0.0075 U
Naphthalene	0.00054	0.0086 U	0.0087 U	0.0086 U	1.9	0.0091 U	0.054 J	0.0095 U	0.0095 U	0.023 J	0.0096 U	0.0087 U	0.14 J	0.0089 U	0.0088 U	0.0089 U
Nitrobenzene	0.000092	0.011 U	0.011 U	0.011 U	0.057 U	0.011 U	0.023 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.057 U	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	0.012 U	0.061 U	0.012 U	0.024 U	0.013 U	0.013 U	0.012 U	0.013 U	0.012 U	0.061 U	0.012 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.031 U	0.031 U	0.031 U	0.16 U	0.032 U	0.065 U	0.034 U	0.034 U	0.032 U	0.034 U	0.031 U	0.16 U	0.032 U	0.032 U	0.032 U
Pentachlorophenol	0.000057	0.042 U	0.041 U	0.041 U	0.22 U	0.043 U	0.087 U	0.045 U	0.045 U	0.043 U	0.046 U	0.042 U	0.22 U	0.043 U	0.042 U	0.042 U
Phenanthrene	--	0.0092 U	0.069 J	0.24 J	19	0.015 J	3	0.01 U	0.01 U	0.61	0.01 U	0.054 J	9	0.0094 U	0.0093 U	0.0093 U
Phenol	0.33	0.011 U	0.011 U	0.011 U	0.059 U	0.012 U	0.023 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.059 U	0.011 U	0.011 U	0.011 U
Pyrene	1.3	0.016 U	0.099 J	0.52	14	0.028 J	7.4	0.017 U	0.017 U	1.8	0.017 U	0.1 J	15	0.016 U	0.016 U	0.016 U
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00036 U	0.00035 U	0.00028 U	0.00028 U	0.0003 U	0.00032 U	0.00035 U	0.00027 U	0.00036 U	0.00057 U	0.00032 U	0.00037 U	0.00029 U	0.00034 U	0.00036 U
1,1,2,2-Tetrachloroethane	0.00003	0.00016 U	0.00016 U	0.00017 U	0.00013 U	0.00013 U	0.00015 U	0.00016 U	0.00012 U	0.00016 U	0.00025 U	0.00014 U	0.00017 U	0.00013 U	0.00015 U	0.00016 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00042 U	0.00041 U	0.00044 U	0.00033 U	0.00035 U	0.00038 U	0.0004 U	0.00032 U	0.00042 U	0.00066 U	0.00037 U	0.00043 U	0.00033 U	0.00039 U	0.00042 U
1,1,2-Trichloroethane	0.000013	0.00027 U	0.00026 U	0.00028 U	0.00021 U	0.00022 U	0.00024 U	0.00026 U	0.0002 U	0.00027 U	0.00042 U	0.00023 U	0.00017 U	0.00021 U	0.00025 U	0.00027 U
1,1-Dichloroethane	0.00078	0.00033 U	0.00031 U	0.00034 U	0.00025 U	0.00027 U	0.00029 U	0.00031 U	0.00024 U	0.00033 U	0.00051 U	0.00028 U	0.00033 U	0.00026 U	0.0003 U	0.00032 U
1,1-Dichloroethene	0.01	0.00039 U	0.00038 U	0.00041 U	0.00031 U	0.00032 U	0.00035 U	0.00037 U	0.00029 U	0.00039 U	0.00061 U	0.00034 U	0.0004 U	0.00031 U	0.00037 U	0.00039 U
1,2,3-Trichlorobenzene	0.0021	0.0001 U	0.0001 U	0.00011 U	0.000082 U	0.000087 U	0.000095 U	0.0001 U	0.000079 U	0.00011 U	0.00016 U	0.000092 U	0.00011 U	0.000083 U	0.000098 U	0.00011 U
1,2,4-Trichlorobenzene	0.0012	0.00031 U	0.0003 U	0.00032 U	0.00024 U	0.00025 U	0.00028 U	0.00029 U	0.00023 U	0.00031 U	0.00048 U	0.00027 U	0.00031 U	0.00024 U	0.00029 U	0.00031 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00045 U	0.00043 U	0.00046 U	0.00035 U	0.00037 U	0.0004 U	0.00043 U	0.00034 U	0.00045 U	0.0007 U	0.00039 U	0.00046 U	0.00035 U	0.00042 U	0.00045 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00011 U	0.00011 U	0.00012 U	0.000089 U	0.000094 U	0.0001 U	0.00011 U	0.000086 U	0.00012 U	0.00018 U	0.0001 U	0.00012 U	0.00009 U	0.00011 U	0.00011 U
1,2-Dichlorobenzene	0.03	0.00013 U	0.00013 U	0.00014 U	0.0001 U	0.00011 U	0.00012 U	0.00013 U	0.0001 U	0.00013 U	0.00021 U	0.00012 U	0.00014 U	0.00011 U	0.00012 U	0.00013 U
1,2-Dichloroethane	0.000048	0.00011 U	0.0001 U	0.00011 U	0.000082 U	0.000087 U	0.000095 U	0.0001 U	0.000079 U	0.00011 U	0.00016 U	0.000092 U	0.00011 U	0.000083 U	0.000098 U	0.00011 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		--	--	--	--	--	Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-121	CFSB-128	CFSB-129	CFSB-130	CFSB-131	CFMW-027	CFSB-014	CFSB-016	CFSB-019	CFSB-025	CFSB-026	CFSB-027	CFSB-028	CFSB-030	CFMW-002
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/18/2016	5/24/2016	5/24/2016	6/17/2016	6/17/2016	6/30/2016	6/2/2016	6/2/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016	7/18/2016	6/13/2016	6/13/2016
1,2-Dichloropropane	0.000047	0.00016 U	0.00016 U	0.00017 U	0.00013 U	0.00013 U	0.00015 U	0.00016 U	0.00012 U	0.00015 U	0.00025 U	0.00014 U	0.00017 U	0.00013 U	0.00015 U	0.00016 U
1,3-Dichlorobenzene	--	0.00011 U	0.00011 U	0.00012 U	0.000089 U	0.000094 U	0.0001 U	0.00011 U	0.000086 U	0.00011 U	0.00018 U	0.0001 U	0.00012 U	0.00009 U	0.00011 U	0.00011 U
1,4-Dichlorobenzene	0.00046	0.00012 U	0.00012 U	0.00013 U	0.000097 U	0.0001 U	0.00011 U	0.00012 U	0.000093 U	0.00012 U	0.00019 U	0.00011 U	0.00013 U	0.000098 U	0.00012 U	0.00012 U
2-Hexanone	0.00088	0.009 U	0.00087 U	0.00093 U	0.0007 U	0.00074 U	0.00081 U	0.00086 U	0.00067 U	0.0009 U	0.0014 U	0.00079 U	0.00092 U	0.00071 U	0.00084 U	0.0009 U
Acetone	0.29	0.0066	0.0092	0.0058	0.065 J+	0.016 J+	0.01	0.0054	0.0029 J	0.016 J+	0.012 J+	0.014 J+	0.022 J+	0.022 J+	0.011 J+	0.019 J+
Benzene	0.00023	0.00091 J	0.00072 J	0.00021 J	0.00061 J	0.00038 J	0.00017 U	0.00019 J	0.00031 J	0.00048 J	0.0003 U	0.0004 J	0.00046 J	0.00056 J	0.00061 J	0.00019 U
Bromochloromethane	0.0021	0.00016 U	0.00016 U	0.00017 U	0.00013 U	0.00013 U	0.00015 U	0.00016 U	0.00012 U	0.00016 U	0.00025 U	0.00014 U	0.00017 U	0.00012 U	0.00015 U	0.00016 U
Bromodichloromethane	0.000036	0.00036 U	0.00035 U	0.00038 U	0.00028 U	0.0003 U	0.00032 U	0.00035 U	0.00027 U	0.00036 U	0.00057 U	0.00032 U	0.00037 U	0.00029 U	0.00034 U	0.00036 U
Bromoform	0.00087	0.00012 U	0.00012 U	0.00013 U	0.000097 U	0.0001 U	0.00011 U	0.00012 U	0.000093 U	0.00012 U	0.00019 UJ	0.00011 U	0.00013 U	0.000098 UJ	0.00012 U	0.00012 U
Bromomethane	0.00019	0.00031 U	0.0003 U	0.00032 U	0.00064 J	0.00025 U	0.00028 U	0.00029 U	0.00023 U	0.00031 U	0.00048 U	0.00027 U	0.00031 U	0.00024 U	0.00029 U	0.00031 U
Carbon Disulfide	0.024	0.00041 U	0.00072 J	0.00043 U	0.0047	0.00077 J	0.00037 U	0.00039 U	0.00031 U	0.00041 U	0.00064 U	0.00036 U	0.0011	0.0013	0.00039 U	0.00046 J
Carbon Tetrachloride	0.00018	0.00041 U	0.0004 U	0.00043 U	0.00032 U	0.00034 U	0.00037 U	0.00039 U	0.00031 U	0.00041 U	0.00064 U	0.00036 U	0.00042 U	0.00032 U	0.00039 U	0.00041 U
Chlorobenzene	0.0053	0.00013 U	0.00013 U	0.00014 U	0.0001 U	0.00011 U	0.00012 U	0.00013 U	0.0001 U	0.00013 U	0.00021 U	0.00012 U	0.00014 U	0.00011 U	0.00012 U	0.00013 U
Chloroethane	0.59	0.00034 U	0.00032 U	0.00035 U	0.00026 U	0.00028 U	0.00003 U	0.00032 U	0.00025 UJ	0.00034 U	0.00052 U	0.00029 U	0.00034 U	0.00026 U	0.00031 U	0.00033 U
Chloroform	0.000061	0.0002 U	0.00019 U	0.00021 U	0.00016 U	0.00017 U	0.00018 U	0.00019 U	0.00015 U	0.0002 U	0.00031 U	0.00018 U	0.00021 U	0.00016 U	0.00019 U	0.0002 U
Chloromethane	0.0049	0.00036 U	0.00035 U	0.00038 U	0.0025	0.0003 UJ	0.00033 U	0.00035 U	0.00027 U	0.00036 U	0.00057 U	0.00032 U	0.00037 U	0.00029 U	0.00034 U	0.00036 U
Cis-1,2-Dichloroethylene	0.0011	0.00021 U	0.0002 U	0.00022 U	0.00016 U	0.00017 U	0.00019 U	0.0002 U	0.00016 U	0.00021 U	0.00033 U	0.00018 U	0.00022 U	0.00017 U	0.0002 U	0.00021 U
Cis-1,3-Dichloropropene	--	0.00014 U	0.00014 U	0.00015 U	0.00011 U	0.00012 U	0.00013 U	0.00014 U	0.00011 U	0.00014 U	0.00022 U	0.00013 U	0.00015 U	0.00011 U	0.00013 U	0.00014 U
Cyclohexane	1.3	0.00044 U	0.0021	0.00045 U	0.00097	0.00083	[illegible] U	0.00042 U	0.00055 J	0.0013 J+	0.00069 U	0.001 J+	0.0011 J+	0.0014	0.0015 J+	0.00044 U
Dibromochloromethane	0.00023	0.00014 U	0.00014 U	0.00015 U	0.00011 U	0.00012 U	[illegible] U	0.00014 U	0.00011 U	0.00014 U	0.00022 U	0.00013 U	0.00015 U	0.00011 U	0.00013 U	0.00014 U
Dichlorodifluoromethane	0.03	0.00031 U	0.0003 U	0.00032 U	0.00024 U	0.00025 U	0.00028 U	0.00029 U	0.00023 U	0.00031 U	0.00048 U	0.00027 U	0.00031 U	0.00024 UJ	0.00029 U	0.00031 U
Ethylbenzene	0.0017	0.00098	0.00087 J	0.00018 U	0.00033 J	0.00044 J	0.00016 U	0.00016 U	0.00018 J	0.00045 J	0.00027 U	0.00047 J	0.00047 J	0.00045 J	0.00078 J	0.00017 U
Isopropylbenzene (Cumene)	0.074	0.00016 U	0.00016 U	0.00017 U	0.00013 U	0.00013 U	0.00015 U	0.00016 U	0.00012 U	0.00016 U	0.00025 U	0.00014 U	0.00017 U	0.00013 U	0.00015 U	0.00016 U
M,P-Xylene	--	0.0032	0.0034	0.00061 J	0.00097	0.0015	0.00046 J	0.00032 J	0.00069 J	0.0022	0.00016 U	0.0015	0.0016	0.0012	0.0027	0.00011 U
Methyl Acetate	0.41	0.00086 U	0.00083 U	0.00089 U	0.00067 U	[illegible]	0.00078 U	0.00082 U	0.00064 U	0.00086 U	0.0013 U	0.00075 U	0.00088 U	0.00068 U	0.0008 U	0.00086 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.00074 U	0.00071 U	0.00076 U	0.0054	0.00016 J	0.00066 U	0.0007 U	0.00055 U	0.0015 J	0.0016 J	0.00064 U	0.0016 J	0.00058 U	0.00087 J	0.00074 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0021 U	0.0021 U	0.0022 U	0.0017 U	0.0017 U	0.0019 U	0.002 U	0.0016 U	0.0021 U	0.0033 U	0.0019 U	0.0022 U	0.0017 U	0.002 U	0.0021 U
Methylcyclohexane	--	0.0055	0.0035	0.00073 J	0.001	0.0013	0.00052 J	0.00056 J	0.0011	0.0022 J+	0.00074 U	0.0016 J+	0.0019 J+	0.0018	0.0025 J+	0.00048 U
Methylene Chloride	0.0027	0.00031 U	0.0003 U	0.00059 J	0.00024 U	0.00025 U	0.00028 U	0.00029 U	0.00023 U	0.00031 U	0.00048 U	0.00027 U	0.00031 U	0.00024 U	0.00029 U	0.00061 J
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00093 J	0.0012	0.00023 J	0.00037 J	0.00072 J	0.00019 J	0.00015 U	0.0002 J	0.0007 J	0.00024 U	0.00048 J	0.00058 J	0.00041 J	0.00093	0.00015 U
Styrene	0.13	0.00014 U	0.00014 U	0.00015 U	[illegible] U	0.00012 U	0.00013 U	0.00014 U	0.00011 U	0.00014 U	0.00022 U	0.00013 U	0.00015 U	0.00011 U	0.00013 U	0.00014 U
Tert-Butyl Methyl Ether	0.0032	0.00016 U	0.00016 U	0.00017 U	[illegible] U	0.00013 U	0.00015 U	0.00016 U	0.00012 U	0.00016 U	0.00025 U	0.00014 U	0.00017 U	0.00012 U	0.00015 U	0.00016 U
Tetrachloroethylene (PCE)	0.0018	0.00027 U	0.00026 U	0.00028 U	[illegible] U	0.00022 U	0.00024 U	0.00026 U	0.0002 U	0.00027 U	0.00042 U	0.00023 U	0.00027 U	0.00021 U	0.00025 U	0.00027 U
Toluene	0.076	0.0051	0.0045	0.00096 J	0.0015	0.0015	0.0006 J	0.00047 J	0.00094	0.0026	0.00029 J	0.002	0.0022	0.0018	0.0036	0.00018 U
Trans-1,2-Dichloroethene	0.011	0.00037 U	0.00036 U	[illegible]	0.00029 U	0.00031 U	0.00034 U	0.00036 U	0.00028 U	0.00037 U	0.00058 U	0.00033 U	0.00038 U	0.00029 U	0.00035 U	0.00037 U
Trans-1,3-Dichloropropene	--	0.000096 U	0.000092 U	[illegible]	0.000074 U	0.000079 U	0.000086 U	0.000091 U	0.000072 U	0.000096 U	0.00015 U	0.000084 U	0.000098 U	0.000075 U	0.000089 U	0.000095 U
Trichloroethylene (TCE)	0.0001	0.00025 U	0.00024 U	[illegible]	0.00019 U	0.0002 U	0.00022 U	0.00024 U	0.00019 U	0.00025 U	0.00039 U	0.00022 U	0.00025 U	0.0002 U	0.00023 U	0.00025 U
Trichlorofluoromethane	0.33	0.00033 U	0.00031 U	[illegible]	0.00025 U	0.00027 U	0.00029 U	0.00031 U	0.00024 U	0.00033 U	0.00051 U	0.00028 U	0.00033 U	0.00026 U	0.0003 U	0.00032 U
Vinyl Chloride	0.0000065	0.00037 U	0.00036 U	0.00039 U	0.00029 U	0.00031 U	0.00034 U	0.00036 U	0.00028 U	0.00037 U	0.00058 U	0.00033 U	0.00038 U	0.00029 U	0.00035 U	0.00037 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	Upper Hydrogeologic Unit	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-008A	CFMW-008A-DUP	CFMW-010	CFMW-012A	CFMW-016A	CFMW-018	CFMW-018-DUP	CFMW-019A	CFMW-022	CFMW-023A	CFMW-029	CFSB-001	CFSB-002	CFSB-003	CFSB-004
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/13/2016	6/13/2016	5/18/2016	5/20/2016	6/21/2016	5/19/2016	5/19/2016	5/25/2016	6/2/2016	6/17/2016	5/18/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (mg/kg)																
Aluminum	3000	10000	8380	5380	8090	14700	6030 J	7290 J	7510	11000 J	9810	5980	6850	8420	8230	8160
Antimony	0.035	0.34 UJ	0.32 UJ	0.34 UJ	0.42 UJ	0.4 UJ	0.34 UJ	0.31 UJ	0.34 UJ	0.46 UJ	0.43 UJ	0.33 UJ	0.32 U	0.34 U	0.34 UJ	0.33 U
Arsenic	0.0015	7.7	6.3	3.1	5.4	4.2	4.7 J	4.5 J	4.1	3.4 J	5.3	4.6	4	6.9	3.1 J	3.7
Barium	16	71.4	70.2	33	48.3	133 J	48	46.4	62.2	75.5 J	133	42.7	45.1	47.3	85.6	37.2
Beryllium	1.9	0.4	0.32	0.2 J	0.33 J	0.48	0.3 J	0.32	0.33	0.45	0.34 J	0.36	0.36	0.32 J	0.35	0.3 J
Cadmium	0.069	0.26 U	0.25 U	0.26 U	0.32 U	0.31 U	0.26 U	0.24 U	0.26 U	0.35 U	0.32 U	0.25 U	0.24 U	0.26 U	0.25 U	0.25 U
Calcium	--	57600 J	56800 J	31100	48300 J	10500 J	35100	32300	53300	16500	60200 J	27600	60400	63500	35600	35000
Chromium, Total	--	8.4	8.2	6.3	9.8	10.9 J	8.2	8.8	7.5	9.3 J	10	6.6	9.6	10.1	10	7.3
Cobalt	0.027	5	3.9	3.3	4.6	5.6	4.5	5.4	4.2	4.8	5.7 J+	4.5	4	4.4	5.4 J-	3.6
Copper	2.8	10.8	13	11.6	10.1 J+	18	9.5 J	11.1 J	8.5 J	19.4	9.7 J	13.2	6.3	16.6	11.1 J+	9.4
Iron	35	13800	11500	8950	11900	15900	12700	13800	11700	13700 J	13100	10300	11200	12500	14100	10300
Lead	400	8.4 J+	7.4 J+	3.8	7.1 J	10.3 J	6	6	5.4 J	8.9 J	8.7	5.5	4.9	21.3	5.8 J	5.6
Magnesium	--	15100	11600	8710	14200 J	9720	10400	11400	12300	11700	16100	7860	20000	15500	13300	11500
Manganese	2.8	376 J	415 J	277	371	325	362 J	352 J	324	334 J	360	227	363	390	326	293
Mercury	0.0033	0.015 J	0.017	0.018	0.023	0.025	0.011 J	0.011 U	0.011 U	0.022	0.026	0.015 J	0.032	0.012 U	0.012 U	0.012 J
Nickel	2.6	9.8 J+	8.1 J+	7.4	9.4 J+	11.8	9	10.4	8.4	10.4	9.4 J-	8.6	7.6	8.9	12.1	7.6
Potassium	--	576	589	384	757 J	1070	455	507	658	776	763	507	682	678	665 J+	561
Selenium	0.052	0.32 U	0.3 U	0.32 U	0.39 U	0.38 U	0.32 U	0.29 U	0.32 U	0.42 U	0.4 U	0.31 U	0.3 U	0.32 U	0.31 U	0.31 U
Silver	0.08	0.63 U	0.59 U	0.62 U	0.77 U	0.74 U	0.63 U	0.57 U	0.62 U	0.85 U	0.78 U	0.6 U	0.59 U	0.63 U	0.61 U	0.6 U
Sodium	--	31.9 U	30.3 U	61.9 J	39.2 U	37.8 U	32.1 U	29.3 U	56.1 J	95 J	57.6 J	30.5 U	31.3 J	32 U	33.2 J	30.8 U
Thallium	0.0014	0.13 U	0.12 U	0.13 U	0.16 U	0.15 U	0.12 U	0.12 U	0.13 U	0.17 U	0.16 U	0.12 U	0.12 U	0.13 U	0.13 U	0.12 U
Vanadium	8.6	6.6 J-	5.2 J-	3.5	5.3	14.7	6.9	7.4	6.6	9.1 J	5.9	6.6	4.8	5.7	6.9	5.2
Zinc	37	37.9 J-	30 J-	25.2	38.6 J	50.1	30.9	35	31.6	38 J	35.5	30	31.6	35.7	38.2	33.6
PESTICIDES (mg/kg)																
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	Upper Hydrogeologic Unit	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-008A	CFMW-008A-DUP	CFMW-010	CFMW-012A	CFMW-016A	CFMW-018	CFMW-018-DUP	CFMW-019A	CFMW-022	CFMW-023A	CFMW-029	CFSB-001	CFSB-002	CFSB-003	CFSB-004
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/13/2016	6/13/2016	5/18/2016	5/20/2016	6/21/2016	5/19/2016	5/19/2016	5/25/2016	6/2/2016	6/17/2016	5/18/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.0097 U	0.0096 U	0.0094 U	0.0094 U	0.01 U	0.0093 U	0.0093 U	0.0093 U	0.01 U	0.0097 U	0.0094 U	0.0095 U	0.0096 U	0.0094 U	0.0095 U
PCB-1221 (Aroclor 1221)	0.00008	0.0097 U	0.0096 U	0.0094 U	0.0094 U	0.01 U	0.0093 U	0.0093 U	0.0093 U	0.01 U	0.0097 U	0.0094 U	0.0095 U	0.0096 U	0.0094 U	0.0095 U
PCB-1232 (Aroclor 1232)	0.00008	0.0097 U	0.0096 U	0.0094 U	0.0094 U	0.01 U	0.0093 U	0.0093 U	0.0093 U	0.01 U	0.0097 U	0.0094 U	0.0095 U	0.0096 U	0.0094 U	0.0095 U
PCB-1242 (Aroclor 1242)	0.0012	0.0097 U	0.0096 U	0.0094 U	0.0094 U	0.01 U	0.0093 U	0.0093 U	0.0093 U	0.01 U	0.0097 U	0.0094 U	0.0095 U	0.0096 U	0.0094 U	0.0095 U
PCB-1248 (Aroclor 1248)	0.0012	0.0097 U	0.0096 U	0.0094 U	0.0094 U	0.01 U	0.0093 U	0.0093 U	0.0093 U	0.01 U	0.0097 U	0.0094 U	0.0095 U	0.0096 U	0.0094 U	0.0095 U
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.0099 U	0.0097 U	0.0098 U	0.01 U	0.0096 U	0.0096 U	0.0096 U	0.011 U	0.01 U	0.0097 U	0.0098 U	0.0099 U	0.0097 U	0.0098 U
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.0099 U	0.0097 U	0.0098 U	0.01 U	0.0096 U	0.0096 U	0.0096 U	0.011 U	0.01 U	0.0097 U	0.0098 U	0.0099 U	0.0097 U	0.0098 U
PCB-1262 (Aroclor 1262)	--	0.01 U	0.0099 U	0.0097 U	0.0098 U	0.01 U	0.0096 U	0.0096 U	0.0096 U	0.011 U	0.01 U	0.0097 U	0.0098 U	0.0099 U	0.0097 U	0.0098 U
PCB-1268 (Aroclor 1268)	--	0.01 U	0.0099 U	0.0097 U	0.0098 U	0.01 U	0.0096 U	0.0096 U	0.0096 U	0.011 U	0.01 U	0.0097 U	0.0098 U	0.0099 U	0.0097 U	0.0098 U
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.0099 U	0.0097 U	0.0098 U	0.01 U	0.0096 U	0.0096 U	0.0096 U	0.011 U	0.01 U	0.0097 U	0.0098 U	0.0099 U	0.0097 U	0.0098 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.026 U	0.026 U	0.027 U	0.028 U	0.026 U	0.026 U	0.026 U	0.029 UJ	0.027 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	0.096 U	0.095 U	0.093 U	0.095 U	0.1 U	0.092 U	0.092 U	0.092 U	0.1 U	0.096 U	0.093 U	0.094 U	0.095 U	0.093 U	0.094 U
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.033 U	0.033 U	0.035 UJ	0.035 U	0.032 U	0.032 U	0.032 UJ	0.036 UJ	0.034 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U
2,4,5-Trichlorophenol	0.4	0.036 U	0.035 U	0.035 U	0.035 UJ	0.037 U	0.034 U	0.034 U	0.034 U	0.038 UJ	0.036 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.01 U	0.0099 U	0.01 U	0.011 U	0.0098 U	0.0098 U	0.0098 U	0.011 UJ	0.01 U	0.0099 U	0.01 U	0.01 U	0.0099 U	0.01 U
2,4-Dichlorophenol	0.0023	0.0085 U	0.0084 U	0.0083 U	0.0083 U	0.0088 U	0.0081 U	0.0081 U	0.0081 U	0.009 UJ	0.0085 U	0.0082 U	0.0083 U	0.0084 U	0.0082 U	0.0082 U
2,4-Dimethylphenol	0.042	0.079 U	0.078 U	0.077 U	0.077 U	0.082 U	0.076 U	0.076 U	0.076 U	0.084 U	0.079 U	0.077 U	0.077 U	0.078 U	0.077 U	0.077 U
2,4-Dinitrophenol	0.0044	0.27 U	0.27 U	0.26 U	0.27 UJ	0.28 U	0.26 U	0.26 U	0.26 UR	0.29 UR	0.27 U	0.26 U	0.27 U	0.27 U	0.26 U	0.27 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.018 U	0.018 U	0.018 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
2-Chloronaphthalene	0.39	0.0082 U	0.008 U	0.0079 U	0.008 U	0.0085 U	0.0078 U	0.0078 U	0.0078 U	0.0087 U	0.0082 U	0.0079 U	0.008 U	0.0081 U	0.0079 U	0.008 U
2-Chlorophenol	0.0089	0.0091 U	0.009 U	0.0088 U	0.0089 U	0.0095 U	0.0088 U	0.0088 U	0.0088 U	0.0097 U	0.0092 U	0.0089 U	0.0089 U	0.009 U	0.0088 U	0.0089 U
2-Methylnaphthalene	0.019	0.17 J	0.0089 J	0.0077 U	0.0077 U	0.0083 U	0.0076 U	0.0076 U	0.0076 U	0.0085 U	0.008 U	0.0077 U	0.0078 U	0.0078 U	0.0077 U	0.0078 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.017 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U	0.012 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U
2-Nitrophenol	--	0.012 U	0.012 U	0.012 U	0.012 UJ	0.013 U	0.012 U	0.012 U	0.012 U	0.013 UJ	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.0096 U	0.0094 U	0.0093 U	0.0093 U	0.01 U	0.0092 U	0.0092 U	0.0092 U	0.01 U	0.0096 U	0.0093 U	0.0094 U	0.0094 U	0.0093 U	0.0094 U
3,3'-Dichlorobenzidine	0.00082	0.04 U	0.04 U	0.039 U	0.039 U	0.042 U	0.039 U	0.039 U	0.039 U	0.043 U	0.04 U	0.039 U	0.039 U	0.04 U	0.039 U	0.039 U
3-Nitroaniline	--	0.011 U	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.096 U	0.095 U	0.093 U	0.094 UJ	0.1 U	0.092 U	0.092 U	0.092 UJ	0.1 UJ	0.096 U	0.093 U	0.094 U	0.095 U	0.093 U	0.094 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 UJ	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
4-Chloroaniline	0.00016	0.0092 U	0.0091 U	0.009 U	0.009 U	0.0096 U	0.0089 U	0.0089 U	0.0089 U	0.0098 U	0.0093 U	0.009 U	0.009 U	0.0091 U	0.0089 U	0.0091 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U
4-Nitroaniline	0.0016	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U
4-Nitrophenol	--	0.17 U	0.17 U	0.17 UJ	0.17 U	0.18 U	0.17 U	0.17 U	0.17 U	0.18 U	0.17 U	0.17 UJ	0.17 U	0.17 U	0.17 U	0.17 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	Upper Hydrogeologic Unit	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-008A	CFMW-008A-DUP	CFMW-010	CFMW-012A	CFMW-016A	CFMW-018	CFMW-018-DUP	CFMW-019A	CFMW-022	CFMW-023A	CFMW-029	CFSB-001	CFSB-002	CFSB-003	CFSB-004
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/13/2016	6/13/2016	5/18/2016	5/20/2016	6/21/2016	5/19/2016	5/19/2016	5/25/2016	6/2/2016	6/17/2016	5/18/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016
Acenaphthene	0.55	0.0087 U	0.0086 U	0.0084 U	0.0085 U	0.01 J	0.0083 U	0.0084 U	0.0084 U	0.011 J	0.0087 U	0.0084 U	0.0085 U	0.0086 U	0.0084 U	0.026 J
Acenaphthylene	--	0.0092 U	0.0091 U	0.009 U	0.009 U	0.0096 U	0.0089 U	0.0089 U	0.0089 U	0.012 U	0.0093 U	0.009 U	0.009 U	0.0091 U	0.0089 U	0.0091 U
Acetophenone	0.058	0.0078 U	0.0077 U	0.0076 U	0.0076 U	0.0081 U	0.0075 U	0.0075 U	0.0075 U	0.0083 U	0.0079 U	0.0076 U	0.0077 U	0.0077 U	0.0076 U	0.0077 U
Anthracene	5.8	0.034 U	0.034 U	0.033 U	0.033 U	0.036 U	0.033 U	0.033 U	0.033 U	0.036 U	0.034 U	0.033 U	0.033 U	0.034 U	0.033 U	0.089 J
Atrazine	0.0002	0.016 U	0.016 U	0.015 U	0.016 U	0.017 U	0.015 U	0.015 U	0.015 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U	0.015 U	0.016 U
Benzaldehyde	0.0041	0.027 U	0.027 U	0.027 U	0.027 U	0.029 U	0.026 U	0.026 U	0.026 U	0.029 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
Benzo(A)Anthracene	0.011	0.03 U	0.03 U	0.029 U	0.029 U	0.05	0.029 U	0.029 U	0.029 U	0.13	0.03 U	0.029 U	0.029 U	0.03 U	0.029 U	0.21
Benzo(A)Pyrene	0.029	0.011 U	0.011 U	0.011 U	0.011 U	0.058	0.01 U	0.01 U	0.01 U	0.12	0.011 U	0.012 J	0.011 U	0.011 U	0.011 U	0.14
Benzo(B)Fluoranthene	0.3	0.014 U	0.014 U	0.014 U	0.014 U	0.12	0.013 U	0.013 U	0.013 U	0.32	0.014 U	0.016 J	0.014 U	0.014 U	0.014 U	0.26
Benzo(G,H,I)Perylene	--	0.021 U	0.02 U	0.02 U	0.02 U	0.064 J	0.02 U	0.02 U	0.02 U	0.11 J	0.021 U	0.02 U	0.02 U	0.02 U	0.02 U	0.13 J
Benzo(K)Fluoranthene	2.9	0.016 U	0.015 U	0.015 U	0.015 U	0.042	0.015 U	0.015 U	0.015 U	0.12	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.12
Benzyl Butyl Phthalate	0.24	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.031 U	0.03 U	0.03 U	0.03 U	0.032 U	0.029 U	0.029 U	0.029 U	0.032 U	0.031 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0085 U	0.0084 U	0.0082 U	0.0083 U	0.0088 U	0.0081 U	0.0081 U	0.0081 U	0.009 U	0.0085 U	0.0082 U	0.0083 U	0.0084 U	0.0082 U	0.0083 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.015 U	0.014 UJ	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.016 U	0.015 U	0.014 UJ	0.014 U	0.015 U	0.014 U	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.012 U	0.013 U	0.013 U	0.061 J	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Caprolactam	0.25	0.026 U	0.026 U	0.025 U	0.026 U	0.027 U	0.025 U	0.025 U	0.025 U	0.028 UJ	0.026 U	0.025 U	0.025 U	0.026 U	0.025 U	0.025 U
Carbazole	--	0.0089 U	0.0088 U	0.0086 U	0.0087 U	0.0093 U	0.0085 U	0.0086 U	0.0086 U	0.016 J	0.0089 U	0.0086 U	0.0087 U	0.0088 U	0.0086 U	0.062 J
Chrysene	9	0.0098 U	0.0097 U	0.0095 U	0.0096 U	0.091 J	0.0094 U	0.0094 U	0.0094 U	0.18 J	0.0098 U	0.013 J	0.0096 U	0.0097 U	0.0095 U	0.24 J
Dibenz(A,H)Anthracene	0.096	0.019 U	0.018 U	0.018 U	0.018 U	0.021 J	0.018 U	0.018 U	0.018 U	0.036 J	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.037 J+
Dibenzofuran	0.015	0.014 J	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U	0.01 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.022 J
Diethyl Phthalate	0.61	0.01 U	0.01 U	0.0099 U	0.01 U	0.011 U	0.0098 U	0.0098 U	0.0098 U	0.011 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.0099 U	0.01 U
Dimethyl Phthalate	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.011 U	0.01 U	0.011 U	0.02 J	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U
Di-N-Octylphthalate	5.7	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
Fluoranthene	8.9	0.011 U	0.011 U	0.01 U	0.01 U	0.096 J	0.01 U	0.01 U	0.01 U	0.23 J	0.011 U	0.026 J	0.01 U	0.011 J	0.01 U	0.5
Fluorene	0.54	0.019 J	0.0077 UJ	0.0076 U	0.0076 U	0.0088 J	0.0075 U	0.0075 U	0.0075 U	0.0084 J	0.0079 U	0.0076 U	0.0077 U	0.0077 U	0.0076 U	0.042 J
Hexachlorobenzene	0.00012	0.015 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.016 UJ	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Hexachlorobutadiene	0.00027	0.01 U	0.01 U	0.0098 U	0.009 U	0.011 U	0.0097 U	0.0097 U	0.0097 U	0.011 U	0.01 U	0.0098 U	0.0099 U	0.01 U	0.0098 U	0.0099 U
Hexachlorocyclopentadiene	0.00013	0.022 U	0.022 U	0.022 U	0.022 U	0.023 U	0.022 U	0.022 U	0.022 U	0.024 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 UJ
Hexachloroethane	0.0002	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.012 U	0.012 U	0.013 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.024 U	0.024 U	0.023 U	0.023 U	0.053	0.023 U	0.023 U	0.023 U	0.12	0.024 U	0.023 U	0.023 U	0.024 U	0.023 U	0.15 J+
Isophorone	0.026	0.0077 U	0.0076 U	0.0075 U	0.0075 U	0.008 U	0.0074 U	0.0074 U	0.0074 U	0.0082 U	0.0077 U	0.0075 U	0.0076 U	0.0076 U	0.0075 U	0.0076 U
Naphthalene	0.00054	0.16 J	0.009 UJ	0.0088 U	0.0089 U	0.0095 U	0.0088 U	0.0088 U	0.0088 U	0.0097 U	0.0092 U	0.0089 U	0.0089 U	0.009 U	0.0088 U	0.0089 U
Nitrobenzene	0.000092	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.033 U	0.032 U	0.032 U	0.032 U	0.034 U	0.031 U	0.031 U	0.031 U	0.035 UJ	0.033 UJ	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U
Pentachlorophenol	0.000057	0.044 U	0.043 U	0.042 U	0.042 UJ	0.045 U	0.042 U	0.042 U	0.042 UJ	0.046 UJ	0.044 U	0.042 U	0.043 U	0.043 U	0.042 U	0.043 U
Phenanthrene	--	0.02 J	0.0094 UJ	0.0093 U	0.0093 U	0.068 J	0.0092 U	0.0092 U	0.0092 U	0.1 J	0.0096 U	0.021 J	0.0094 U	0.012 J	0.0093 U	0.49
Phenol	0.33	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.013 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.012 U
Pyrene	1.3	0.016 U	0.016 U	0.016 U	0.016 U	0.1 J	0.016 U	0.016 U	0.016 U	0.2 J	0.016 U	0.018 J	0.016 U	0.016 U	0.016 U	0.44
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00043 U	0.00023 U	0.00016 U	0.00054 UJ	0.00031 U	0.00034 U	0.00037 U	0.00039 U	0.00029 U	0.00036 U	0.00035 U	0.00032 U	0.00036 U	0.00034 U	0.00018 U
1,1,2,2-Tetrachloroethane	0.00003	0.00019 U	0.00015 U	0.000074 U	0.00024 U	0.00014 U	0.00015 U	0.00016 U	0.00017 U	0.00013 U	0.00016 U	0.00015 U	0.00015 U	0.00016 U	0.00015 U	0.00017 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.0005 U	0.00029 U	0.00019 U	0.00063 U	0.00035 U	0.00039 U	0.00043 U	0.00045 U	0.00034 U	0.00041 U	0.00041 U	0.00038 U	0.00042 U	0.00039 U	0.00044 U
1,1,2-Trichloroethane	0.000013	0.00032 U	0.00025 U	0.00012 U	0.0004 U	0.00023 U	0.00025 U	0.00027 U	0.00029 U	0.00021 U	0.00026 U	0.00026 U	0.00024 U	0.00027 U	0.00025 U	0.00028 U
1,1-Dichloroethane	0.00078	0.00036 U	0.0003 U	0.00015 U	0.00049 UJ	0.00027 U	0.0003 U	0.00033 U	0.00035 U	0.00026 U	0.00032 U	0.00032 U	0.00029 U	0.00032 U	0.00031 U	0.00034 U
1,1-Dichloroethene	0.01	0.00046 U	0.00036 U	0.00018 U	0.00059 U	0.00033 U	0.00036 U	0.0004 U	0.00042 U	0.00031 U	0.00039 U	0.00038 U	0.00036 U	0.00039 U	0.00037 U	0.00041 U
1,2,3-Trichlorobenzene	0.0021	0.00012 U	0.000097 U	0.000048 U	0.00016 UJ	0.000089 U	0.000097 U	0.00011 U	0.00011 U	0.000084 UJ	0.0001 U	0.0001 U	0.000095 U	0.0001 U	0.000099 U	0.00011 U
1,2,4-Trichlorobenzene	0.0012	0.00036 U	0.00028 U	0.00014 U	0.00046 UJ	0.00026 U	0.00028 U	0.00031 U	0.00033 U	0.00025 UJ	0.0003 U	0.0003 U	0.00028 U	0.0003 U	0.00029 U	0.00032 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00053 U	0.00041 U	0.0002 U	0.00067 U	0.00038 U	0.00041 U	0.00045 U	0.00048 U	0.00036 U	0.00044 U	0.00044 U	0.00041 U	0.00045 U	0.00042 U	0.00047 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00014 U	0.00011 U	0.000052 U	0.00017 U	0.000097 U	0.00011 U	0.00012 U	0.00012 U	0.000092 U	0.00011 U	0.00011 U	0.0001 U	0.00011 U	0.00011 U	0.00012 U
1,2-Dichlorobenzene	0.03	0.00016 U	0.00012 U	0.000061 U	0.0002 UJ	0.00011 U	0.00012 U	0.00014 U	0.00014 U	0.00011 UJ	0.00013 U	0.00013 U	0.00012 U	0.00012 U	0.00013 U	0.00014 U
1,2-Dichloroethane	0.000048	0.00012 U	0.000097 U	0.000048 U	0.00016 U	0.000089 U	0.000097 U	0.00011 U	0.00011 U	0.000084 U	0.0001 U	0.0001 U	0.000095 U	0.0001 U	0.000099 U	0.00011 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	--	Upper Hydrogeologic Unit	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-008A	CFMW-008A-DUP	CFMW-010	CFMW-012A	CFMW-016A	CFMW-018	CFMW-018-DUP	CFMW-019A	CFMW-022	CFMW-023A	CFMW-029	CFSB-001	CFSB-002	CFSB-003	CFSB-004
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/13/2016	6/13/2016	5/18/2016	5/20/2016	6/21/2016	5/19/2016	5/19/2016	5/25/2016	6/2/2016	6/17/2016	5/18/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016
1,2-Dichloropropane	0.000047	0.00019 U	0.00015 U	0.00074 U	0.00024 U	0.00014 U	0.00015 U	0.00016 U	0.00017 U	0.00012 U	0.00016 U	0.00016 U	0.00015 U	0.00016 U	0.00015 U	0.00017 U
1,3-Dichlorobenzene	--	0.00014 U	0.00011 U	0.00052 U	0.00017 UJ	0.00097 U	0.00011 U	0.00012 U	0.00012 U	0.00011 UJ	0.00011 U	0.00011 U	0.0001 U	0.00011 U	0.00011 U	0.00012 U
1,4-Dichlorobenzene	0.00046	0.00015 U	0.00011 U	0.00056 U	0.00019 UJ	0.0001 U	0.00011 U	0.00013 U	0.00013 U	0.00011 UJ	0.00012 U	0.00012 U	0.00011 U	0.00012 U	0.00012 U	0.00013 U
2-Hexanone	0.00088	0.0011 U	0.00083 U	0.00041 U	0.0013 UJ	0.00076 U	0.00083 U	0.0009 U	0.00097 U	0.00072 U	0.00088 U	0.00087 U	0.0021 U	0.00089 U	0.00084 U	0.00093 U
Acetone	0.29	0.035 J+	0.024 J+	0.00046 U	0.0015 U	0.063 J+	0.0026 J	0.0059 J	0.0011 U	0.00081 U	0.049 J+	0.0092	0.0051	0.009	0.0039 J	0.0058
Benzene	0.00023	0.00023 U	0.00018 U	0.00087 U	0.00029 UJ	0.00095	0.00025 J	0.00019 U	0.00021 U	0.00015 U	0.00019 U	0.00019 U	0.00017 U	0.00019 U	0.00018 U	0.0002 U
Bromochloromethane	0.0021	0.00019 U	0.00015 U	0.00074 U	0.00024 U	0.00014 U	0.00015 U	0.00016 U	0.00016 U	0.00013 U	0.00016 U	0.00016 U	0.00015 U	0.00016 U	0.00015 U	0.00017 U
Bromodichloromethane	0.000036	0.00043 U	0.00023 U	0.00016 U	0.00054 U	0.00031 U	0.00034 U	0.00037 U	0.00039 U	0.00029 U	0.00036 U	0.00035 U	0.00032 U	0.00036 U	0.00034 U	0.00038 U
Bromoform	0.00087	0.00015 U	0.00011 U	0.00056 U	0.00019 U	0.0001 U	0.00011 U	0.00013 U	0.00013 U	0.0001 U	0.00012 U	0.00012 U	0.00011 U	0.00012 U	0.00012 U	0.00013 U
Bromomethane	0.00019	0.00036 U	0.00028 U	0.00014 U	0.00046 UJ	0.00026 U	0.00028 U	0.00031 U	0.00033 UJ	0.00025 U	0.0003 U	0.0003 U	0.00028 UJ	0.0003 UJ	0.00029 UJ	0.00032 UJ
Carbon Disulfide	0.024	0.00048 U	0.00038 U	0.00019 U	0.00062 U	0.00057 J	0.00038 U	0.00042 U	0.00044 U	0.00033 U	0.00055 J	0.00071 J	0.00037 U	0.00041 U	0.00039 U	0.00043 U
Carbon Tetrachloride	0.00018	0.00048 U	0.00038 U	0.00019 U	0.00062 U	0.00035 U	0.00038 U	0.00042 U	0.00044 U	0.00033 U	0.0004 U	0.0004 U	0.00037 U	0.00041 U	0.00039 U	0.00043 U
Chlorobenzene	0.0053	0.00016 U	0.00012 U	0.00061 U	0.0002 UJ	0.00011 U	0.00012 U	0.00013 U	0.00014 U	0.00011 U	0.00013 U	0.00013 U	0.00012 U	0.00013 U	0.00013 U	0.00014 U
Chloroethane	0.59	0.00039 U	0.00031 U	0.00015 U	0.0005 U	0.00028 U	0.00031 U	0.00034 U	0.00036 UJ	0.00027 U	0.00033 U	0.00033 U	0.0003 UJ	0.00033 UJ	0.00031 UJ	0.00035 UJ
Chloroform	0.000061	0.00024 U	0.00018 U	0.00091 U	0.0003 UJ	0.00017 U	0.00019 U	0.0002 U	0.00022 U	0.00016 U	0.0002 U	0.0002 U	0.00018 U	0.0002 U	0.00019 U	0.00021 U
Chloromethane	0.0049	0.00043 U	0.00033 U	0.00016 U	0.00054 U	0.00031 U	0.00034 U	0.00037 U	0.00039 U	0.00029 U	0.00036 U	0.00035 U	0.00033 U	0.00036 U	0.00034 U	0.00038 U
Cis-1,2-Dichloroethylene	0.0011	0.00025 U	0.00019 U	0.00095 U	0.00031 UJ	0.00018 U	0.00019 U	0.00021 U	0.00023 U	0.00017 U	0.00021 U	0.0002 U	0.00019 U	0.00021 U	0.0002 U	0.00022 U
Cis-1,3-Dichloropropene	--	0.00017 U	0.00013 U	0.00065 U	0.00021 UJ	0.00012 U	0.00013 U	0.00015 U	0.00015 U	0.00011 U	0.00014 U	0.00014 U	0.00013 U	0.00014 U	0.00013 U	0.00015 U
Cyclohexane	1.3	0.00052 U	0.0004 U	0.0002 U	0.00066 UJ	0.00037 U	0.00041 U	0.00045 J	0.00047 U	0.00035 U	0.00043 U	0.00043 U	0.0004 U	0.00044 U	0.00041 U	0.00046 U
Dibromochloromethane	0.00023	0.00017 U	0.00013 U	0.00065 U	0.00021 U	0.00012 U	0.00013 U	0.00015 U	0.00015 U	0.00011 U	0.00014 U	0.00014 U	0.00013 U	0.00014 U	0.00013 U	0.00015 U
Dichlorodifluoromethane	0.03	0.00036 U	0.00028 U	0.00014 U	0.00046 U	0.00026 U	0.00028 U	0.00031 U	0.00033 U	0.00025 U	0.0003 U	0.0003 U	0.00028 U	0.0003 U	0.00029 U	0.00032 U
Ethylbenzene	0.0017	0.0002 U	0.00016 U	0.00078 U	0.00026 UJ	0.00042 J	0.00016 U	0.00017 U	0.00018 U	0.00014 U	0.00017 U	0.00017 U	0.00016 U	0.00017 U	0.00016 U	0.00018 U
Isopropylbenzene (Cumene)	0.074	0.00019 U	0.00015 U	0.00074 U	0.00024 UJ	0.00014 U	0.00015 U	0.00016 U	0.00017 U	0.00013 U	0.00016 U	0.00016 U	0.00015 U	0.00016 U	0.00015 U	0.00017 U
M,P-Xylene	--	0.00012 U	0.000097 U	0.000048 U	0.00016 UJ	0.0017	0.00054 J	0.00069 J	0.00011 U	0.000084 U	0.0001 U	0.0001 U	0.000095 U	0.00015 J	0.00013 J	0.00011 U
Methyl Acetate	0.41	0.001 U	0.00079 U	0.00039 U	0.0013 U	0.00077 U	0.00079 U	0.00087 U	0.00092 U	0.00069 U	0.00085 U	0.015	0.00078 U	0.00085 U	0.00081 U	0.00089 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0023 J	0.0017 J	0.00083 U	0.0011 U	0.00047	0.00068 U	0.00075 U	0.00079 U	0.00059 U	0.0052	0.00072 U	0.00067 U	0.00073 U	0.00069 U	0.00077 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0025 U	0.002 U	0.00096 U	0.0032 UJ	0.00018 U	0.002 U	0.0021 U	0.0023 U	0.0017 U	0.0021 U	0.0021 U	0.0019 U	0.0021 U	0.002 U	0.0022 U
Methylcyclohexane	--	0.00056 U	0.00044 U	0.00022 U	0.00072 UJ	0.0004 U	0.0008 J	0.00081 J	0.00051 U	0.00038 U	0.00047 U	0.00046 U	0.00043 U	0.00047 U	0.00045 U	0.0005 U
Methylene Chloride	0.0027	0.00036 U	0.00028 U	0.00014 U	0.00046 U	0.00026 U	0.00028 U	0.00031 U	0.00033 U	0.00025 U	0.0003 U	0.0003 U	0.00028 U	0.0003 U	0.00029 U	0.00032 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00018 U	0.00014 U	0.00069 U	0.00023 UJ	0.0009	0.00018 J	0.00021 J	0.00016 U	0.00012 U	0.00015 U	0.00015 U	0.00014 U	0.00015 U	0.00014 U	0.00016 U
Styrene	0.13	0.00017 U	0.00013 U	0.00065 U	0.00021 UJ	0.00012 U	0.00013 U	0.00015 U	0.00015 U	0.00011 U	0.00014 U	0.00014 U	0.00012 U	0.00014 U	0.00013 U	0.00015 U
Tert-Butyl Methyl Ether	0.0032	0.00019 U	0.00015 U	0.00074 U	0.00024 UJ	0.00014 U	0.00015 U	0.00016 U	0.00017 U	0.00013 U	0.00016 U	0.00016 U	0.00015 U	0.00016 U	0.00015 U	0.00017 U
Tetrachloroethylene (PCE)	0.0018	0.00032 U	0.00025 U	0.00012 U	0.00041 U	0.00023 U	0.00025 U	0.00027 U	0.00029 U	0.00021 U	0.00026 U	0.00026 U	0.00024 U	0.00027 U	0.00025 U	0.00028 U
Toluene	0.076	0.00022 J	0.00019 J	0.00082 U	0.00027 UJ	0.0013	0.0007 J	0.00082 J	0.0002 U	0.00022 J	0.00032 J	0.00038 J	0.00016 U	0.00024 J	0.00023 J	0.00025 J
Trans-1,2-Dichloroethene	0.011	0.00044 U	0.00034 U	0.00017 U	0.00056 UJ	0.00031 U	0.00034 U	0.00038 U	0.0004 U	0.0003 U	0.00037 U	0.00036 U	0.00034 U	0.00037 U	0.00035 U	0.00039 U
Trans-1,3-Dichloropropene	--	0.00011 U	0.000086 U	0.00043 U	0.00014 UJ	0.000081 U	0.000088 U	0.000097 U	0.0001 U	0.000077 U	0.000094 U	0.000093 U	0.000087 U	0.000095 U	0.000089 U	0.000099 U
Trichloroethylene (TCE)	0.0001	0.00029 U	0.00023 U	0.00108 U	0.00037 UJ	0.00021 U	0.00023 U	0.00025 U	0.00027 U	0.0002 U	0.00024 U	0.00024 U	0.00023 U	0.00025 U	0.00023 U	0.00026 U
Trichlorofluoromethane	0.33	0.00038 U	0.0003 U	0.00015 U	0.00049 U	0.00027 U	0.0003 U	0.00033 U	0.00035 U	0.00026 U	0.00032 U	0.00032 U	0.00029 U	0.00032 U	0.00031 U	0.00034 U
Vinyl Chloride	0.0000065	0.00044 U	0.00034 U	0.00017 U	0.00056 UJ	0.00031 U	0.00034 U	0.00038 U	0.0004 U	0.0003 U	0.00037 U	0.00036 U	0.00034 U	0.00037 U	0.00035 U	0.00039 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-005	CFSB-006	CFSB-007	CFSB-008	CFSB-009	CFSB-021	CFSB-022	CFSB-029	CFSB-033	CFSB-034	CFSB-035	CFSB-036	CFSB-037	CFMW-003A	CFMW-003A-DUP
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/25/2016	5/23/2016	5/25/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (mg/kg)																
Aluminum	3000	6930	14300	9810	6980	11000	8230	10100	9140	8210	6860	16000	6870	9700	5610 J	10500 J
Antimony	0.035	0.35 UJ	0.37 UJ	0.33 UJ	0.33 UJ	0.41 UJ	0.35 UJ	0.31 UJ	0.48 J-	0.35 UJ	0.48 UJ	0.44 UJ	0.49 UJ	0.43 UJ	0.42 U	0.39 UJ
Arsenic	0.0015	3.4 J	8.4	5.6 J	4.1	3.1	4.3	4.1	8.2	5.6	5.3	4.2	4.4	4.9	4	4.7
Barium	16	69	61.3	54.2	55.1	132	47.3	46.7	69.1	48.3	55.6	107	38.9	64.4	39 J	65.8 J
Beryllium	1.9	0.28 J	0.38	0.38	0.31 J	0.44	0.26 J	0.29 J	0.32 J	0.31 J	0.27 J	0.5	0.25 J	0.31 J	0.22 J	0.39 J
Cadmium	0.069	0.27 U	0.28 U	0.25 U	0.25 U	0.31 U	0.27 U	0.24 U	0.28 U	0.26 U	0.36 U	0.33 U	0.37 U	0.33 U	0.32 U	0.3 U
Calcium	--	22600	16600	60200	52800	11900	78200	29400	69600	60100	59800	7930	45400	24200	53100	64700
Chromium, Total	--	8.7	12.7	10.5	6.4	8.5	7.8	12	10	9.9	8.2	12.8	6.4	9.1	7.1	10.1
Cobalt	0.027	4.3 J-	8	7.4 J	4.5	3.8	3.6	4.9	6.7	4.5	4.6	5.5	4.4	4.3	3.7	5.8
Copper	2.8	10.3 J+	12.5	8.9 J+	8.6 J+	11.4	13.1	7.2	15.6	7.8	14 J	16 J	9.5 J	12.8 J	9.4	12.9
Iron	35	10400	17900	16100	9300	11100	11100	13500	16100	14000	11000	16200	10600	12500	10100	16100
Lead	400	5.4 J	13.3 J+	7.8 J	6.4	6.4 J+	8.4 J+	6.1 J+	15.4 J+	7.1 J+	7.2 J	9.6 J	10.1 J	8.7 J	6.2	10.3
Magnesium	--	8570	15800	17600	12500	8630	11100	14600	9100	13600	11100	9440	8610	10500	9140 J	17800 J
Manganese	2.8	341	342	580	344	281	283	455	425	369	287	509	313	338	316	521
Mercury	0.0033	0.012 U	0.029	0.013 J+	0.012 J	0.024	0.015 J	0.022	0.033	0.012 U	0.027	0.034	0.021	0.016 J	0.024	0.029
Nickel	2.6	9.1	17.7 J	11.7	7.7	8.1 J	7.8 J	9.9 J	12.7 J	11.8 J	9.4 J	13.5 J	7.2 J	9 J	7.3	11.1
Potassium	--	754 J+	684 J	945 J+	596 J+	643 J	631 J	759 J	580 J	653 J	588	1710	574	615	551 J	1150 J
Selenium	0.052	0.38 U	0.35 U	0.31 U	0.31 U	0.38 U	0.33 U	0.29 U	0.34 U	0.32 U	0.45 U	0.41 U	0.46 U	0.41 U	0.4 U	0.37 U
Silver	0.08	0.64 U	0.68 U	0.61 U	0.61 U	0.74 U	0.64 U	0.57 U	0.67 U	0.63 U	0.88 U	0.81 U	0.9 U	0.79 U	0.77 U	0.72 U
Sodium	--	32.9 U	34.9 U	35.4 J	31 U	135	32.7 U	29.3 U	34.2 U	32.3 U	44.8 U	241	45.8 U	42.7 J	39.4 U	36.9 U
Thallium	0.0014	0.13 U	0.14 U	0.13 U	0.13 U	0.15 U	0.13 U	0.12 U	0.14 U	0.13 U	0.18 U	0.17 U	0.18 U	0.16 U	0.16 U	0.15 U
Vanadium	8.6	6.2	10.4	8.5	5	6.4	5.8	7.3	10.1	7.9	5.1	12.4	5.7	7.1	4.6	7.7
Zinc	37	29	42.4	45	30.1	34.3	31.3	41.8	50	38.6	28	44.1	26.6	32.6	23.4 J	47.9 J
PESTICIDES (mg/kg)																
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-005	CFSB-006	CFSB-007	CFSB-008	CFSB-009	CFSB-021	CFSB-022	CFSB-029	CFSB-033	CFSB-034	CFSB-035	CFSB-036	CFSB-037	CFMW-003A	CFMW-003A-DUP
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/25/2016	5/23/2016	5/25/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.0096 U	0.0099 U	0.0094 U	0.0093 U	0.012 U	0.0093 U	0.0094 U	0.0098 U	0.0093 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0097 U	0.011 U
PCB-1221 (Aroclor 1221)	0.00008	0.0096 U	0.0099 U	0.0094 U	0.0093 U	0.012 U	0.0093 U	0.0094 U	0.0098 U	0.0093 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0097 U	0.011 U
PCB-1232 (Aroclor 1232)	0.00008	0.0096 U	0.0099 U	0.0094 U	0.0093 U	0.012 U	0.0093 U	0.0094 U	0.0098 U	0.0093 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0097 U	0.011 U
PCB-1242 (Aroclor 1242)	0.0012	0.0096 U	0.0099 U	0.0094 U	0.0093 U	0.012 U	0.0093 U	0.0094 U	0.0098 U	0.0093 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0097 U	0.011 U
PCB-1248 (Aroclor 1248)	0.0012	0.0096 U	0.0099 U	0.0094 U	0.0093 U	0.012 U	0.0093 U	0.0094 U	0.0098 U	0.0093 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0097 U	0.011 U
PCB-1254 (Aroclor 1254)	0.002	0.0099 U	0.01 U	0.0097 U	0.0097 U	0.013 U	0.0096 U	0.0098 U	0.01 U	0.0096 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U
PCB-1260 (Aroclor 1260)	0.0055	0.0099 U	0.01 U	0.0097 U	0.0097 U	0.013 U	0.0096 U	0.0098 U	0.01 U	0.0096 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U
PCB-1262 (Aroclor 1262)	--	0.0099 U	0.01 U	0.0097 U	0.0097 U	0.013 U	0.0096 U	0.0098 U	0.01 U	0.0096 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U
PCB-1268 (Aroclor 1268)	--	0.0099 U	0.01 U	0.0097 U	0.0097 U	0.013 U	0.0096 U	0.0098 U	0.01 U	0.0096 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U
Polychlorinated Biphenyl (PCBs)	--	0.0099 U	0.01 U	0.0097 U	0.0097 U	0.013 U	0.0096 U	0.0098 U	0.01 U	0.0096 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.027 U	0.026 U	0.027 U	0.035 U	0.026 U	0.026 U	0.027 U	0.051 U	0.029 UJ	0.028 UJ	0.029 U	0.029 U	0.027 UJ	0.029 U
1,4-Dioxane (P-Dioxane)	0.000094	0.095 U	0.099 U	0.093 U	0.093 U	0.12 U	0.092 U	0.094 U	0.097 U	0.18 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.096 UJ	0.11 U
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.035 U	0.033 U	0.035 U	0.044 U	0.032 U	0.033 U	0.034 U	0.065 U	0.037 UJ	0.035 UJ	0.037 U	0.037 U	0.034 UJ	0.037 U
2,4,5-Trichlorophenol	0.4	0.035 U	0.037 U	0.035 U	0.035 U	0.046 U	0.034 U	0.035 U	0.036 U	0.069 U	0.039 UJ	0.037 UJ	0.039 U	0.039 U	0.036 UJ	0.039 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.01 U	0.0099 U	0.0099 U	0.013 U	0.0098 U	0.01 U	0.01 U	0.02 U	0.011 UJ	0.011 UJ	0.011 U	0.011 U	0.01 UJ	0.011 U
2,4-Dichlorophenol	0.0023	0.0094 U	0.0097 U	0.0092 U	0.0092 U	0.011 U	0.0081 U	0.0083 U	0.0086 U	0.016 U	0.0092 UJ	0.0088 UJ	0.0093 U	0.0093 U	0.0085 UJ	0.0093 U
2,4-Dimethylphenol	0.042	0.078 U	0.081 U	0.076 U	0.076 U	0.1 U	0.075 U	0.077 U	0.08 U	0.15 U	0.085 UJ	0.082 UJ	0.087 U	0.086 U	0.079 UJ	0.087 U
2,4-Dinitrophenol	0.0044	0.27 U	0.28 U	0.26 U	0.26 U	0.35 U	0.26 U	0.26 U	0.28 U	0.52 U	0.29 UJ	0.28 UJ	0.3 U	0.3 U	0.27 UJ	0.3 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.015 U	0.014 U	0.014 U	0.018 U	0.014 U	0.014 U	0.014 U	0.027 U	0.015 UJ	0.015 UJ	0.016 U	0.016 U	0.014 UJ	0.016 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.02 U	0.019 U	0.018 U	0.025 U	0.018 U	0.019 U	0.019 U	0.037 U	0.021 UJ	0.02 UJ	0.021 U	0.021 U	0.019 UJ	0.021 U
2-Chloronaphthalene	0.39	0.0081 U	0.0084 U	0.0079 U	0.0079 U	0.011 U	0.0078 U	0.0079 U	0.0083 U	0.016 U	0.0088 UJ	0.0085 UJ	0.0089 U	0.0089 U	0.0081 UJ	0.009 U
2-Chlorophenol	0.0089	0.0091 U	0.0094 U	0.0089 U	0.0088 U	0.012 U	0.0088 U	0.0089 U	0.0093 U	0.018 U	0.0099 UJ	0.0095 UJ	0.01 U	0.01 U	0.0091 UJ	0.01 U
2-Methylnaphthalene	0.019	0.0079 U	0.0081 U	0.0077 U	0.0077 U	0.01 U	0.0076 U	0.0077 U	0.008 U	0.04 J	0.0086 UJ	0.0083 UJ	0.0087 U	0.0087 U	0.0079 UJ	0.0087 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.016 U	0.015 U	0.015 U	0.02 U	0.015 U	0.015 U	0.016 U	0.03 U	0.017 UJ	0.016 UJ	0.017 U	0.017 U	0.016 UJ	0.017 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.011 U	0.011 U	0.015 U	0.011 U	0.012 U	0.012 U	0.023 U	0.013 UJ	0.012 UJ	0.013 U	0.012 U	0.012 UJ	0.013 U
2-Nitrophenol	--	0.012 U	0.012 U	0.012 U	0.012 U	0.016 U	0.012 U	0.012 U	0.012 U	0.023 U	0.013 UJ	0.013 UJ	0.013 U	0.013 U	0.012 UJ	0.013 U
3- And 4- Methylphenol (Total)	--	0.0095 U	0.0098 U	0.0093 U	0.0092 U	0.012 U	0.0092 U	0.0093 U	0.0097 U	0.029 J	0.01 UJ	0.015 J-	0.01 U	0.01 U	0.0096 UJ	0.011 U
3,3'-Dichlorobenzidine	0.00082	0.04 U	0.041 U	0.039 U	0.039 U	0.052 U	0.039 U	0.039 U	0.041 U	0.077 U	0.043 UJ	0.042 UJ	0.044 U	0.044 U	0.04 UJ	0.044 U
3-Nitroaniline	--	0.011 U	0.011 U	0.01 U	0.01 U	0.014 U	0.01 U	0.01 U	0.011 U	0.02 U	0.012 UJ	0.011 UJ	0.012 U	0.012 U	0.011 UJ	0.012 U
4,6-Dinitro-2-Methylphenol	0.00026	0.095 U	0.098 U	0.093 U	0.093 U	0.12 U	0.092 U	0.093 U	0.097 U	0.18 U	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.096 UJ	0.1 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.012 U	0.011 U	0.011 U	0.015 U	0.011 U	0.011 U	0.011 U	0.022 U	0.012 UJ	0.012 UJ	0.012 U	0.012 U	0.011 UJ	0.012 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.016 U	0.015 U	0.015 U	0.02 U	0.015 U	0.015 U	0.016 U	0.03 U	0.017 UJ	0.016 UJ	0.017 U	0.017 U	0.015 UJ	0.017 U
4-Chloroaniline	0.00016	0.0092 U	0.0095 U	0.009 U	0.0089 U	0.012 U	0.0089 U	0.009 U	0.0094 U	0.018 U	0.01 UJ	0.0096 UJ	0.01 U	0.01 U	0.0092 UJ	0.01 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.011 U	0.01 U	0.01 U	0.014 U	0.01 U	0.01 U	0.011 U	0.021 U	0.012 UJ	0.011 UJ	0.012 U	0.012 U	0.011 UJ	0.012 U
4-Nitroaniline	0.0016	0.013 U	0.014 U	0.013 U	0.013 U	0.018 U	0.013 U	0.013 U	0.014 U	0.026 U	0.015 UJ	0.014 UJ	0.015 U	0.015 U	0.014 UJ	0.015 U
4-Nitrophenol	--	0.17 U	0.18 U	0.17 U	0.17 U	0.22 U	0.17 U	0.17 U	0.18 U	0.33 U	0.19 UJ	0.18 UJ	0.19 U	0.19 U	0.17 UJ	0.19 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--		
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-005	CFSB-006	CFSB-007	CFSB-008	CFSB-009	CFSB-021	CFSB-022	CFSB-029	CFSB-033	CFSB-034	CFSB-035	CFSB-036	CFSB-037	CFMW-003A	CFMW-003A-DUP
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/25/2016	5/23/2016	5/25/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016
Acenaphthene	0.55	0.0086 U	0.0089 U	0.0084 U	0.0084 U	0.011 U	0.0084 U	0.011 J	0.0086 U	0.41 J	0.012 J-	0.0091 UJ	0.0085 U	0.0085 U	0.0087 UJ	0.0096 U
Acenaphthylene	--	0.0092 U	0.0095 U	0.009 U	0.009 U	0.012 U	0.0089 U	0.009 U	0.0094 U	0.01 U	0.01 UJ	0.0096 UJ	0.01 U	0.01 U	0.0092 UJ	0.01 U
Acetophenone	0.058	0.0078 U	0.008 U	0.0076 U	0.0076 U	0.01 U	0.0075 U	0.0076 U	0.0079 U	0.015 U	0.0085 UJ	0.0082 UJ	0.0085 U	0.0085 U	0.0078 UJ	0.0086 U
Anthracene	5.8	0.034 U	0.035 U	0.033 U	0.033 U	0.044 U	0.033 U	0.033 U	0.035 U	0.64 J	0.037 UJ	0.036 UJ	0.037 U	0.037 U	0.034 UJ	0.038 U
Atrazine	0.0002	0.016 U	0.016 U	0.015 U	0.015 U	0.021 U	0.015 U	0.016 U	0.016 U	0.031 U	0.017 UJ	0.017 UJ	0.018 U	0.017 U	0.016 UJ	0.018 U
Benzaldehyde	0.0041	0.027 U	0.028 U	0.027 U	0.026 U	0.035 U	0.026 U	0.027 U	0.028 U	0.053 U	0.03 UJ	0.029 UJ	0.03 U	0.03 U	0.027 UJ	0.03 U
Benzo(A)Anthracene	0.011	0.03 U	0.031 U	0.029 U	0.029 U	0.039 U	0.029 U	0.13	0.12	5	0.11 J-	0.031 UJ	0.032 U	0.032 U	0.03 UJ	0.033 U
Benzo(A)Pyrene	0.029	0.011 U	0.011 U	0.011 U	0.01 U	0.014 U	0.01 U	0.16	0.14	5.6	0.099 J-	0.014 J-	0.012 U	0.014 J	0.011 UJ	0.012 U
Benzo(B)Fluoranthene	0.3	0.019 J	0.014 U	0.014 U	0.014 U	0.018 U	0.013 U	0.23	0.3	9.6	0.26 J-	0.12 J-	0.015 U	0.018 J	0.014 UJ	0.015 U
Benzo(G,H,I)Perylene	--	0.02 U	0.021 U	0.02 U	0.02 U	0.027 U	0.02 U	0.098 J	0.2 J	8	0.2 J-	0.041 J-	0.023 U	0.023 U	0.021 UJ	0.023 U
Benzo(K)Fluoranthene	2.9	0.016 U	0.016 U	0.015 U	0.015 U	0.02 U	0.015 U	0.09	0.016 U	3.9	0.075 J-	0.035 J-	0.017 U	0.017 U	0.016 UJ	0.017 U
Benzyl Butyl Phthalate	0.24	0.011 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.011 U	0.011 U	0.021 U	0.015 J-	0.012 UJ	0.012 U	0.012 U	0.011 UJ	0.012 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.031 U	0.02 U	0.03 U	0.04 U	0.029 U	0.03 U	0.031 U	0.059 U	0.033 UJ	0.032 UJ	0.034 U	0.033 U	0.031 UJ	0.034 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.011 U	0.014 U	0.011 U	0.011 U	0.011 U	0.021 U	0.012 UJ	0.012 UJ	0.012 U	0.012 U	0.011 UJ	0.012 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0084 U	0.0087 U	0.0082 U	0.0082 U	0.011 U	0.0081 U	0.0083 U	0.0086 U	0.016 U	0.0092 UJ	0.0088 UJ	0.0093 U	0.0093 U	0.0085 UJ	0.0093 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.015 U	0.014 U	0.014 U	0.019 U	0.014 U	0.014 U	0.015 U	0.028 U	0.016 UJ	0.015 UJ	0.016 U	0.016 U	0.015 UJ	0.016 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.047 J	0.014 U	0.014 U	0.014 U	0.018 U	0.012 U	0.014 U	0.014 U	0.15 J	0.015 UJ	0.015 UJ	0.015 U	0.015 U	0.014 UJ	0.015 U
Caprolactam	0.25	0.026 U	0.027 U	0.025 U	0.025 U	0.033 U	0.025 U	0.025 U	0.026 U	0.05 U	0.028 UJ	0.027 UJ	0.028 U	0.028 U	0.026 UJ	0.028 U
Carbazole	--	0.0089 U	0.0091 U	0.0086 U	0.0086 U	0.012 U	0.0085 U	0.015 J	0.019 J	0.87	0.016 J-	0.0093 UJ	0.0098 U	0.0097 U	0.0089 UJ	0.0098 U
Chrysene	9	0.013 J	0.01 J	0.0095 U	0.0094 U	0.013 U	0.009 U	0.17 J	0.2 J	8.2	0.14 J-	0.056 J-	0.011 U	0.017 J	0.0098 UJ	0.011 U
Dibenz(A,H)Anthracene	0.096	0.019 U	0.019 U	0.018 U	0.018 U	0.024 U	0.018 U	0.027 J	0.048	1.9	0.057 J-	0.019 J-	0.02 U	0.02 U	0.019 UJ	0.021 U
Dibenzofuran	0.015	0.011 U	0.011 U	0.011 U	0.01 U	0.014 U	0.01 U	0.011 U	0.011 U	0.095 J	0.012 UJ	0.011 UJ	0.012 U	0.012 U	0.011 UJ	0.012 U
Diethyl Phthalate	0.61	0.01 U	0.01 U	0.0099 U	0.0099 U	0.013 U	0.0098 U	0.01 U	0.01 U	0.02 U	0.011 UJ	0.011 UJ	0.011 U	0.011 U	0.01 UJ	0.011 U
Dimethyl Phthalate	--	0.01 U	0.011 U	0.01 U	0.01 U	0.013 U	0.01 U	0.01 U	0.011 U	0.02 U	0.011 UJ	0.011 UJ	0.011 U	0.011 U	0.01 UJ	0.011 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.011 U	0.01 U	0.01 U	0.014 U	0.01 U	0.01 U	0.011 U	0.021 U	0.012 UJ	0.011 UJ	0.012 U	0.012 U	0.011 UJ	0.012 U
Di-N-Octylphthalate	5.7	0.018 U	0.019 U	0.018 U	0.018 U	0.024 U	0.018 U	0.018 U	0.019 U	0.035 U	0.02 UJ	0.019 UJ	0.02 U	0.02 U	0.018 UJ	0.02 U
Fluoranthene	8.9	0.014 J	0.011 U	0.01 U	0.01 U	0.014 U	0.01 U	0.23 J	0.18 J	7.3	0.14 J-	0.017 J-	0.012 U	0.015 J	0.011 UJ	0.012 U
Fluorene	0.54	0.0078 U	0.008 U	0.0076 U	0.0076 U	0.01 U	0.0075 U	0.0076 U	0.0079 U	0.19 J	0.01 J-	0.0082 UJ	0.0085 U	0.0085 U	0.0078 UJ	0.0086 U
Hexachlorobenzene	0.00012	0.014 U	0.015 U	0.014 U	0.014 U	0.019 U	0.014 U	0.014 U	0.015 U	0.028 U	0.016 UJ	0.015 UJ	0.016 U	0.016 U	0.015 UJ	0.016 U
Hexachlorobutadiene	0.00027	0.01 U	0.01 U	0.0098 U	0.009 U	0.013 U	0.0097 U	0.0098 U	0.01 U	0.019 U	0.011 UJ	0.011 UJ	0.011 U	0.011 U	0.01 UJ	0.011 U
Hexachlorocyclopentadiene	0.00013	0.022 U	0.023 UJ	0.022 U	0.022 U	0.029 U	0.022 U	0.022 U	0.023 U	0.043 U	0.024 UJ	0.023 UJ	0.025 UJ	0.024 UJ	0.022 UJ	0.025 UJ
Hexachloroethane	0.0002	0.013 U	0.013 U	0.013 U	0.013 U	0.017 U	0.012 U	0.013 U	0.013 U	0.025 U	0.014 UJ	0.014 UJ	0.014 U	0.014 U	0.013 UJ	0.014 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.024 U	0.025 U	0.023 U	0.023 U	0.031 U	0.023 U	0.093	0.18	7.7	0.2 J	0.045 J	0.026 U	0.026 U	0.024 UJ	0.026 U
Isophorone	0.026	0.0077 U	0.0079 U	0.0075 U	0.0075 U	0.01 U	0.0074 U	0.013 J	0.093 J	0.015 U	0.0083 UJ	0.008 UJ	0.0085 U	0.0084 U	0.0077 UJ	0.0085 U
Naphthalene	0.00054	0.0091 U	0.0094 U	0.0088 U	0.0088 U	0.012 U	0.0088 U	0.0089 U	0.0093 U	0.06 J	0.0099 UJ	0.0095 UJ	0.01 U	0.01 U	0.0091 UJ	0.01 U
Nitrobenzene	0.000092	0.011 U	0.012 U	0.011 U	0.011 U	0.015 U	0.011 U	0.011 U	0.011 U	0.022 U	0.012 UJ	0.012 UJ	0.012 U	0.012 U	0.011 UJ	0.012 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.012 U	0.012 U	0.012 U	0.016 U	0.012 U	0.012 U	0.012 U	0.023 U	0.013 UJ	0.013 UJ	0.013 U	0.013 U	0.012 UJ	0.013 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.033 U	0.032 U	0.031 U	0.042 U	0.031 U	0.032 U	0.033 U	0.062 U	0.035 UJ	0.034 UJ	0.036 U	0.036 U	0.033 UJ	0.036 U
Pentachlorophenol	0.000057	0.043 U	0.045 U	0.042 U	0.042 U	0.056 U	0.042 U	0.042 U	0.044 U	0.083 U	0.047 UJ	0.045 UJ	0.048 U	0.047 U	0.043 UJ	0.048 U
Phenanthrene	--	0.013 J	0.0098 U	0.0093 U	0.0092 U	0.012 U	0.0092 U	0.1 J	0.11 J	3	0.1 J-	0.01 UJ	0.01 U	0.01 U	0.0096 UJ	0.011 U
Phenol	0.33	0.012 U	0.012 U	0.011 U	0.011 U	0.015 U	0.011 U	0.011 U	0.012 U	0.023 U	0.013 UJ	0.012 UJ	0.012 U	0.012 U	0.012 UJ	0.013 U
Pyrene	1.3	0.016 U	0.017 U	0.016 U	0.016 U	0.021 U	0.016 U	0.26 J	0.25 J	7.8	0.17 J-	0.023 J-	0.018 U	0.018 U	0.016 UJ	0.018 U
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00032 U	0.00026 U	0.00031 U	0.00046 U	0.00043 U	0.00024 U	0.00024 U	0.00048 U	0.00034 U	0.0004 U	0.0003 U	0.00035 U	0.00029 U	0.00035 U	0.00034 U
1,1,2,2-Tetrachloroethane	0.00003	0.00014 U	0.00016 U	0.00014 U	0.00021 U	0.00019 U	0.00011 U	0.00011 U	0.00022 U	0.00015 U	0.00018 U	0.00013 U	0.00016 U	0.00013 U	0.00016 U	0.00015 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00037 UJ	0.00042 U	0.00026 U	0.00054 U	0.0005 U	0.00027 U	0.00028 U	0.00056 U	0.00039 U	0.00046 U	0.00035 U	0.0004 U	0.00034 U	0.0004 U	0.00039 U
1,1,2-Trichloroethane	0.000013	0.00024 U	0.00027 U	0.00022 U	0.00024 U	0.00032 U	0.00017 U	0.00018 U	0.00036 U	0.00025 U	0.00029 U	0.00022 U	0.00026 U	0.00021 U	0.00026 U	0.00025 U
1,1-Dichloroethane	0.00078	0.00029 U	0.00032 U	0.00028 U	0.00041 U	0.00038 U	0.00021 U	0.00022 U	0.00043 U	0.0003 U	0.00035 U	0.00027 U	0.00031 U	0.00026 U	0.00031 U	0.0003 U
1,1-Dichloroethene	0.01	0.00035 U	0.00039 U	0.00034 U	0.0005 U	0.00046 U	0.00026 U	0.00026 U	0.00052 U	0.00037 U	0.00043 U	0.00032 U	0.00038 U	0.00031 U	0.00038 U	0.00037 U
1,2,3-Trichlorobenzene	0.0021	0.000093 U	0.0001 U	0.00009 U	0.00013 U	0.00012 U	0.000069 U	0.00007 U	0.00014 U	0.000099 U	0.00011 U	0.000087 U	0.0001 U	0.000084 U	0.0001 U	0.000099 U
1,2,4-Trichlorobenzene	0.0012	0.00027 U	0.0003 U	0.00026 U	0.00039 U	0.00036 U	0.0002 U	0.0002 U	0.00041 U	0.00029 U	0.00033 U	0.00025 U	0.00029 U	0.00024 U	0.00029 U	0.00029 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.0004 U	0.00045 U	0.00038 U	0.00057 U	0.00053 U	0.00029 U	0.0003 U	0.0006 U	0.00042 U	0.00049 U	0.00037 U	0.00043 U	0.00036 U	0.00043 U	0.00042 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.0001 U	0.00011 U	0.000008 U	0.00015 U	0.00014 U	0.000075 U	0.000076 U	0.00015 U	0.00011 U	0.00013 U	0.000095 U	0.00011 U	0.000091 U	0.00011 U	0.00011 U
1,2-Dichlorobenzene	0.03	0.00012 U	0.00013 U	0.00011 U	0.00017 U	0.00016 U	0.000087 U	0.000089 U	0.00018 U	0.00013 U	0.00015 U	0.00011 U	0.00013 U	0.00011 U	0.00013 U	0.00013 U
1,2-Dichloroethane	0.000048	0.000093 U	0.0001 U	0.00009 U	0.00013 U	0.00012 U	0.000069 U	0.00007 U	0.00014 U	0.000099 U	0.00011 U	0.000087 U	0.0001 U	0.000084 U	0.0001 U	0.000099 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit	Exp Area 4 INDUSTRIAL LANDFILL AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--		
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFSB-005	CFSB-006	CFSB-007	CFSB-008	CFSB-009	CFSB-021	CFSB-022	CFSB-029	CFSB-033	CFSB-034	CFSB-035	CFSB-036	CFSB-037	CFMW-003A	CFMW-003A-DUP
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		5/25/2016	5/23/2016	5/25/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016	5/31/2016
1,2-Dichloropropane	0.000047	0.00014 U	0.00016 U	0.00014 U	0.00021 U	0.00019 U	0.00011 U	0.00011 U	0.00022 U	0.00015 U	0.00018 U	0.00013 U	0.00016 U	0.00013 U	0.00016 U	0.00015 U
1,3-Dichlorobenzene	--	0.0001 U	0.00011 U	0.000098 U	0.00015 U	0.00014 U	0.000075 U	0.000076 U	0.00015 U	0.00011 U	0.00013 U	0.000095 U	0.00011 U	0.000091 U	0.00011 U	0.00011 U
1,4-Dichlorobenzene	0.00046	0.00011 U	0.00012 U	0.00011 U	0.00016 U	0.00015 U	0.000081 U	0.000083 U	0.00017 U	0.00012 U	0.00014 U	0.0001 U	0.00012 U	0.000099 U	0.00012 U	0.00012 U
2-Hexanone	0.00088	0.0079 U	0.0099 U	0.0077 U	0.011 U	0.011 U	0.0059 U	0.006 U	0.0012 U	0.0084 U	0.0098 U	0.0075 UJ	0.0089 U	0.0072 U	0.0086 U	0.0084 U
Acetone	0.29	0.0071	0.019	0.0034 J	0.014	0.031	0.0065	0.0059	0.028	0.0057	0.0097	0.0059 J	0.0097 U	0.014	0.006	0.0078
Benzene	0.00023	0.00024 J	0.00019 U	0.00016 U	0.0024 U	0.00047 J	0.00012 U	0.00013 U	0.00079 J	0.00016 U	0.0021 U	0.00032 J	0.00018 U	0.00015 U	0.00018 U	0.00016 U
Bromochloromethane	0.0021	0.00014 U	0.00016 U	0.00014 U	0.00021 U	0.00019 U	0.00011 U	0.00011 U	0.00022 U	0.00015 U	0.00018 U	0.00013 U	0.00016 U	0.00012 U	0.00016 U	0.00015 U
Bromodichloromethane	0.000036	0.00031 U	0.00036 U	0.00031 U	0.00046 U	0.00043 U	0.00024 U	0.00024 U	0.00048 U	0.00034 U	0.0004 U	0.0003 U	0.00035 U	0.00029 U	0.00035 U	0.00034 U
Bromoform	0.00087	0.00011 U	0.00012 U	0.00011 U	0.00016 U	0.00015 U	0.000081 U	0.000083 U	0.00017 U	0.00012 U	0.00014 U	0.0001 U	0.00012 U	0.000099 U	0.00012 U	0.00012 U
Bromomethane	0.00019	0.00027 UJ	0.0003 U	0.00026 UJ	0.00039 U	0.00036 U	0.0002 U	0.0002 U	0.00041 U	0.00029 U	0.00033 U	0.00025 U	0.00029 U	0.00024 U	0.00029 U	0.00029 U
Carbon Disulfide	0.024	0.00036 U	0.00041 U	0.00035 U	0.00052 U	0.00048 U	0.00027 U	0.00027 U	0.00055 U	0.00039 U	0.00061 J	0.00034 U	0.0004 U	0.00068 J	0.00039 U	0.0006 J
Carbon Tetrachloride	0.00018	0.00036 U	0.00041 U	0.00035 U	0.00052 U	0.00048 U	0.00027 U	0.00027 U	0.00055 U	0.00039 U	0.00045 U	0.00034 U	0.0004 U	0.00033 U	0.00039 U	0.00039 U
Chlorobenzene	0.0053	0.00012 U	0.00013 U	0.00011 U	0.00017 U	0.00016 U	0.000087 U	0.000089 U	0.00018 U	0.00013 U	0.00015 U	0.00011 U	0.00013 U	0.00011 U	0.00013 U	0.00013 U
Chloroethane	0.59	0.0003 UJ	0.00033 U	0.00029 UJ	0.00043 U	0.00039 U	0.00022 U	0.00022 U	0.00045 U	0.00031 U	0.00036 U	0.00028 U	0.00032 U	0.00027 U	0.00032 U	0.00031 U
Chloroform	0.000061	0.00018 U	0.0002 U	0.00017 U	0.00026 U	0.00024 U	0.00013 U	0.00013 U	0.00027 U	0.00019 U	0.00022 U	0.00017 U	0.00019 U	0.00016 U	0.00019 U	0.00019 U
Chloromethane	0.0049	0.00032 U	0.00036 U	0.00031 U	0.00046 U	0.00043 U	0.00024 U	0.00024 U	0.00048 U	0.00034 U	0.0004 U	0.0003 U	0.00035 U	0.00029 U	0.00035 U	0.00034 U
Cis-1,2-Dichloroethylene	0.0011	0.00019 U	0.00021 U	0.00018 U	0.00027 U	0.00025 U	0.00014 U	0.00014 U	0.00028 U	0.0002 U	0.00023 U	0.00017 U	0.0002 U	0.00017 U	0.0002 U	0.0002 U
Cis-1,3-Dichloropropene	--	0.00013 U	0.00014 U	0.00012 U	0.00018 U	0.00017 U	0.000085 U	0.000089 U	0.00019 U	0.00013 U	0.00016 U	0.00012 U	0.00014 U	0.00011 U	0.00014 U	0.00013 U
Cyclohexane	1.3	0.00039 UJ	0.00044 U	0.00028 U	0.00056 U	0.00052 U	0.00029 U	0.00029 U	0.00059 U	0.00041 U	0.00048 U	0.00036 U	0.00042 U	0.00035 U	0.00042 U	0.00041 U
Dibromochloromethane	0.00023	0.00013 U	0.00014 U	0.00012 U	0.00018 U	0.00017 U	0.000089 U	0.000095 U	0.00019 U	0.00013 U	0.00016 U	0.00012 U	0.00014 U	0.00011 U	0.00014 U	0.00013 U
Dichlorodifluoromethane	0.03	0.00027 UJ	0.0003 U	0.00026 U	0.00039 U	0.00036 U	0.0002 U	0.0002 U	0.00041 U	0.00029 U	0.00033 U	0.00025 U	0.00029 U	0.00024 U	0.00029 U	0.00029 U
Ethylbenzene	0.0017	0.00015 U	0.00017 U	0.00015 U	0.00022 U	0.0002 U	0.00011 U	0.00011 U	0.00023 U	0.00016 U	0.00019 U	0.00014 U	0.00017 U	0.00014 U	0.00017 U	0.00016 U
Isopropylbenzene (Cumene)	0.074	0.00014 U	0.00016 U	0.00014 U	0.00021 U	0.00019 U	0.00011 U	0.00011 U	0.00022 U	0.00015 U	0.00018 U	0.00013 U	0.00016 U	0.00013 U	0.00016 U	0.00015 U
M,P-Xylene	--	0.000093 U	0.00017 J	0.000089 U	0.00013 U	0.000[illegible]	0.000069 U	0.000071 U	0.00014 U	0.000099 U	0.00021 J	0.000087 U	0.0001 U	0.000084 U	0.0001 U	0.000099 U
Methyl Acetate	0.41	0.00076 U	0.00086 U	0.00074 U	0.0011 U	[illegible]	0.00056 U	0.00057 U	0.0011 U	0.00081 U	0.00094 U	0.00071 U	0.00083 U	0.00069 U	0.00083 U	0.00081 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.00065 U	0.00073 U	0.00063 U	0.00094 U	0.00023 J	0.00048 U	0.00049 U	0.00098 U	0.00069 U	0.0008 U	0.00061 UJ	0.00071 U	0.00059 U	0.00071 U	0.00069 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0019 U	0.0021 U	0.0018 U	0.0027 U	0.0025 U	0.0014 U	0.0014 U	0.0028 U	0.002 U	0.0023 U	0.0018 UJ	0.002 U	0.0017 U	0.002 U	0.002 U
Methylcyclohexane	--	0.00042 UJ	0.00048 U	0.00041 U	0.00061 U	0.00056 U	0.00031 U	0.00032 U	0.00064 U	0.00045 U	0.00052 U	0.0004 U	0.00046 U	0.00038 U	0.00046 U	0.00045 U
Methylene Chloride	0.0027	0.00022 U	0.0003 U	0.00026 U	0.00054 J	0.00036 U	0.0002 U	0.0002 U	0.00041 U	0.00029 U	0.00033 U	0.00025 U	0.00029 U	0.00024 U	0.00029 U	0.00029 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00014 U	0.00015 U	0.00013 U	0.00019 U	0.00018 U	0.0001 U	0.0001 U	0.0002 U	0.00014 U	0.00017 U	0.00013 U	0.00015 U	0.00012 U	0.00015 U	0.00014 U
Styrene	0.13	0.00013 U	0.00014 U	0.00012 U	0.00[illegible] U	0.00017 U	0.000092 U	0.000095 U	0.00019 U	0.00013 U	0.00016 U	0.00012 U	0.00014 U	0.00011 U	0.00014 U	0.00013 U
Tert-Butyl Methyl Ether	0.0032	0.00014 U	0.00016 U	0.00014 U	[illegible] U	0.00019 U	0.00011 U	0.00011 U	0.00022 U	0.00015 U	0.00018 U	0.00013 U	0.00016 U	0.00012 U	0.00016 U	0.00015 U
Tetrachloroethylene (PCE)	0.0018	0.00024 U	0.00027 U	0.00023 U	[illegible]034 U	0.00032 U	0.00017 U	0.00018 U	0.00036 U	0.00025 U	0.00029 U	0.00022 U	0.00026 U	0.00021 U	0.00026 U	0.00025 U
Toluene	0.076	0.00025 J	0.00031 J	0.00016 U	[illegible]023 U	0.00031 J	0.00012 U	0.00012 U	0.00055 J	0.00017 U	0.00033 J	0.00015 U	0.00017 U	0.00019 J	0.00017 U	0.00017 U
Trans-1,2-Dichloroethene	0.011	0.00030 U	0.00037 U	0.00031 U	0.00047 U	0.00044 U	0.00024 U	0.00025 U	0.0005 U	0.00035 U	0.00041 U	0.00031 U	0.00036 U	0.0003 U	0.00036 U	0.00035 U
Trans-1,3-Dichloropropene	--	0.000084 U	0.000095 U	0.000081 U	0.00012 U	0.00011 U	0.000062 U	0.000063 U	0.00013 U	0.000091 U	0.0001 U	0.000079 U	0.000092 U	0.000076 U	0.000092 U	0.000091 U
Trichloroethylene (TCE)	0.0001	0.00022 U	0.00025 U	0.00021 U	0.00032 U	0.00029 U	0.00016 U	0.00017 U	0.00033 U	0.00023 U	0.00027 U	0.00021 U	0.00024 U	0.0002 U	0.00024 U	0.00023 U
Trichlorofluoromethane	0.33	0.00029 UJ	0.00032 U	0.00028 U	0.00041 U	0.00038 U	0.00021 U	0.00022 U	0.00043 U	0.0003 U	0.00035 U	0.00027 U	0.00031 U	0.00026 U	0.00031 U	0.0003 U
Vinyl Chloride	0.0000065	0.00033 U	0.00037 U	0.00032 U	0.00047 U	0.00044 U	0.00024 U	0.00025 U	0.0005 U	0.00035 U	0.00041 U	0.00031 U	0.00036 U	0.0002 U	0.00036 U	0.00035 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Subsurface Soil (mg/kg)**	**CFTP-17**	**CFTP-17**	**CFTP-18**	**CFTP-18**	**CFTP-19**	**CFTP-19**	**CFTP-20**	**CFTP-20**	**CFTP-21**	**CFTP-21**	**CFTP-22**	**CFTP-22**	**CFTP-23**	**CFTP-23**	**CFTP-23-DUP**
Sample Depth		**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**2-4 ft**
Chemical Name		**8/25/2016**	**8/25/2016**	**8/26/2016**	**8/26/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/26/2016**	**8/26/2016**	**8/26/2016**
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (mg/kg)																
Aluminum	3000	11900	12700	12500	7760	5530	9500	8490	16800	7110	2080	8070	7840	11800	14300 J	2930 J
Antimony	0.035	0.28 UJ	0.31 UJ	0.29 UJ	0.3 UJ	0.28 UJ	0.3 UJ	0.29 UJ	0.29 UJ	0.27 UJ	0.29 UJ	0.29 UJ	0.31 UJ	0.27 UJ	0.29 UJ	0.31 UJ
Arsenic	0.0015	6.3	3.2	8.6	4.7	3.6	5.9	4.4	5.1	4.3	0.8 J	7.8	4.2	2.4	5 J	1 J
Barium	16	75.9 J	73.3 J	105 J	77.1 J	58.6	63.8	53.1	107	37.5	18.2	102 J	31.4 J	166 J	86 J	63.8 J
Beryllium	1.9	0.53	0.36 J	0.57	0.25 J	0.29 J	0.42	0.25 J	0.59	0.31 J	0.094 J	0.36	0.24 J	0.29 J	0.4 J	0.1 J
Cadmium	0.069	0.29 U	0.33 U	0.31 U	0.32 U	0.29 U	0.31 U	0.3 U	0.3 U	0.28 U	0.31 U	0.31 U	0.33 U	0.29 U	0.31 U	0.32 U
Calcium	--	38100	1200	1430	37800	27800	27900	41600	1950	29700	421	47100	687	3140	1420 J	9720 J
Chromium, Total	--	10.4	8.6	8.4	8.4	5.7	9.1	7.2	12.1	6.6	1.5 J	10.1	6.3	7	10.9 J	2.9 J
Cobalt	0.027	7.7 J	4.9 J	4.7 J	7.8 J	4	4.4	4.6	5.5	4.1	0.63 J	5.7 J	2.4 J	3.2 J	5 J	1.5 J
Copper	2.8	23.2 J	14.7 J	20.1 J	13.1 J	8.4	14.1	11.9	25.8	7.7	17	15.4 J	9.4 J	5.8 J	13.6 J	4.4 J
Iron	35	17300 J	12300 J	20400 J	11600 J	9010	13000	12000	18800	10200	2670	12000 J	10800 J	9370 J	16000 J	3650 J
Lead	400	14.9 J	6.8 J	7.7 J	6.5 J	6.1 J+	10.2 J+	5.9 J+	13.1 J+	4.4 J+	3.3 J+	8.5 J	6.2 J	9.5 J	9 J	2.3 J
Magnesium	--	13900	8420	7780	12500	8800	9940	13400	10400	14200	977	9770	5950	7850	9550 J	2440 J
Manganese	2.8	423 J	300 J	975 J	357 J	257	266	414	247	272	48	265 J	138 J	580 J	192 J	363 J
Mercury	0.0033	0.027	0.038	0.014 J	0.028	0.014 J	0.042	0.024	0.044	0.021	0.033	0.031	0.027	0.018	0.024	0.026
Nickel	2.6	12.9	11.2	9.4	9.7	7 J+	10.3 J+	9.5 J+	12.2 J+	7.7 J+	1.6 J+	9.6	6	15.6	11.4 J	2.6 J
Potassium	--	708	476	646	488	572	572	604	801	478	184	711	418	1040	657 J	248 J
Selenium	0.052	0.26 U	0.29 U	0.27 U	0.28 U	0.26 U	0.28 U	0.27 U	0.27 U	0.25 U	0.27 U	0.27 U	0.29 U	0.25 U	0.27 U	0.31 J
Silver	0.08	0.54 U	0.6 U	0.57 U	0.59 U	0.54 U	0.58 U	0.56 U	0.56 U	0.52 U	0.57 U	0.57 U	0.61 U	0.53 U	0.57 U	0.61 U
Sodium	--	37.4 U	41.9 U	39.8 U	41.2 U	37.4 U	40 U	38.9 U	63.3 J	36.1 U	39.7 U	39.2 U	42.5 U	46.7 J	39.7 U	42 U
Thallium	0.0014	0.11 U	0.12 U	0.12 U	0.12 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.12 U	0.11 U	0.12 U	0.12 U
Vanadium	8.6	11.9 J	6 J	8.7 J	5.8 J	6.4	7.2	5.9	12.7	5.1	1.9	7.9 J	4.6 J	12.6 J	11.1 J	2.1 J
Zinc	37	48.5 J	37.4 J	37.5 J	33.7 J	24.1	36.2	36.9	47.6	31.2	7.8	31.6 J	23.2 J	46 J	40.9 J	16.6 J
PESTICIDES (mg/kg)																
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Subsurface Soil (mg/kg)**	**CFTP-17**	**CFTP-17**	**CFTP-18**	**CFTP-18**	**CFTP-19**	**CFTP-19**	**CFTP-20**	**CFTP-20**	**CFTP-21**	**CFTP-21**	**CFTP-22**	**CFTP-22**	**CFTP-23**	**CFTP-23**	**CFTP-23-DUP**
Sample Depth		**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**2-4 ft**
Chemical Name		**8/25/2016**	**8/25/2016**	**8/26/2016**	**8/26/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/26/2016**	**8/26/2016**	**8/26/2016**
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.0098 U	0.01 U	0.0099 U	0.01 U	0.0094 U	0.01 U	0.0093 U	0.0098 U	0.0094 U	0.0097 U	0.01 U	0.01 U	0.0096 U	0.01 U	0.01 U
PCB-1221 (Aroclor 1221)	0.00008	0.0098 U	0.01 U	0.0099 U	0.01 U	0.0094 U	0.01 U	0.0093 U	0.0098 U	0.0094 U	0.0097 U	0.01 U	0.01 U	0.0096 U	0.01 U	0.01 U
PCB-1232 (Aroclor 1232)	0.00008	0.0098 U	0.01 U	0.0099 U	0.01 U	0.0094 U	0.01 U	0.0093 U	0.0098 U	0.0094 U	0.0097 U	0.01 U	0.01 U	0.0096 U	0.01 U	0.01 U
PCB-1242 (Aroclor 1242)	0.0012	0.0098 U	0.01 U	0.0099 U	0.01 U	0.0094 U	0.01 U	0.0093 U	0.0098 U	0.0094 U	0.0097 U	0.01 U	0.01 U	0.0096 U	0.01 U	0.01 U
PCB-1248 (Aroclor 1248)	0.0012	0.0098 U	0.01 U	0.0099 U	0.01 U	0.0094 U	0.01 U	0.0093 U	0.0098 U	0.0094 U	0.0097 U	0.01 U	0.01 U	0.0096 U	0.01 U	0.01 U
PCB-1254 (Aroclor 1254)	0.002	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0097 U	0.01 U	0.0097 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
PCB-1260 (Aroclor 1260)	0.0055	0.01 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.0097 U	0.01 U	0.0097 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
PCB-1262 (Aroclor 1262)	--	0.01 U	0.01 U	0.01 U	0.011 U	0.0098 U	0.01 U	0.0097 U	0.01 U	0.0097 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
PCB-1268 (Aroclor 1268)	--	0.01 U	0.01 U	0.01 U	0.011 U	0.0098 U	0.01 U	0.0097 U	0.01 U	0.0097 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
Polychlorinated Biphenyl (PCBs)	--	0.01 U	0.01 U	0.01 U	0.011 U	0.0098 U	0.01 U	0.0097 U	0.01 U	0.0097 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.027 U	0.028 U	0.027 U	0.03 U	0.026 U	0.028 U	0.026 U	0.027 U	0.026 U	0.027 U	0.029 U	0.028 U	0.027 U	0.028 U	0.029 U
1,4-Dioxane (P-Dioxane)	0.000094	0.097 U	0.1 U	0.099 U	0.1 U	0.094 U	0.099 U	0.093 U	0.097 U	0.093 U	0.096 U	0.1 U	0.1 U	0.096 U	0.1 U	0.1 U
2,3,4,6-Tetrachlorophenol	0.018	0.034 U	0.035 U	0.035 U	0.036 U	0.033 U	0.035 U	0.033 U	0.034 U	0.033 U	0.034 U	0.037 U	0.035 U	0.034 U	0.035 U	0.036 U
2,4,5-Trichlorophenol	0.4	0.036 U	0.037 U	0.037 U	0.038 U	0.035 U	0.037 U	0.034 U	0.036 U	0.035 U	0.036 U	0.039 U	0.037 U	0.036 U	0.037 U	0.038 U
2,4,6-Trichlorophenol	0.0012	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.0099 U	0.01 U	0.0098 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U
2,4-Dichlorophenol	0.0023	0.0086 U	0.0088 U	0.0088 U	0.0091 U	0.0083 U	0.0088 U	0.0082 U	0.0086 U	0.0082 U	0.0085 U	0.0092 U	0.0088 U	0.0084 U	0.0088 U	0.0089 U
2,4-Dimethylphenol	0.042	0.08 U	0.082 U	0.08 U	0.085 U	0.077 U	0.082 U	0.076 U	0.08 U	0.076 U	0.079 U	0.086 U	0.082 U	0.079 U	0.082 U	0.083 U
2,4-Dinitrophenol	0.0044	0.27 UJ	0.28 UJ	0.27 UJ	0.29 UJ	0.26 UJ	0.28 UJ	0.26 UJ	0.27 UJ	(0.26 UJ)	0.27 UJ	0.29 UJ	0.28 UJ	0.27 UJ	0.28 UJ	0.29 UJ
2,4-Dinitrotoluene	0.00032	0.014 U	0.015 U	0.015 U	0.015 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.014 U	0.015 U	0.015 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.02 U	0.02 U	0.021 U	0.019 U	0.02 U	0.018 U	0.019 U	0.019 U	0.019 U	0.021 U	0.02 U	0.019 U	0.02 U	0.02 U
2-Chloronaphthalene	0.39	0.0082 U	0.0085 U	0.0084 U	0.0087 U	0.0079 U	0.0084 U	0.0079 U	0.0082 U	0.0079 U	0.0082 U	0.0088 U	0.0085 U	0.0081 U	0.0085 U	0.0086 U
2-Chlorophenol	0.0089	0.0097 U	0.0095 U	0.0094 U	0.0098 U	0.0089 U	0.0094 U	0.0088 U	0.0092 U	0.0088 U	0.0091 U	0.0099 U	0.0095 U	0.0091 U	0.0095 U	0.0096 U
2-Methylnaphthalene	0.019	0.008 U	0.0082 U	0.0081 U	0.0085 U	0.0077 U	0.0082 U	0.0077 U	0.008 U	0.0077 U	0.0079 U	0.0086 U	0.0082 U	0.0079 U	0.0083 U	0.0083 U
2-Methylphenol (O-Cresol)	0.075	0.016 U	0.016 U	0.016 U	0.017 U	0.015 U	0.016 U	0.015 U	0.016 U	0.015 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U
2-Nitroaniline	0.008	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U
2-Nitrophenol	--	0.012 U	0.013 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U	0.013 U	0.013 U
3- And 4- Methylphenol (Total)	--	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0093 U	0.0099 U	0.0092 U	0.0097 U	0.0093 U	0.0096 U	0.01 U	0.0099 U	0.0095 U	0.0099 U	0.01 U
3,3'-Dichlorobenzidine	0.00082	0.041 U	0.042 U	0.041 U	0.043 U	0.039 U	0.041 U	0.039 U	0.041 U	0.039 U	0.04 U	0.043 U	0.042 U	0.04 U	0.042 U	0.042 U
3-Nitroaniline	--	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
4,6-Dinitro-2-Methylphenol	0.00026	0.097 U	0.1 U	0.098 U	0.1 U	0.093 U	0.099 U	0.092 U	0.097 U	0.092 U	0.096 U	0.1 U	0.099 U	0.095 U	0.1 U	0.1 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U
4-Chloro-3-Methylphenol	0.17	0.016 U	0.016 U	0.016 U	0.017 U	0.015 U	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U	0.017 U	0.016 U	0.015 U	0.016 U	0.016 U
4-Chloroaniline	0.00016	0.0093 U	0.0095 U	0.0095 U	0.0099 U	0.009 U	0.0095 U	0.0089 U	0.0093 U	0.0089 U	0.0092 U	0.01 U	0.0095 U	0.0092 U	0.0096 U	0.0097 U
4-Chlorophenyl Phenyl Ether	--	0.011 U	0.011 U	0.011 U	0.012 U	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
4-Nitroaniline	0.0016	0.014 U	0.014 U	0.014 U	0.015 U	0.013 U	0.014 U	0.013 U	0.014 U	0.013 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U
4-Nitrophenol	--	0.17 U	0.18 U	0.18 U	0.19 U	0.17 U	0.18 U	0.17 U	0.17 U	0.17 U	0.17 U	0.19 U	0.18 U	0.17 U	0.18 U	0.18 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Subsurface Soil (mg/kg)**	**CFTP-17**	**CFTP-17**	**CFTP-18**	**CFTP-18**	**CFTP-19**	**CFTP-19**	**CFTP-20**	**CFTP-20**	**CFTP-21**	**CFTP-21**	**CFTP-22**	**CFTP-22**	**CFTP-23**	**CFTP-23**	**CFTP-23-DUP**
Sample Depth		**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**2-4 ft**
Chemical Name		**8/25/2016**	**8/25/2016**	**8/26/2016**	**8/26/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/26/2016**	**8/26/2016**	**8/26/2016**
Acenaphthene	0.55	0.0086 U	0.009 U	0.0089 U	0.0093 U	0.0085 U	0.009 U	0.0084 U	0.0086 U	0.0084 U	0.0087 U	0.0094 U	0.009 U	0.0087 U	0.009 U	0.0091 U
Acenaphthylene	--	0.0093 U	0.0096 U	0.0095 U	0.0099 U	0.009 U	0.0095 U	0.0089 U	0.0093 U	0.0089 U	0.0092 U	0.01 U	0.0095 U	0.0092 U	0.0096 U	0.0097 U
Acetophenone	0.058	0.0079 U	0.0081 U	0.008 U	0.0084 U	0.0076 U	0.0081 U	0.0075 U	0.0079 U	0.0076 U	0.0078 U	0.0085 U	0.0081 U	0.0078 U	0.0081 U	0.0082 U
Anthracene	5.8	0.034 U	0.035 U	0.035 U	0.037 U	0.033 U	0.035 U	0.033 U	0.034 U	0.033 U	0.034 U	0.037 U	0.035 U	0.034 U	0.035 U	0.036 U
Atrazine	0.0002	0.016 U	0.017 U	0.016 U	0.017 U	0.016 U	0.017 U	0.015 U	0.016 U	0.015 U	0.016 U	0.017 U	0.017 U	0.016 U	0.017 U	0.017 U
Benzaldehyde	0.0041	0.028 U	0.028 U	0.028 U	0.029 U	0.027 U	0.028 U	0.026 U	0.028 U	0.027 U	0.027 U	0.03 U	0.028 U	0.027 U	0.028 U	0.029 U
Benzo(A)Anthracene	0.011	0.03 U	0.031 U	0.031 U	0.032 U	0.029 U	0.031 U	0.029 U	0.03 U	0.029 U	0.03 U	0.032 U	0.031 U	0.03 U	0.031 U	0.032 U
Benzo(A)Pyrene	0.029	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 J	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
Benzo(B)Fluoranthene	0.3	0.015 J	0.015 U	0.014 U	0.015 U	0.014 U	0.018 J	0.014 U	0.014 U	0.014 U	0.028 J	0.015 U	0.015 U	0.014 U	0.015 U	0.015 U
Benzo(G,H,I)Perylene	--	0.021 U	0.021 U	0.021 U	0.022 U	0.02 U	0.021 U	0.02 U	0.021 U	0.02 U	0.021 U	0.022 U	0.021 U	0.021 U	0.021 U	0.022 U
Benzo(K)Fluoranthene	2.9	0.016 U	0.016 U	0.016 U	0.017 U	0.015 U	0.016 U	0.015 U	0.016 U	0.015 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U
Benzyl Butyl Phthalate	0.24	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U
Biphenyl (Diphenyl)	0.00087	0.031 U	0.032 U	0.031 U	0.033 U	0.03 U	0.032 U	0.029 U	0.031 U	0.03 U	0.031 U	0.033 U	0.032 U	0.031 U	0.032 U	0.032 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0086 U	0.0088 U	0.0087 U	0.0091 U	0.0083 U	0.0088 U	0.0082 U	0.0086 U	0.0082 U	0.0085 U	0.0092 U	0.0088 U	0.0084 U	0.0088 U	0.0089 U
Bis(2-Chloroisopropyl) Ether	0.026	0.015 U	0.015 U	0.015 U	0.016 U	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.015 U	0.014 U	0.015 U	0.015 U
Caprolactam	0.25	0.026 U	0.027 U	0.027 U	0.028 U	0.025 U	0.027 U	0.025 U	0.026 U	0.025 U	0.026 U	0.028 U	0.027 U	0.026 U	0.027 U	0.027 U
Carbazole	--	0.009 U	0.0093 U	0.0091 U	0.0096 U	0.0087 U	0.009 U	0.0086 U	0.009 U	0.0086 U	0.0089 U	0.0097 U	0.0092 U	0.0089 U	0.0093 U	0.0094 U
Chrysene	9	0.0095 U	0.01 U	0.01 U	0.01 U	0.0095 U	0.013 J	0.0094 U	0.0095 U	0.0095 U	0.018 J	0.011 U	0.01 U	0.0097 U	0.01 U	0.01 U
Dibenz(A,H)Anthracene	0.096	0.019 U	0.019 U	0.019 U	0.02 U	0.018 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U	0.02 U	0.019 U	0.019 U	0.019 U	0.02 U
Dibenzofuran	0.015	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
Diethyl Phthalate	0.61	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.0099 U	0.01 U	0.0099 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U
Dimethyl Phthalate	--	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U
Di-N-Butyl Phthalate	0.23	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
Di-N-Octylphthalate	5.7	0.018 U	0.019 U	0.019 U	0.02 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.02 U	0.019 U	0.018 U	0.019 U	0.019 U
Fluoranthene	8.9	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 J	0.01 U	0.011 U	0.01 U	0.013 J	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U
Fluorene	0.54	0.0079 U	0.0081 U	0.008 U	0.0084 U	0.0076 U	0.0081 U	0.0075 U	0.0079 U	0.0076 U	0.0078 U	0.0085 U	0.0081 U	0.0078 U	0.0081 U	0.0082 U
Hexachlorobenzene	0.00012	0.015 U	0.015 U	0.015 U	0.016 U	0.014 U	0.015 U	0.014 U	0.015 U	0.014 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U
Hexachlorobutadiene	0.00027	0.01 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.0097 U	0.01 U	0.0098 U	0.01 U	0.011 U	0.01 U	0.01 U	0.011 U	0.011 U
Hexachlorocyclopentadiene	0.00013	0.023 U	0.023 U	0.023 U	0.024 U	0.022 U	0.022 U	0.022 U	0.023 U	0.022 U	0.022 U	0.024 U	0.022 U	0.022 U	0.023 U	0.024 U
Hexachloroethane	0.0002	0.013 U	0.014 U	0.013 U	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.014 U	0.012 U	0.014 U	0.014 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.024 U	0.025 U	0.025 U	0.026 U	0.023 U	0.025 U	0.023 U	0.024 U	0.023 U	0.024 U	0.026 U	0.025 U	0.024 U	0.025 U	0.025 U
Isophorone	0.026	0.0079 U	0.008 U	0.0079 U	0.0083 U	0.0075 U	0.008 U	0.0074 U	0.0079 U	0.0075 U	0.0077 U	0.0084 U	0.008 U	0.0077 U	0.008 U	0.0081 U
Naphthalene	0.00054	0.0092 U	0.0095 U	0.0095 U	0.0098 U	0.0089 U	0.0094 U	0.0088 U	0.0092 U	0.0088 U	0.0091 U	0.0099 U	0.0095 U	0.0091 U	0.0095 U	0.0096 U
Nitrobenzene	0.000092	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.013 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U	0.013 U	0.013 U
N-Nitrosodiphenylamine	0.067	0.033 U	0.034 U	0.033 U	0.035 U	0.032 U	0.034 U	0.031 U	0.033 U	0.032 U	0.033 U	0.035 U	0.034 U	0.032 U	0.034 U	0.034 U
Pentachlorophenol	0.000057	0.044 U	0.045 U	0.045 U	0.047 U	0.042 U	0.045 U	0.042 U	0.044 U	0.042 U	0.044 U	0.047 U	0.045 U	0.043 U	0.045 U	0.046 U
Phenanthrene	--	0.0097 U	0.0099 U	0.0098 U	0.01 U	0.0093 U	0.0099 U	0.0092 U	0.0097 U	0.0093 U	0.0098 J	0.01 U	0.0099 U	0.0095 U	0.0099 U	0.01 U
Phenol	0.33	0.012 U	0.012 U	0.012 U	0.013 U	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U
Pyrene	1.3	0.016 U	0.017 U	0.017 U	0.017 U	0.016 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U	0.018 U	0.017 U	0.016 U	0.017 U	0.017 U
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00041 U	0.00028 U	0.00023 U	0.0003 U	0.00044 U	0.0005 U	0.0003 U	0.00031 U	0.00034 U	0.00039 U	0.0004 U	0.0004 U	0.00035 U	0.0003 U	0.00031 U
1,1,2,2-Tetrachloroethane	0.00003	0.00018 U	0.00017 U	0.00015 U	0.00013 U	0.0002 U	0.00023 U	0.00013 U	0.00014 U	0.00015 U	0.00018 U	0.00018 U	0.00018 U	0.00016 U	0.00013 U	0.00014 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00049 U	0.00044 U	0.00039 U	0.00035 U	0.00051 U	0.00058 U	0.00035 U	0.00036 U	0.0004 U	0.00046 U	0.00046 U	0.00046 U	0.00041 U	0.00035 U	0.00035 U
1,1,2-Trichloroethane	0.000013	0.0030 U	0.00028 U	0.00025 U	0.00022 U	0.00032 U	0.00037 U	0.00022 U	0.00023 U	0.00025 U	0.00029 U	0.00029 U	0.00029 U	0.00026 U	0.00022 U	0.00022 U
1,1-Dichloroethane	0.00078	0.00037 U	0.00034 U	0.0003 U	0.00027 U	0.00039 U	0.00045 U	0.00027 U	0.00028 U	0.00031 U	0.00035 U	0.00036 U	0.00035 U	0.00031 U	0.00027 U	0.00027 U
1,1-Dichloroethene	0.01	0.00044 U	0.00041 U	0.00036 U	0.00032 U	0.00047 U	0.00054 U	0.00032 U	0.00033 U	0.00037 U	0.00042 U	0.00043 U	0.00043 U	0.00038 U	0.00033 U	0.00032 U
1,2,3-Trichlorobenzene	0.0021	0.00012 U	0.00011 U	0.000097 U	0.000087 U	0.00013 U	0.00015 U	0.000087 U	0.000089 U	0.000099 U	0.00011 U	0.00012 U	0.00011 U	0.0001 U	0.000087 U	0.000089 U
1,2,4-Trichlorobenzene	0.0012	0.00035 U	0.00032 U	0.00028 U	0.00025 U	0.00037 U	0.00043 U	0.00025 U	0.00026 U	0.00029 U	0.00033 U	0.00034 U	0.00033 U	0.00029 U	0.00025 U	0.00026 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00051 U	0.00047 U	0.00041 U	0.00037 U	0.00054 U	0.00062 U	0.00037 U	0.00038 U	0.00042 U	0.00049 U	0.00049 U	0.00049 U	0.00043 U	0.00037 U	0.00038 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00013 U	0.00012 U	0.00011 U	0.000094 U	0.00014 U	0.00016 U	0.000095 U	0.000097 U	0.00011 U	0.00012 U	0.00013 U	0.00012 U	0.00011 U	0.000095 U	0.000097 U
1,2-Dichlorobenzene	0.03	0.00015 U	0.00014 U	0.00012 U	0.00011 U	0.00016 U	0.00019 U	0.00011 U	0.00011 U	0.00013 U	0.00014 U	0.00015 U	0.00015 U	0.00012 U	0.00011 U	0.00011 U
1,2-Dichloroethane	0.000048	0.00012 U	0.00011 U	0.000097 U	0.000087 U	0.00013 U	0.00015 U	0.000087 U	0.000089 U	0.000099 U	0.00011 U	0.00012 U	0.00011 U	0.0001 U	0.000087 U	0.000089 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	**CFAC Site-Specific Human Health Subsurface Soil (mg/kg)**	**CFTP-17**	**CFTP-17**	**CFTP-18**	**CFTP-18**	**CFTP-19**	**CFTP-19**	**CFTP-20**	**CFTP-20**	**CFTP-21**	**CFTP-21**	**CFTP-22**	**CFTP-22**	**CFTP-23**	**CFTP-23**	**CFTP-23-DUP**
Sample Depth		**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**10-12 ft**	**2-4 ft**	**2-4 ft**
Chemical Name		**8/25/2016**	**8/25/2016**	**8/26/2016**	**8/26/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/25/2016**	**8/26/2016**	**8/26/2016**	**8/26/2016**
1,2-Dichloropropane	0.000047	0.00018 U	0.00017 U	0.00015 U	0.00013 U	0.0002 U	0.00023 U	0.00013 U	0.00014 U	0.00015 U	0.00018 U	0.00018 U	0.00018 U	0.00016 U	0.00013 U	0.00014 U
1,3-Dichlorobenzene	--	0.00013 U	0.00012 U	0.00011 U	0.000094 U	0.00014 U	0.00016 U	0.000095 U	0.000097 U	0.000 U	0.00012 U	0.00013 U	0.00012 U	0.00011 U	0.000095 U	0.000097 U
1,4-Dichlorobenzene	0.00046	0.00014 U	0.00013 U	0.00011 U	0.0001 U	0.00015 U	0.00017 U	0.0001 U	0.00011 U	0.00012 U	0.00013 U	0.00014 U	0.00014 U	0.00012 U	0.0001 U	0.0001 U
2-Hexanone	0.00088	0.001 U	0.00095 U	0.00082 U	0.00074 U	0.0011 U	0.0012 U	0.00074 U	0.00076 U	0.00085 U	0.00097 U	0.00099 U	0.00098 U	0.00087 U	0.00075 U	0.00076 U
Acetone	0.29	0.033	0.038	0.017	0.035	0.0083	0.042	0.0097	0.028	0.02	0.086	0.014	0.033	0.01	0.041	0.062
Benzene	0.00023	0.00021 U	0.0002 U	0.00018 U	0.00016 U	0.0011 J	0.00027 U	0.00016 U	0.00016 U	0.00018 U	0.00021 U	0.00021 U	0.00021 U	0.00018 U	0.00016 U	0.00016 U
Bromochloromethane	0.0021	0.00018 U	0.00017 U	0.00015 U	0.00013 U	0.0002 U	0.00022 U	0.00013 U	0.00013 U	0.00015 U	0.00018 U	0.00018 U	0.00018 U	0.00016 U	0.00013 U	0.00014 U
Bromodichloromethane	0.000036	0.00041 U	0.00038 U	0.00033 U	0.0003 U	0.00044 U	0.0005 U	0.0003 U	0.00031 U	0.00034 U	0.00039 U	0.0004 U	0.0004 U	0.00035 U	0.0003 U	0.00031 U
Bromoform	0.00087	0.00014 U	0.00013 U	0.00011 U	0.0001 U	0.00015 U	0.00017 U	0.0001 U	0.00011 U	0.00012 U	0.00013 U	0.00014 U	0.00014 U	0.00012 U	0.0001 U	0.0001 U
Bromomethane	0.00019	0.00035 U	0.00032 U	0.00028 U	0.00025 U	0.00037 U	0.00043 U	0.00025 U	0.00026 U	0.00029 U	0.00033 U	0.00034 U	0.00033 U	0.00029 U	0.00025 U	0.00026 U
Carbon Disulfide	0.024	0.00047 U	0.00043 U	0.00038 U	0.00034 U	0.00005 U	0.00057 U	0.00034 U	0.00035 U	0.00039 U	0.00045 U	0.00045 U	0.00045 U	0.0004 U	0.00034 U	0.00035 U
Carbon Tetrachloride	0.00018	0.00047 U	0.00043 U	0.00038 U	0.00034 U	0.0005 U	0.00057 U	0.00034 U	0.00035 U	0.00039 U	0.00045 U	0.00045 U	0.00045 U	0.0004 U	0.00034 U	0.00035 U
Chlorobenzene	0.0053	0.00015 U	0.00014 U	0.00012 U	0.00011 U	0.00016 U	0.00019 U	0.00011 U	0.00011 U	0.00012 U	0.00014 U	0.00015 U	0.00015 U	0.00013 U	0.00011 U	0.00011 U
Chloroethane	0.59	0.00038 U	0.00035 U	0.00031 U	0.00028 U	0.0004 U	0.00046 U	0.00028 U	0.00028 U	0.00032 U	0.00036 U	0.00037 U	0.00036 U	0.00032 U	0.00028 U	0.00028 U
Chloroform	0.000061	0.00023 U	0.00021 U	0.00018 U	0.00017 U	0.00024 U	0.00028 U	0.00017 U	0.00017 U	0.00019 U	0.00022 U	0.00022 U	0.00022 U	0.00019 U	0.00017 U	0.00017 U
Chloromethane	0.0049	0.00041 U	0.00038 U	0.00033 U	0.0003 U	0.00044 U	0.0005 U	0.0003 U	0.00031 U	0.00034 U	0.00039 U	0.0004 U	0.0004 U	0.00035 U	0.0003 U	0.00031 U
Cis-1,2-Dichloroethylene	0.0011	0.00024 U	0.00022 U	0.00019 U	0.00017 U	0.00025 U	0.00029 U	0.00017 U	0.00018 U	0.00002 U	0.00023 U	0.00023 U	0.00023 U	0.0002 U	0.00017 U	0.00018 U
Cis-1,3-Dichloropropene	--	0.00016 U	0.00015 U	0.00013 U	0.00012 U	0.00017 U	0.00019 U	0.00012 U	0.00012 U	0.00014 U	0.00016 U	0.00016 U	0.00016 U	0.00014 U	0.00012 U	0.00012 U
Cyclohexane	1.3	0.0005 U	0.00046 U	0.0004 U	0.00036 U	0.0017	0.00049 U	0.00036 U	0.00037 U	0.00042 U	0.00048 U	0.00048 U	0.00048 U	0.00042 U	0.00037 U	0.00037 U
Dibromochloromethane	0.00023	0.00016 U	0.00015 U	0.00013 U	0.00012 U	0.00017 U	0.00020 U	0.00012 U	0.00012 U	0.00014 U	0.00016 U	0.00016 U	0.00016 U	0.00014 U	0.00012 U	0.00012 U
Dichlorodifluoromethane	0.03	0.00035 U	0.00032 U	0.00028 U	0.00025 U	0.00037 U	0.00043 U	0.00025 U	0.00026 U	0.00029 U	0.00033 U	0.00034 U	0.00033 U	0.00029 U	0.00025 U	0.00026 U
Ethylbenzene	0.0017	0.0002 U	0.00018 U	0.00016 U	0.00014 U	0.00054 J	0.00024 U	0.00014 U	0.00015 U	0.00016 U	0.00019 U	0.00019 U	0.00019 U	0.00017 U	0.00014 U	0.00015 U
Isopropylbenzene (Cumene)	0.074	0.00018 U	0.00017 U	0.00015 U	0.00013 U	0.0002 U	0.00023 U	0.00013 U	0.00014 U	0.00015 U	0.00018 U	0.00018 U	0.00018 U	0.00016 U	0.00013 U	0.00014 U
M,P-Xylene	--	0.00012 U	0.00011 U	0.000097 U	0.000087 U	0.0026	0.00015 U	0.000087 U	0.000089 U	0.000099 U	0.00011 U	0.00012 U	0.00011 U	0.0001 U	0.000097 U	0.000099 U
Methyl Acetate	0.41	0.00098 U	0.0082	0.00079 U	0.00071 U	0.0[illegible]	0.0059 J	0.00071 U	0.00073 U	0.00081 U	0.00093 U	0.00095 U	0.00094 U	0.00083 U	0.0014 J	0.0016 J
Methyl Ethyl Ketone (2-Butanone)	0.12	0.0031 J	0.0029 J	0.00068 U	0.0023 J	0.0019 U	0.001 U	0.0061 U	0.00062 U	0.002 J	0.0048 J	0.00081 U	0.0008 U	0.0017 J	0.0027 J	0.003 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0024 U	0.0022 U	0.0019 U	0.0017 U	0.0026 U	0.0029 U	0.0018 U	0.0018 U	0.002 U	0.0023 U	0.0023 U	0.0023 U	0.002 U	0.0018 U	0.0018 U
Methylcyclohexane	--	0.00054 U	0.0005 U	0.00044 U	0.00039 U	0.0041	0.00066 U	0.00039 U	0.00041 U	0.00045 U	0.00052 U	0.00053 U	0.00052 U	0.0005 J	0.0004 U	0.0004 U
Methylene Chloride	0.0027	0.00035 U	0.00032 U	0.00028 U	0.00025 U	0.00037 U	0.0019	0.00025 U	0.00026 U	0.00029 U	0.00033 U	0.00034 U	0.00033 U	0.00029 U	0.00025 U	0.00026 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00017 U	0.00016 U	0.00014 U	0.00012 U	0.0008 J	0.00021 U	0.00013 U	0.00013 U	0.00014 U	0.00017 U	0.00017 U	0.00017 U	0.00015 U	0.00013 U	0.00013 U
Styrene	0.13	0.00016 U	0.00015 U	0.00013 U	0.00011 U	0.00017 U	0.0002 U	0.00012 U	0.00012 U	0.00014 U	0.00016 U	0.00016 U	0.00016 U	0.00014 U	0.00012 U	0.00012 U
Tert-Butyl Methyl Ether	0.0032	0.00018 U	0.00017 U	0.00015 U	0.00013 U	0.0002 U	0.00022 U	0.00013 U	0.00014 U	0.00015 U	0.00018 U	0.00018 U	0.00018 U	0.00016 U	0.00013 U	0.00014 U
Tetrachloroethylene (PCE)	0.0018	0.0003 U	0.00028 U	0.00025 U	0.00022 U	0.00032 U	0.00037 U	0.00022 U	0.00023 U	0.00025 U	0.00029 U	0.00029 U	0.00029 U	0.00026 U	0.00022 U	0.00023 U
Toluene	0.076	0.00021 U	0.00019 U	0.00017 U	0.00048 J	0.0031	0.00025 U	0.00015 U	0.00015 U	0.00017 U	0.0002 U	0.0002 U	0.0002 U	0.00047 J	0.00015 U	0.00015 U
Trans-1,2-Dichloroethene	0.011	0.00042 U	0.00039 U	0.00034 U	0.00031 U	0.00046 U	0.00052 U	0.00031 U	0.00032 U	0.00035 U	0.0004 U	0.00041 U	0.00041 U	0.00036 U	0.00031 U	0.00031 U
Trans-1,3-Dichloropropene	--	0.00011 U	0.0001 U	0.000092 U	0.000079 U	0.00012 U	0.00013 U	0.000079 U	0.000081 U	0.00009 U	0.0001 U	0.00011 U	0.0001 U	0.000092 U	0.000079 U	0.000081 U
Trichloroethylene (TCE)	0.0001	0.00028 U	0.00026 U	0.00023 U	0.0002 U	0.0003 U	0.00035 U	0.00021 U	0.00021 U	0.00023 U	0.00027 U	0.00027 U	0.00027 U	0.00024 U	0.00021 U	0.00021 U
Trichlorofluoromethane	0.33	0.00037 U	0.00034 U	0.00029 U	0.00027 U	0.00039 U	0.00045 U	0.00027 U	0.00028 U	0.00031 U	0.00035 U	0.00036 U	0.00035 U	0.00031 U	0.00027 U	0.00027 U
Vinyl Chloride	0.0000065	0.00042 U	0.00039 U	0.00034 U	0.00031 U	0.00046 U	0.00052 U	0.00031 U	0.00032 U	0.00035 U	0.0004 U	0.00041 U	0.00041 U	0.00036 U	0.00031 U	0.00031 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	--	--	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-011A	CFSB-011	CFSB-122	CFMW-056A	CFMW-057A	CFMW-059A	CFSB-120	CFSB-123	CFSB-124	CFSB-125	CFSB-126	CFSB-127	CFSB-132	CFSB-133	CFMW-061
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/25/2016	5/19/2016	5/19/2016	7/15/2016	7/27/2016	7/22/2016	5/18/2016	5/19/2016	5/19/2016	5/18/2016	5/18/2016	5/18/2016	6/3/2016	6/3/2016	7/12/2016
DIOXIN/FURAN (mg/kg)																
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (mg/kg)																
Aluminum	3000	11000	7460	4740 J	7250	4920	7030	6030	3840 J	6740 J	8380	9010	13800	8400	9040	6980
Antimony	0.035	0.33 UJ	0.4 UJ	0.34 UJ	0.41 UJ	0.34 UJ	0.41 U	0.35 UJ	0.35 UJ	0.35 UJ	0.35 UJ	0.33 UJ	0.35 UJ	0.54 UJ	0.36 UJ	0.41 U
Arsenic	0.0015	4.7	3.3	3.5 J	3.3	2.3	4.6 J+	2.8	2.1 J	5.3 J	4.1	4.5	4.7	9.2	2.8	3.3
Barium	16	139	102 J+	43	44.9	41.2	52.1	30.3	45.1	60.4	87	80	172	53	71.9	87.9
Beryllium	1.9	0.4	0.3 J	0.24 J	0.45	0.21 J	0.77 J	0.3 J	0.22 J	0.33 J	0.48	0.37	0.49	0.42 J	0.26 J	0.36 J
Cadmium	0.069	0.25 U	0.31 U	0.26 U	0.31 U	0.26 U	0.31 U	0.26 U	0.27 U	0.26 U	0.27 U	0.25 U	0.27 U	0.41 U	0.28 U	0.31 U
Calcium	--	45500	4290	29200	20300 J	1820 J+	39900 J	9280	9420	13400	15600	17100	9300	29600	34000	13800
Chromium, Total	--	11.3 J-	9.6	6.3	9.3	12.6	7.8	7.3	6.7	9.9	11	21.3	14	9.7	8.3	12.5
Cobalt	0.027	5.5 J-	3.9	3.7	4.8	4.6	3.8	3.8	3.2	4.7	5.7	5.1	5.7	6.1	5.7	5
Copper	2.8	11.1 J-	10	10.6 J	9.9	12.4	12 J+	9.6	3.7 J	9.2 J	17.4	12.3	10.9	12.1 J-	13 J	14.3
Iron	35	16300	9590	9580	12000	8160	11900	9730	7100	12100	12900	13300	15000	15100	11500	12800
Lead	400	7.7 J-	5.9	6.1	4.2	3.6	5.4 J+	7	3.1	4.8	7.9	6.5	7.7	9.1 J	12 J	5.1
Magnesium	--	17100	6000	6060	8750	5320	13400	8470	6250	8020	10900	12100	11400	12400	11000	8890
Manganese	2.8	486	359	224 J	285	211	293	115	362 J	432 J	424	494	642	174	256	244
Mercury	0.0033	0.016	0.018	0.012 J	0.011 J	0.013 U	0.022	0.012 U	0.012 U	0.012 J	0.026	0.016 J	0.019	0.018 J	0.012 U	0.014 J
Nickel	2.6	12.2 J-	8	6.9	9.3	13.4	8.5	7.1	5.2	9	11.1	10.8	11.6	10.6 J	10.1	11
Potassium	--	1360	536	427	870	574	604	529	475	710	693	733	788	731	975 J+	645
Selenium	0.052	0.31 U	0.38 U	0.32 U	0.39 U	0.31 U	0.38 U	0.33 U	0.33 U	0.32 U	0.33 U	0.31 U	0.33 U	0.7 J	0.34 U	0.39 U
Silver	0.08	0.61 U	0.74 U	0.62 U	0.76 U	0.61 U	0.75 U	0.64 U	0.64 U	0.64 U	0.65 U	0.6 U	0.65 U	0.98 U	0.67 U	0.75 U
Sodium	--	31 U	46.2 J	31.8 U	75.6 J	40.3 J	50.9 J	32.5 U	32.8 U	32.5 U	33.1 U	35.2 J	64.3 J	50 U	34.1 U	58.5 J
Thallium	0.0014	0.13 U	0.15 U	0.13 U	0.16 U	0.13 U	0.15 U	0.13 U	0.13 U	0.13 U	0.13 U	0.12 U	0.12 U	0.2 U	0.14 U	0.16 U
Vanadium	8.6	7.9	6	6.4	9.5	8.3	5.9	6.7	4.9	6.9	8.6	9.3	10.4	11.4	6.1	10.9
Zinc	37	39.8	31.5	23.1	29.5	18.1	27	24.7	16.9	29.3	32.4	31.7	41.3	40.4	38.9	33.6
PESTICIDES (mg/kg)																
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00026 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00065 U
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00098 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00069 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	--	--	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit
Sample Location ID		CFMW-011A	CFSB-011	CFSB-122	CFMW-056A	CFMW-057A	CFMW-059A	CFSB-120	CFSB-123	CFSB-124	CFSB-125	CFSB-126	CFSB-127	CFSB-132	CFSB-133	CFMW-061
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/25/2016	5/19/2016	5/19/2016	7/15/2016	7/27/2016	7/22/2016	5/18/2016	5/19/2016	5/19/2016	5/18/2016	5/18/2016	5/18/2016	6/3/2016	6/3/2016	7/12/2016
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0011 U
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0012 U
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00077 U
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00092 U
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00083 U
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0009 U
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00088 U
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00098 U
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00064 U
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00091 U
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0014 U
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0015 U
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00093 U
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.001 U
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00073 U
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.021 U
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0015 U
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.013	0.0091 U	0.0099 U	0.0099 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0094 U	0.0095 U	0.0095 U	0.0095 U	0.0096 U	0.012 U	0.01 U	0.0094 U
PCB-1221 (Aroclor 1221)	0.00008	0.0091 U	0.0099 U	0.0099 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0094 U	0.0095 U	0.0095 U	0.0095 U	0.0096 U	0.012 U	0.01 U	0.0094 U
PCB-1232 (Aroclor 1232)	0.00008	0.0091 U	0.0099 U	0.0099 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0094 U	0.0095 U	0.0095 U	0.0095 U	0.0096 U	0.012 U	0.01 U	0.0094 U
PCB-1242 (Aroclor 1242)	0.0012	0.0091 U	0.0099 U	0.0099 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0094 U	0.0095 U	0.0095 U	0.0095 U	0.0096 U	0.012 U	0.01 U	0.0094 U
PCB-1248 (Aroclor 1248)	0.0012	0.0091 U	0.0099 U	0.0099 U	0.0093 U	0.0096 U	0.0092 U	0.0094 U	0.0094 U	0.0095 U	0.0095 U	0.0095 U	0.0096 U	0.012 U	0.01 U	0.0094 U
PCB-1254 (Aroclor 1254)	0.002	0.0094 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0098 U	0.0098 U	0.0098 U	0.0098 U	0.01 U	0.012 U	0.011 U	0.0098 U
PCB-1260 (Aroclor 1260)	0.0055	0.0094 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0098 U	0.0098 U	0.0098 U	0.0098 U	0.01 U	0.012 U	0.011 U	0.0098 U
PCB-1262 (Aroclor 1262)	--	0.0094 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0098 U	0.0098 U	0.0098 U	0.0098 U	0.01 U	0.012 U	0.011 U	0.0098 U
PCB-1268 (Aroclor 1268)	--	0.0094 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0098 U	0.0098 U	0.0098 U	0.0098 U	0.01 U	0.012 U	0.011 U	0.0098 U
Polychlorinated Biphenyl (PCBs)	--	0.0094 U	0.01 U	0.01 U	0.0096 U	0.0099 U	0.0095 U	0.0097 U	0.0098 U	0.0098 U	0.0098 U	0.0098 U	0.01 U	0.012 U	0.011 U	0.0098 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	0.00079	0.025 U	0.027 U	0.027 U	0.0[illegible] U	0.026 U	0.025 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.027 U	0.032 U	0.028 U	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	0.091 U	0.098 U	0.098 U	[illegible] U	0.095 U	0.091 U	0.093 U	0.094 U	0.094 U	0.094 U	0.094 U	0.096 U	0.12 U	0.1 U	0.094 U
2,3,4,6-Tetrachlorophenol	0.018	0.032 UJ	0.034 U	0.034 U	[illegible] UJ	0.033 U	0.032 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.034 U	0.041 U	0.035 U	0.033 U
2,4,5-Trichlorophenol	0.4	0.034 UJ	0.036 U	0.036 U	0.034 UJ	0.035 U	0.034 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.036 U	0.044 U	0.038 U	0.035 U
2,4,6-Trichlorophenol	0.0012	0.0096 U	0.01 U	0.01 U	0.0098 UJ	0.01 U	0.0097 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.013 U	0.011 U	0.01 U
2,4-Dichlorophenol	0.0023	0.008 U	0.0096 U	0.0096 U	0.0081 U	0.0084 U	0.008 U	0.0082 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0084 U	0.01 U	0.0089 U	0.0082 U
2,4-Dimethylphenol	0.042	0.074 U	0.08 U	0.08 U	0.076 U	0.078 U	0.075 U	0.077 U	0.077 U	0.077 U	0.078 U	0.077 U	0.079 U	0.097 U	0.083 U	0.077 U
2,4-Dinitrophenol	0.0044	0.26 UR	0.28 U	[illegible]	0.26 UR	0.27 U	0.26 U	0.26 U	0.26 U	0.27 U	0.27 U	0.27 U	0.27 U	0.33 U	0.29 U	0.27 U
2,4-Dinitrotoluene	0.00032	0.013 U	0.014 U	0.014 U	0.014 U	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.017 U	0.015 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.018 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.023 U	0.02 U	0.019 U
2-Chloronaphthalene	0.39	0.0077 U	0.0083 U	0.0083 U	0.0078 U	0.0081 U	0.0077 U	0.0079 U	0.0079 U	0.008 U	0.008 U	0.008 U	0.0081 U	0.01 U	0.0086 U	0.008 U
2-Chlorophenol	0.0089	0.0086 U	0.0093 U	0.0093 U	0.0088 U	0.009 U	0.0087 U	0.0089 U	0.0089 U	0.0089 U	0.009 U	0.0089 U	0.0091 U	0.011 U	0.0096 U	0.0089 U
2-Methylnaphthalene	0.019	0.0075 U	0.0081 U	0.0081 U	0.0076 U	0.0079 U	0.0075 U	0.0077 U	0.0077 U	0.0078 U	0.0078 U	0.0078 U	0.0079 U	0.0097 U	0.0083 U	0.0077 U
2-Methylphenol (O-Cresol)	0.075	0.015 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.019 U	0.016 U	0.015 U
2-Nitroaniline	0.008	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.015 U	0.012 U	0.012 U
2-Nitrophenol	--	0.011 UJ	0.012 U	0.012 U	0.012 UJ	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.015 U	0.013 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.009 U	0.0097 U	0.0097 U	0.0092 U	0.0095 U	0.0091 U	0.0093 U	0.0093 U	0.0094 U	0.0094 U	0.0094 U	0.0095 U	0.012 U	0.01 U	0.0093 U
3,3'-Dichlorobenzidine	0.00082	0.039 U	0.041 U	0.041 U	0.039 U	0.04 U	0.038 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.04 U	0.049 U	0.042 U	0.039 U
3-Nitroaniline	--	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.013 U	0.011 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.09 UJ	0.098 U	0.098 U	0.092 UJ	0.095 U	0.091 U	0.093 U	0.093 U	0.094 U	0.094 U	0.094 U	0.095 U	0.12 U	0.1 U	0.094 U
4-Bromophenyl Phenyl Ether	--	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.014 U	0.012 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.015 U	0.016 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.019 U	0.016 U	0.015 U
4-Chloroaniline	0.00016	0.0087 U	0.0094 U	0.0094 U	0.0089 U	0.0092 U	0.0088 U	0.009 U	0.009 U	0.0091 U	0.0091 U	0.009 U	0.0092 U	0.011 U	0.0097 U	0.009 U
4-Chlorophenyl Phenyl Ether	--	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.01 U
4-Nitroaniline	0.0016	0.013 U	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U	0.017 U	0.014 U	0.013 U
4-Nitrophenol	--	0.16 U	0.18 U	0.18 U	0.17 U	0.17 U	0.16 U	0.17 UJ	0.17 U	0.17 U	0.17 UJ	0.17 UJ	0.17 UJ	0.21 U	0.18 U	0.17 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	--	--	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-011A	CFSB-011	CFSB-122	CFMW-056A	CFMW-057A	CFMW-059A	CFSB-120	CFSB-123	CFSB-124	CFSB-125	CFSB-126	CFSB-127	CFSB-132	CFSB-133	CFMW-061
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/25/2016	5/19/2016	5/19/2016	7/15/2016	7/27/2016	7/22/2016	5/18/2016	5/19/2016	5/19/2016	5/18/2016	5/18/2016	5/18/2016	6/3/2016	6/3/2016	7/12/2016
Acenaphthene	0.55	0.0082 U	0.0089 U	0.0089 U	0.0084 U	0.0086 U	0.0082 U	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.0087 U	0.011 U	0.0091 U	0.0085 U
Acenaphthylene	--	0.0087 U	0.0094 U	0.0094 U	0.0089 U	0.0092 U	0.0088 U	0.009 U	0.009 U	0.009 U	0.0091 U	0.009 U	0.0092 U	0.011 U	0.0097 U	0.009 U
Acetophenone	0.058	0.0074 U	0.008 U	0.008 U	0.0075 U	0.0078 U	0.0074 U	0.0076 U	0.0076 U	0.0077 U	0.0077 U	0.0077 U	0.0078 U	0.0096 U	0.0082 U	0.0076 U
Anthracene	5.8	0.032 U	0.035 U	0.035 U	0.033 U	0.034 U	0.032 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.034 U	0.042 U	0.036 U	0.033 U
Atrazine	0.0002	0.015 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.02 U	0.017 U	0.016 U
Benzaldehyde	0.0041	0.026 U	0.028 U	0.028 U	0.026 U	0.027 U	0.026 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.034 U	0.029 U	0.027 U
Benzo(A)Anthracene	0.011	0.028 U	0.031 U	0.031 U	0.029 U	0.03 U	0.028 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.03 U	0.037 U	0.031 U	0.029 U
Benzo(A)Pyrene	0.029	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.014 J
Benzo(B)Fluoranthene	0.3	0.013 U	0.016 J	0.014 U	0.013 U	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.017 U	0.015 U	0.019 J
Benzo(G,H,I)Perylene	--	0.019 U	0.021 U	0.021 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.021 U	0.025 U	0.022 U	0.02 U
Benzo(K)Fluoranthene	2.9	0.015 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.016 U	0.019 U	0.016 U	0.015 U
Benzyl Butyl Phthalate	0.24	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.014 U	0.012 U	0.081 J
Biphenyl (Diphenyl)	0.00087	0.029 U	0.031 U	0.031 U	0.029 U	0.03 U	0.029 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.031 U	0.038 U	0.032 U	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.014 U	0.012 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.008 U	0.0086 U	0.0086 U	0.0081 U	0.0084 U	0.008 U	0.0082 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0084 U	0.01 U	0.0089 U	0.0083 U
Bis(2-Chloroisopropyl) Ether	0.026	0.014 U	0.015 U	0.015 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.015 U	0.018 U	0.016 U	0.014 U
Bis(2-Ethylhexyl) Phthalate	1.3	0.013 U	0.014 U	0.014 U	0.013 U	0.014 U	0.012 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.017 U	0.015 U	0.028 J
Caprolactam	0.25	0.024 U	0.026 U	0.026 U	0.025 U	0.026 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.026 U	0.032 U	0.027 U	0.025 U
Carbazole	--	0.0084 U	0.0091 U	0.0091 U	0.0086 U	0.0088 U	0.0085 U	0.0087 U	0.0087 U	0.0087 U	0.0087 U	0.0087 U	0.0089 U	0.011 U	0.0094 U	0.0087 U
Chrysene	9	0.0092 U	0.01 U	0.01 U	0.0094 U	0.0097 U	0.0092 U	0.0095 U	0.0095 U	0.0096 U	0.0096 U	0.0096 U	0.0097 U	0.012 U	0.01 U	0.014 J
Dibenz(A,H)Anthracene	0.096	0.018 U	0.019 U	0.019 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.019 U	0.023 U	0.02 U	0.018 U
Dibenzofuran	0.015	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U
Diethyl Phthalate	0.61	0.0096 U	0.01 U	0.01 U	0.0088 U	0.01 U	0.0097 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.013 U	0.011 U	0.01 U
Dimethyl Phthalate	--	0.0098 U	0.011 U	0.011 U	0.01 U	0.011 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.013 U	0.011 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.011 U	0.023 J
Di-N-Octylphthalate	5.7	0.017 U	0.019 U	0.019 U	0.018 U	0.018 U	0.017 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.022 U	0.019 U	0.018 U
Fluoranthene	8.9	0.01 U	0.011 U	0.011 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011 U	0.013 U	0.011 U	0.024 J
Fluorene	0.54	0.0074 U	0.008 U	0.008 U	0.0075 U	0.0078 U	0.0074 U	0.0076 U	0.0076 U	0.0077 U	0.0077 U	0.0077 U	0.0078 U	0.0096 U	0.0082 U	0.0076 U
Hexachlorobenzene	0.00012	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.015 U	0.018 U	0.015 U	0.014 U
Hexachlorobutadiene	0.00027	0.0095 U	0.01 U	0.01 U	0.009 U	0.01 U	0.0096 U	0.0098 U	0.0098 U	0.0099 U	0.0099 U	0.0099 U	0.01 U	0.012 U	0.011 U	0.0099 U
Hexachlorocyclopentadiene	0.00013	0.021 U	0.023 U	0.023 U	0.022 U	0.022 U	0.021 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.027 U	0.024 U	0.022 U
Hexachloroethane	0.0002	0.012 U	0.013 U	0.013 U	0.012 U	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.012 U	0.016 U	0.014 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.023 U	0.024 U	0.024 U	0.023 U	0.024 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.024 U	0.029 U	0.025 U	0.023 U
Isophorone	0.026	0.0073 U	0.0079 U	0.0079 U	0.0074 U	0.0076 U	0.0073 U	0.0075 U	0.0075 U	0.0076 U	0.0076 U	0.0076 U	0.0077 U	0.0095 U	0.0081 U	0.0075 U
Naphthalene	0.00054	0.0086 U	0.0093 U	0.0093 U	0.0088 U	0.009 U	0.0087 U	0.0089 U	0.0089 U	0.009 U	0.009 U	0.0089 U	0.0091 U	0.011 U	0.0096 U	0.0089 U
Nitrobenzene	0.000092	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.014 U	0.012 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.015 U	0.013 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.031 U	0.033 U	0.033 U	0.031 U	0.032 U	0.031 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.04 U	0.034 U	0.032 U
Pentachlorophenol	0.000057	0.041 U	0.044 U	0.044 U	0.042 U	0.043 U	0.041 U	0.042 U	0.042 U	0.043 U	0.043 U	0.043 U	0.043 U	0.053 U	0.046 U	0.042 U
Phenanthrene	--	0.009 U	0.0097 U	0.0097 U	0.0092 U	0.0095 U	0.0091 U	0.0093 U	0.0093 U	0.0094 U	0.0094 U	0.0094 U	0.0095 U	0.012 U	0.01 U	0.017 J
Phenol	0.33	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.014 U	0.012 U	0.011 U
Pyrene	1.3	0.015 U	0.017 U	0.017 U	0.016 U	0.016 U	0.015 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.02 U	0.017 U	0.024 J
VOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,1,1-Trichloroethane	0.28	0.00034 U	0.00023 U	0.00025 U	0.00035 U	0.00033 U	0.00032 U	0.00039 U	0.00041 U	0.00033 U	0.00034 U	0.00039 U	0.00039 U	0.0011 U	0.00079 U	0.00027 U
1,1,2,2-Tetrachloroethane	0.00003	0.00015 U	0.00015 U	0.00016 U	0.00016 UJ	0.00015 U	0.00015 U	0.00017 U	0.00019 U	0.00015 U	0.00015 U	0.00018 U	0.00017 U	0.00051 U	0.00013 U	0.00012 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.0004 U	0.00038 U	0.00041 U	0.00041 U	0.00039 U	0.00038 U	0.00045 U	0.00048 U	0.00039 U	0.0004 U	0.00045 U	0.00045 U	0.0013 U	0.00033 U	0.00032 U
1,1,2-Trichloroethane	0.000013	0.00025 U	0.00024 U	0.00026 U	0.00026 U	0.00025 U	0.00024 U	0.00028 U	0.00031 U	0.00025 U	0.00025 U	0.00029 U	0.00028 U	0.00083 U	0.00021 U	0.0002 U
1,1-Dichloroethane	0.00078	0.00031 U	0.0003 U	0.00031 U	0.00032 U	0.0003 U	0.00029 U	0.00035 U	0.00037 U	0.0003 U	0.00031 U	0.00035 U	0.00035 U	0.001 U	0.00026 U	0.00024 U
1,1-Dichloroethene	0.01	0.00037 U	0.00036 U	0.00038 U	0.00038 U	0.00036 U	0.00035 U	0.00042 U	0.00045 U	0.00036 U	0.00037 U	0.00042 U	0.00042 U	0.0012 U	0.00031 U	0.00029 U
1,2,3-Trichlorobenzene	0.0021	0.000099 U	0.000096 U	0.0001 U	0.0001 U	0.000097 U	0.000094 U	0.00011 U	0.00012 U	0.000096 U	0.000099 U	0.00011 U	0.00011 U	0.00033 U	0.000083 U	0.000079 U
1,2,4-Trichlorobenzene	0.0012	0.00029 U	0.00028 U	0.0003 U	0.0003 U	0.00028 U	0.00027 U	0.00032 U	0.00035 U	0.00028 U	0.00029 U	0.00033 U	0.00033 U	0.00095 U	0.00024 U	0.00023 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00042 U	0.00041 U	0.00043 U	0.00044 U	0.00041 U	0.0004 U	0.00048 U	0.00051 U	0.00041 U	0.00043 U	0.00049 U	0.00048 U	0.0014 U	0.00035 U	0.00034 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.0001 U	0.0001 U	0.00011 U	0.00011 U	0.0001 U	0.0001 U	0.00012 U	0.00013 U	0.00011 U	0.00011 U	0.00012 U	0.00012 U	0.00036 U	0.00009 U	0.000086 U
1,2-Dichlorobenzene	0.03	0.00013 UJ	0.00012 U	0.00013 U	0.00013 U	0.00012 UJ	0.00012 U	0.00014 U	0.00015 U	0.00012 U	0.00013 U	0.00014 U	0.00014 U	0.00042 U	0.00011 U	0.0001 U
1,2-Dichloroethane	0.000048	0.000095 U	0.000096 U	0.0001 U	0.0001 U	0.000097 U	0.000094 U	0.00011 U	0.00012 U	0.000096 U	0.000099 U	0.00011 U	0.00011 U	0.00033 U	0.000083 U	0.000079 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	--	--	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-011A	CFSB-011	CFSB-122	CFMW-056A	CFMW-057A	CFMW-059A	CFSB-120	CFSB-123	CFSB-124	CFSB-125	CFSB-126	CFSB-127	CFSB-132	CFSB-133	CFMW-061
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		6/25/2016	5/19/2016	5/19/2016	7/15/2016	7/27/2016	7/22/2016	5/18/2016	5/19/2016	5/19/2016	5/18/2016	5/18/2016	5/18/2016	6/3/2016	6/3/2016	7/12/2016
1,2-Dichloropropane	0.000047	0.00015 U	0.00015 U	0.00016 U	0.00016 U	0.00015 U	0.00015 U	0.00017 U	0.00019 U	0.00015 U	0.00015 U	0.00018 U	0.00017 U	0.00051 U	0.00013 U	0.00012 U
1,3-Dichlorobenzene	--	0.00011 UJ	0.0001 U	0.00011 U	0.00011 U	0.00011 U	0.0001 U	0.00012 U	0.00013 U	0.00011 U	0.00011 U	0.00012 U	0.00012 U	0.00036 U	0.00009 U	0.00086 U
1,4-Dichlorobenzene	0.00046	0.00012 UJ	0.00011 U	0.00012 U	0.00012 U	0.00011 U	0.00011 U	0.00013 U	0.00014 U	0.00011 U	0.00012 U	0.00013 U	0.00013 U	0.00039 U	0.000098 U	0.000093 U
2-Hexanone	0.00088	0.00084 U	0.00082 U	0.00087 U	0.00087 U	0.00083 U	0.00081 U	0.00095 U	0.001 U	0.00082 U	0.00085 U	0.00097 U	0.00095 U	0.0028 U	0.00071 U	0.0011 J
Acetone	0.29	0.0047 J-	0.019	0.0057	0.00099 U	0.0069 J-	0.01	0.0082	0.0087	0.013	0.017	0.022	0.022	0.025	0.0087	0.021 J+
Benzene	0.00023	0.00018 U	0.00044 J	0.00022 J	0.00019 U	0.00018 U	0.00036 J	0.00066 J	0.00[illegible]	0.00019 J	0.00034 J	0.00024 J	0.0004 J	0.00086 J	0.00015 U	0.00078
Bromochloromethane	0.0021	0.00015 U	0.00015 U	0.00016 U	0.00016 U	0.00015 U	0.00015 U	0.00017 U	0.00[illegible] U	0.00015 U	0.00015 U	0.00018 U	0.00017 U	0.00051 U	0.00013 U	0.00012 U
Bromodichloromethane	0.000036	0.00034 U	0.00033 U	0.00035 U	0.00035 U	0.00033 U	0.00032 U	0.00037 U	0.00041 U	0.00033 U	0.00034 U	0.00039 U	0.00039 U	0.0011 U	0.00029 U	0.00027 U
Bromoform	0.00087	0.00012 U	0.00011 U	0.00012 U	0.00012 UJ	0.00011 UJ	0.00011 U	0.00013 U	0.00014 U	0.00011 U	0.00012 U	0.00013 U	0.00013 U	0.00039 U	0.000098 U	0.000093 U
Bromomethane	0.00019	0.00029 U	0.00028 U	0.0003 U	0.0003 U	0.00028 U	0.00027 U	0.00032 U	0.00035 U	0.00028 U	0.00029 U	0.00033 U	0.00033 U	0.00095 U	0.00024 U	0.00023 U
Carbon Disulfide	0.024	0.00039 U	0.00037 U	0.0004 U	0.0004 U	0.00038 U	0.00056 J	0.00044 U	0.00047 U	0.00039 J	0.0005 J	0.00044 U	0.00079 J	0.0013 U	0.00032 U	0.00093
Carbon Tetrachloride	0.00018	0.00039 U	0.00037 U	0.0004 U	0.0004 UJ	0.00038 U	0.00037 U	0.00[illegible]	0.00047 U	0.00038 U	0.00039 U	0.00044 U	0.00044 U	0.0013 U	0.00032 U	0.00031 U
Chlorobenzene	0.0053	0.00013 U	0.00012 U	0.00013 U	0.00013 U	0.00012 U	0.00012 U	0.[illegible]	0.00015 U	0.00012 U	0.00013 U	0.00014 U	0.00014 U	0.00042 U	0.00011 U	0.0001 U
Chloroethane	0.59	0.00031 U	0.0003 U	0.00032 U	0.00033 U	0.00031 U	0.0003 U	0.[illegible]	0.00038 U	0.00031 U	0.00032 U	0.00036 U	0.0001 U	0.00026 U	0.00025 U	0.00025 U
Chloroform	0.000061	0.00019 U	0.00018 U	0.00019 U	0.0002 U	0.00018 U	0.00018 U	0.[illegible]21 U	0.00023 U	0.00018 U	0.00019 U	0.00022 U	0.00021 U	0.00062 U	0.00016 U	0.00015 U
Chloromethane	0.0049	0.00034 U	0.00033 U	0.00035 U	0.00035 U	0.00033 U	0.00033 U	0.00039 U	0.00041 U	0.00033 U	0.00034 U	0.00039 U	0.00039 U	0.0011 U	0.00029 U	0.00027 U
Cis-1,2-Dichloroethylene	0.0011	0.0002 U	0.00019 U	0.0002 U	0.0002 U	0.00019 U	0.00019 U	0.00022 U	0.00024 U	0.00019 U	0.0002 U	0.00022 U	0.00022 U	0.00065 U	0.00017 U	0.00016 U
Cis-1,3-Dichloropropene	--	0.00013 U	0.00013 U	0.00014 U	0.00014 U	0.00013 U	0.00[illegible]	0.00015 U	0.00016 U	0.00013 U	0.00014 U	0.00016 U	0.00015 U	0.00045 U	0.00011 U	0.00011 U
Cyclohexane	1.3	0.00041 U	0.0004 U	0.00093	0.00044 J	0.00041 U	0.[illegible] U	0.0018	0.0005 U	0.0004 U	0.00049 J	0.00048 U	0.00047 J	0.0019 J	0.00035 U	0.0017
Dibromochloromethane	0.00023	0.00013 U	0.00013 U	0.00014 U	0.00014 UJ	0.00013 U	0.[illegible] U	0.00015 U	0.00016 U	0.00013 U	0.00014 U	0.00016 U	0.00015 U	0.00045 U	0.00011 U	0.00011 U
Dichlorodifluoromethane	0.03	0.00029 U	0.00028 U	0.0003 U	0.0003 UJ	0.00028 U	0.00027 U	0.00032 U	0.00035 U	0.00028 U	0.00029 U	0.00033 U	0.00033 U	0.00095 U	0.00024 U	0.00023 U
Ethylbenzene	0.0017	0.00016 U	0.00016 U	0.00025 J	0.00017 U	0.00016 U	0.0003 J	0.00067 J	0.00021 J	0.00016 U	0.00016 U	0.00019 U	0.00018 U	0.00054 U	0.00014 U	0.00055 J
Isopropylbenzene (Cumene)	0.074	0.00015 U	0.00015 U	0.00016 U	0.00016 U	0.00015 U	0.00015 U	0.00017 U	0.00019 U	0.00015 U	0.00015 U	0.00018 U	0.00017 U	0.00051 U	0.00013 U	0.00012 U
M,P-Xylene	--	0.00009 U	0.00012 J	0.0008 J	0.0001 U	0.00026 J	0.001	0.0022	0.00036 J	0.00009 U	0.00009 U	0.00011 U	0.00011 U	0.0024 J	0.0001 J	0.0014
Methyl Acetate	0.41	0.00081 U	0.0038 J	0.00083 U	0.00084 U	0.00[illegible]	0.00077 U	0.00091 U	0.00098 U	0.0096	0.00081 U	0.0078	0.00092 U	0.0027 U	0.00068 U	0.00065 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.00069 U	0.00067 U	0.00071 U	0.00072 U	0.00044 J-	0.00066 U	0.00078 U	0.00084 U	0.00067 U	0.0007 U	0.0008 U	0.00078 U	0.0023 U	0.00058 U	0.0043
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.002 U	0.0019 U	0.0021 U	0.0021 U	0.002 UJ	0.0019 U	0.0023 U	0.0024 U	0.0019 U	0.002 U	0.0023 U	0.0023 U	0.0066 U	0.0017 U	0.0016 U
Methylcyclohexane	--	0.00045 U	0.0007 J	0.0011	0.0005 J	0.00044 U	0.0012	0.0035	0.00075 J	0.00044 U	0.00091	0.00052 U	0.0007 J	0.0041	0.00038 U	0.0025
Methylene Chloride	0.0027	0.00029 U	0.00028 U	0.0003 U	0.0003 U	0.00028 U	0.00027 U	0.00032 U	0.00035 U	0.00028 U	0.00029 U	0.00033 U	0.00033 U	0.00095 U	0.00024 U	0.00023 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.00014 U	0.00014 U	0.00025 J	0.00014 U	0.00014 U	0.00033 J	0.00072 J	0.00017 U	0.00014 U	0.00014 U	0.00017 U	0.00016 U	0.00073 J	0.00012 U	0.00043 J
Styrene	0.13	0.00013 U	0.00013 U	0.00014 U	0.00014 U	0.00013 U	0.00012 U	0.00015 U	0.00016 U	0.00013 U	0.00014 U	0.00016 U	0.00015 U	0.00045 U	0.00011 U	0.00011 U
Tert-Butyl Methyl Ether	0.0032	0.00015 U	0.00015 U	0.00016 U	0.00016 U	0.00015 U	0.00015 U	0.00017 U	0.00019 U	0.00015 U	0.00015 U	0.00018 U	0.00017 U	0.00051 U	0.00013 U	0.00012 U
Tetrachloroethylene (PCE)	0.0018	0.00025 U	0.00024 U	0.00026 U	0.00026 U	0.00025 U	0.00024 U	0.00028 U	0.00031 U	0.00025 U	0.00025 U	0.00029 U	0.00028 U	0.00083 U	0.00021 U	0.0002 U
Toluene	0.076	0.00017 U	0.00044 J	0.001	0.0006 J	0.00053 J	0.0014	0.0031	0.00068 J	0.00043 J	0.00095	0.00033 J	0.00053 J	0.0031	0.0014 U	0.0025
Trans-1,2-Dichloroethene	0.011	0.00035 U	0.00034 U	0.00036 U	0.00036 U	0.00034 U	0.00033 U	0.0004 U	0.00043 U	0.00034 U	0.00035 U	0.0004 U	0.0004 U	0.0012 U	0.00029 U	0.00028 U
Trans-1,3-Dichloropropene	--	0.00009 U	0.000097 U	0.00009[illegible]	0.000093 U	0.000088 U	0.000086 U	0.0001 U	0.00011 U	0.000088 U	0.00009 U	0.0001 U	0.0001 U	0.0003 U	0.000075 U	0.000072 U
Trichloroethylene (TCE)	0.0001	0.00023 U	0.00023 U	0.00[illegible]	0.00024 U	0.00023 U	0.00022 U	0.00026 U	0.00028 U	0.00023 U	0.00024 U	0.00027 U	0.00026 U	0.00077 U	0.0002 U	0.00019 U
Trichlorofluoromethane	0.33	0.00031 U	0.0003 U	0.00[illegible] U	0.0003 U	0.0003 U	0.00029 U	0.00035 U	0.00037 U	0.0003 U	0.00031 U	0.00035 U	0.00035 U	0.001 U	0.00026 U	0.00024 U
Vinyl Chloride	0.0000065	0.00035 U	0.00034 U	0.00036 U	0.00036 U	0.00034 U	0.00033 U	0.0004 U	0.00043 U	0.00034 U	0.00035 U	0.0004 U	0.0004 U	0.0012 U	0.00029 U	0.00028 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-064	CFSB-101	CFSB-102	CFSB-104	CFSB-109	CFSB-110	CFSB-113	CFSB-114	CFSB-115	CFSB-116	CFSB-118	CFSB-119
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	2-4 ft	10-12 ft	2-4 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		7/11/2016	7/21/2016	7/13/2016	7/13/2016	7/13/2016	7/14/2016	8/31/2016	7/12/2016	8/31/2016	7/22/2016	7/21/2016	7/12/2016
DIOXIN/FURAN (mg/kg)													
1,2,3,4,6,7,8-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3,7,8-Pentachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	0.000000059	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzofurans	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlorodibenzo-p-dioxins (HpCDD), Total	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorodibenzo-P-Dioxin	0.000017	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
Octachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorinated Dibenzo-P-Dioxins, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachloro Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorinated Dibenzofurans, (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachlorodibenzo-P-Dioxin	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (mg/kg)													
Aluminum	3000	7660	6850	7290	5260	4950	5710	4250	6930	6390	6200	8230	8140
Antimony	0.035	0.43 U	0.52 UJ	0.44 UJ	0.43 UJ	0.39 UJ	0.4 UJ	0.3 U	0.41 U	0.27 U	0.48 U	0.45 UJ	0.43 U
Arsenic	0.0015	4.2	3.5	1.7	8.4	1.9	2.6	0.53 J	2.9	1.5	2.7 J+	4.3	6
Barium	16	82.1	55.2	44.5	35.7	38	34.1	53.3	71	94.4	44.2	54.1	87.3
Beryllium	1.9	0.31 J	0.35 J	0.39 J	0.37 J	0.34 J	0.29 J	0.11 J	0.3 J	0.24 J	0.22 J	0.21 J	0.39 J
Cadmium	0.069	0.32 U	0.36 U	0.35 U	0.32 U	0.3 U	0.3 U	0.22 U	0.31 U	0.28 U	0.36 U	0.34 U	0.33 U
Calcium	--	28800	3670	8090	40100	13500	9770	7240	13700	14400	7400 J	33600	25400
Chromium, Total	--	11.3	8.2	6.6 J	5.9 J	6.4 J	6.1 J	2.9	15.2	6.9	8.1	9.6	11.7
Cobalt	0.027	5.2	4	4.2	6.3	3.4	2.8	2	4.5	2.7	4	5	5.3
Copper	2.8	15.8	8	12.4	12	5.7	6.8	3.8	16.2	22.1	8.1 J+	9.9	19.5
Iron	35	14100	12200	10600 J	9110 J	8840 J	10200 J	5800	12900	9260	10800	14100	14200
Lead	400	7	5.6	5.9	6	2.9	3.5	1.8	4.4	3.3	4.4 J+	6	8.3
Magnesium	--	16900	7210	8670	6750	9750	8770	4710	8200	6810	7770	12800	10500
Manganese	2.8	280	78.2	106 J	181 J	286 J	109 J	76.6	216	79.9	120	293	280
Mercury	0.0033	0.022	0.014 U	0.012 U	0.012 U	0.012 U	0.013 U	0.015 J	0.014 J	0.013 J	0.014 U	0.018 J	0.016 J
Nickel	2.6	11.5	8.4	8.3 J	8.3 J	6.7 J	6.5 J	3.5	10.4	7.7	8.3	10.7	11.2
Potassium	--	810	656	472	356	369	439	168	854	491	437	526	794
Selenium	0.052	0.4 U	0.48 U	0.41 U	0.4 U	0.36 U	0.37 U	0.28 U	0.39 U	0.25 U	0.45 U	0.42 U	0.4 U
Silver	0.08	0.78 U	0.95 U	0.81 U	0.78 U	0.71 U	0.73 U	0.58 U	0.75 U	0.52 U	0.87 U	0.82 U	0.79 U
Sodium	--	48.9 J	48.3 U	259	39.9 U	36.4 U	38.9 J	40.4 U	57.5 J	36.1 U	44.6 U	42.1 U	40.3 U
Thallium	0.0014	0.16 U	0.2 U	0.17 U	0.16 U	0.15 U	0.15 U	0.12 U	0.16 U	0.11 U	0.18 U	0.17 U	0.16 U
Vanadium	8.6	14.4	13.6	7.3 J	6.4 J	5.2 J	5.5 J	4	12.5	8.3	9.1	7.4	11.7
Zinc	37	35.1	29	34.4	36.6	24.9	28.5	17.6	29.3	22.4	27.9	36.3	37.9
PESTICIDES (mg/kg)													
Aldrin	0.00015	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.000042	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.00015	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-064	CFSB-101	CFSB-102	CFSB-104	CFSB-109	CFSB-110	CFSB-113	CFSB-114	CFSB-115	CFSB-116	CFSB-118	CFSB-119
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	2-4 ft	10-12 ft	2-4 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		7/11/2016	7/21/2016	7/13/2016	7/13/2016	7/13/2016	7/14/2016	8/31/2016	7/12/2016	8/31/2016	7/22/2016	7/21/2016	7/12/2016
Beta Endosulfan	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.000071	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.0092	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.00024	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00012	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.000028	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0075	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.011	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.077	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.011	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (mg/kg)													
PCB-1016 (Aroclor 1016)	0.013	0.0094 U	0.012 U	0.0097 U	0.0099 U	0.0096 U	0.0094 U	0.0096 U	0.0096 U	0.0095 U	0.011 U	0.011 U	0.0094 U
PCB-1221 (Aroclor 1221)	0.00008	0.0094 U	0.012 U	0.0097 U	0.0099 U	0.0096 U	0.0094 U	0.0096 U	0.0096 U	0.0095 U	0.011 U	0.011 U	0.0094 U
PCB-1232 (Aroclor 1232)	0.00008	0.0094 U	0.012 U	0.0097 U	0.0099 U	0.0096 U	0.0094 U	0.0096 U	0.0096 U	0.0095 U	0.011 U	0.011 U	0.0094 U
PCB-1242 (Aroclor 1242)	0.0012	0.0094 U	0.012 U	0.0097 U	0.0099 U	0.0096 U	0.0094 U	0.0096 U	0.0096 U	0.0095 U	0.011 U	0.011 U	0.0094 U
PCB-1248 (Aroclor 1248)	0.0012	0.0094 U	0.012 U	0.0097 U	0.0099 U	0.0096 U	0.0094 U	0.0096 U	0.0096 U	0.0095 U	0.011 U	0.011 U	0.0094 U
PCB-1254 (Aroclor 1254)	0.002	0.0097 U	0.012 U	0.01 U	0.01 U	0.0099 U	0.0097 U	0.0099 U	0.0099 U	0.0098 U	0.011 U	0.011 U	0.0097 U
PCB-1260 (Aroclor 1260)	0.0055	0.0097 U	0.012 U	0.01 U	0.01 U	0.0099 U	0.0097 U	0.0099 U	0.0099 U	0.0098 U	0.011 U	0.011 U	0.0097 U
PCB-1262 (Aroclor 1262)	--	0.0097 U	0.012 U	0.01 U	0.01 U	0.0099 U	0.0097 U	0.0099 U	0.0099 U	0.0098 U	0.011 U	0.011 U	0.0097 U
PCB-1268 (Aroclor 1268)	--	0.0097 U	0.012 U	0.01 U	0.01 U	0.0099 U	0.0097 U	0.0099 U	0.0099 U	0.0098 U	0.011 U	0.011 U	0.0097 U
Polychlorinated Biphenyl (PCBs)	--	0.0097 U	0.012 U	0.01 U	0.01 U	0.0099 U	0.0097 U	0.0099 U	0.0099 U	0.0098 U	0.011 U	0.011 U	0.0097 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)													
1,2,4,5-Tetrachlorobenzene	0.00079	0.026 UJ	0.032 U	0.027 U	0.027 U	0.027 U	0.026 U	0.027 U	0.027 U	0.026 U	0.03 U	0.03 U	0.026 U
1,4-Dioxane (P-Dioxane)	0.000094	0.093 U	0.12 U	0.097 U	0.098 U	0.095 U	0.093 U	0.095 U	0.095 U	0.094 U	0.11 U	0.11 U	0.093 U
2,3,4,6-Tetrachlorophenol	0.018	0.033 UJ	0.041 U	0.034 U	0.034 U	0.034 U	0.033 U	0.034 U	0.034 U	0.033 U	0.038 U	0.038 U	0.033 UJ
2,4,5-Trichlorophenol	0.4	0.035 UJ	0.043 U	0.036 U	0.036 U	0.035 U	0.035 U	0.036 U	0.035 U	0.035 U	0.04 U	0.04 U	0.035 U
2,4,6-Trichlorophenol	0.0012	0.0099 UJ	0.01 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0099 U
2,4-Dichlorophenol	0.0023	0.0082 UJ	0.01 U	0.0085 U	0.0087 U	0.0084 U	0.0082 U	0.0084 U	0.0084 U	0.0083 U	0.0094 U	0.0095 U	0.0082 U
2,4-Dimethylphenol	0.042	0.077 UJ	0.095 U	0.079 U	0.081 U	0.078 U	0.076 U	0.078 U	0.078 U	0.077 U	0.09 U	0.09 U	0.077 U
2,4-Dinitrophenol	0.0044	0.26 UJ	0.33 U	0.27 U	0.28 U	0.27 U	0.26 U	0.27 U	0.27 U	0.27 U	0.3 U	0.3 U	0.26 U
2,4-Dinitrotoluene	0.00032	0.014 U	0.017 U	0.014 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.016 U	0.016 U	0.014 U
2,6-Dinitrotoluene	0.000067	0.019 U	0.023 U	0.019 U	0.02 U	0.019 U	0.018 U	0.019 U	0.019 U	0.019 U	0.021 U	0.021 U	0.019 U
2-Chloronaphthalene	0.39	0.0073 U	0.0098 U	0.0082 U	0.0083 U	0.0081 U	0.0079 U	0.0081 U	0.0081 U	0.008 U	0.0091 U	0.0091 U	0.0079 U
2-Chlorophenol	0.0089	0.0089 UJ	0.011 U	0.0091 U	0.0093 U	0.0091 U	0.0088 U	0.0091 U	0.0091 U	0.0089 U	0.01 U	0.01 U	0.0089 U
2-Methylnaphthalene	0.019	0.0077 UJ	0.0095 U	0.008 U	0.0081 U	0.0079 U	0.0077 U	0.0079 U	0.0079 U	0.0077 U	0.0088 U	0.029 J	0.0077 U
2-Methylphenol (O-Cresol)	0.075	0.015 UJ	0.019 U	0.016 U	0.016 U	0.016 U	0.015 U	0.016 U	0.016 U	0.015 U	0.017 U	0.017 U	0.015 U
2-Nitroaniline	0.008	0.012 U	0.014 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U
2-Nitrophenol	--	0.012 UJ	0.015 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U
3- And 4- Methylphenol (Total)	--	0.0093 U	0.012 U	0.0096 U	0.0098 U	0.0095 U	0.0092 U	0.0095 U	0.0095 U	0.0093 U	0.011 U	0.011 U	0.0093 U
3,3'-Dichlorobenzidine	0.00082	0.039 U	0.048 U	0.04 U	0.041 U	0.04 U	0.039 U	0.04 U	0.04 U	0.039 U	0.045 U	0.045 U	0.039 U
3-Nitroaniline	--	0.01 U	0.013 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.012 U	0.012 U	0.01 U
4,6-Dinitro-2-Methylphenol	0.00026	0.093 UJ	0.12 U	0.096 U	0.098 U	0.095 U	0.093 U	0.095 U	0.095 U	0.094 U	0.11 U	0.11 U	0.093 U
4-Bromophenyl Phenyl Ether	--	0.011 UJ	0.014 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.013 U	0.011 U
4-Chloro-3-Methylphenol	0.17	0.015 UJ	0.019 U	0.016 U	0.016 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.017 U	0.017 U	0.015 U
4-Chloroaniline	0.00016	0.009 U	0.011 U	0.0093 U	0.0094 U	0.0092 U	0.0089 U	0.0092 U	0.0092 U	0.009 U	0.01 U	0.01 U	0.009 U
4-Chlorophenyl Phenyl Ether	--	0.01 UJ	0.013 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.01 U
4-Nitroaniline	0.0016	0.013 U	0.016 U	0.014 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.015 U	0.015 U	0.013 U
4-Nitrophenol	--	0.17 U	0.21 U	0.17 U	0.18 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.19 U	0.19 U	0.17 U

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Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-064	CFSB-101	CFSB-102	CFSB-104	CFSB-109	CFSB-110	CFSB-113	CFSB-114	CFSB-115	CFSB-116	CFSB-118	CFSB-119
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	2-4 ft	10-12 ft	2-4 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		7/11/2016	7/21/2016	7/13/2016	7/13/2016	7/13/2016	7/14/2016	8/31/2016	7/12/2016	8/31/2016	7/22/2016	7/21/2016	7/12/2016
Acenaphthene	0.55	0.0085 U	0.01 U	0.0087 U	0.0089 U	0.0086 U	0.0084 U	0.0086 U	0.0086 U	0.0085 U	0.0097 U	0.0097 U	0.0085 U
Acenaphthylene	--	0.009 U	0.011 U	0.0093 U	0.0094 U	0.0092 U	0.0089 U	0.0092 U	0.0092 U	0.009 U	0.01 U	0.01 U	0.009 U
Acetophenone	0.058	0.0076 UJ	0.0094 U	0.0079 U	0.008 U	0.0078 U	0.0076 U	0.0077 U	0.0078 U	0.0076 U	0.0087 U	0.0087 U	0.0076 U
Anthracene	5.8	0.033 U	0.041 U	0.034 U	0.035 U	0.034 U	0.033 U	0.034 U	0.034 U	0.033 U	0.038 U	0.038 U	0.033 U
Atrazine	0.0002	0.016 U	0.019 U	0.016 U	0.016 U	0.016 U	0.015 U	0.016 U	0.016 U	0.016 U	0.018 U	0.018 U	0.016 U
Benzaldehyde	0.0041	0.027 UJ	0.032 U	0.028 U	0.028 U	0.027 U	0.026 U	0.027 U	0.027 U	0.027 U	0.03 U	0.031 U	0.027 U
Benzo(A)Anthracene	0.011	0.029 UJ	0.036 U	0.03 U	0.031 U	0.03 U	0.029 U	0.03 U	0.03 U	0.029 U	0.033 U	0.033 U	0.029 U
Benzo(A)Pyrene	0.029	0.017 J	0.013 U	0.011 U	0.011 U	0.011 U	0.01 U	0.024 J	0.011 U	0.025 J	0.012 U	0.012 U	0.019 J
Benzo(B)Fluoranthene	0.3	0.038	0.017 U	0.014 U	0.014 U	0.014 U	0.013 U	0.042	0.014 U	0.055	0.019 J	0.016 U	0.028 J
Benzo(G,H,I)Perylene	--	0.02 J	0.025 U	0.021 U	0.021 U	0.02 U	0.02 U	0.024 J	0.02 U	0.03 J	0.023 U	0.023 U	0.02 U
Benzo(K)Fluoranthene	2.9	0.015 U	0.019 U	0.016 U	0.016 U	0.016 U	0.015 U	0.019 J	0.016 U	0.016 J	0.017 U	0.017 U	0.015 U
Benzyl Butyl Phthalate	0.24	0.011 U	0.013 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U
Biphenyl (Diphenyl)	0.00087	0.03 U	0.037 U	0.031 U	0.031 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.034 U	0.034 U	0.03 U
Bis(2-Chloroethoxy) Methane	0.0013	0.011 UJ	0.013 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.015 J	0.011 U	0.012 U	0.012 U	0.011 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.0000036	0.0082 UJ	0.01 U	0.0085 U	0.0087 U	0.0084 U	0.0082 U	0.0084 U	0.0084 U	0.0083 U	0.0094 U	0.0095 U	0.0082 U
Bis(2-Chloroisopropyl) Ether	0.026	0.014 UJ	0.018 U	0.015 U	0.015 U	0.015 U	0.014 U	0.015 U	0.015 U	0.014 U	0.016 U	0.017 U	0.014 UJ
Bis(2-Ethylhexyl) Phthalate	1.3	0.014 U	0.017 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.039 J	0.014 U	0.016 U	0.016 U	0.014 U
Caprolactam	0.25	0.025 U	0.031 U	0.026 U	0.026 U	0.026 U	0.025 U	0.026 U	0.026 U	0.025 U	0.029 U	0.029 U	0.025 U
Carbazole	--	0.0087 U	0.011 U	0.009 U	0.0091 U	0.0088 U	0.0086 U	0.0088 U	0.0088 U	0.0087 U	0.0099 U	0.01 U	0.0087 U
Chrysene	9	0.021 J-	0.012 U	0.0098 U	0.01 U	0.0097 U	0.0095 U	0.029 J	0.0097 U	0.037 J	0.011 U	0.011 U	0.019 J
Dibenz(A,H)Anthracene	0.096	0.018 U	0.022 U	0.019 U	0.019 U	0.019 U	0.018 U	0.019 U	0.019 U	0.018 U	0.021 U	0.021 U	0.018 U
Dibenzofuran	0.015	0.011 U	0.013 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U
Diethyl Phthalate	0.61	0.0099 U	0.012 U	0.01 U	0.01 U	0.01 U	0.0099 U	0.01 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0099 U
Dimethyl Phthalate	--	0.01 U	0.013 U	0.01 U	0.011 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.012 U	0.012 U	0.01 U
Di-N-Butyl Phthalate	0.23	0.014 J	0.013 U	0.011 U	0.013 J	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.016 J
Di-N-Octylphthalate	5.7	0.018 U	0.022 U	0.018 U	0.019 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.02 U	0.02 U	0.018 U
Fluoranthene	8.9	0.02 J	0.013 U	0.011 U	0.011 U	0.011 U	0.014 J	0.029 J	0.011 J	0.035 J	0.012 U	0.012 U	0.019 J
Fluorene	0.54	0.0076 U	0.0094 U	0.0079 U	0.008 U	0.0078 U	0.0076 U	0.0078 U	0.0078 U	0.0076 U	0.0087 U	0.0087 U	0.0076 U
Hexachlorobenzene	0.00012	0.014 UJ	0.018 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.016 U	0.016 U	0.014 UJ
Hexachlorobutadiene	0.00027	0.0098 UJ	0.012 U	0.01 U	0.01 U	0.01 U	0.0098 U	0.01 U	0.01 U	0.0099 U	0.011 U	0.011 U	0.0098 UJ
Hexachlorocyclopentadiene	0.00013	0.022 U	0.027 U	0.023 U	0.023 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.025 U	0.025 U	0.022 U
Hexachloroethane	0.0002	0.013 UJ	0.016 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.015 U	0.015 U	0.013 U
Indeno(1,2,3-C,D)Pyrene	0.98	0.023 U	0.028 U	0.024 U	0.024 U	0.024 U	0.023 U	0.028 J	0.024 U	0.027 J	0.027 U	0.027 U	0.023 U
Isophorone	0.026	0.0075 UJ	0.0[illegible]	0.0078 U	0.0079 U	0.0077 U	0.0075 U	0.0077 U	0.0077 U	0.0075 U	0.0086 U	0.0086 U	0.0075 U
Naphthalene	0.00054	0.0089 UJ	0.01 U	0.0092 U	0.0093 U	0.0091 U	0.0088 U	0.0091 U	0.0091 U	0.0089 U	0.01 U	0.01 U	0.0089 U
Nitrobenzene	0.000092	0.011 UJ	0.014 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.013 U	0.011 U
N-Nitrosodi-N-Propylamine	0.0000081	0.012 U	0.015 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U
N-Nitrosodiphenylamine	0.067	0.032 U	0.039 U	0.033 U	0.033 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.036 U	0.036 U	0.032 U
Pentachlorophenol	0.000057	0.042 U	0.052 U	0.044 U	0.044 U	0.043 U	0.042 U	0.043 U	0.043 U	0.042 U	0.048 U	0.049 U	0.042 UJ
Phenanthrene	--	0.01 J	0.012 U	0.0096 U	0.0098 U	0.0095 U	0.0092 U	0.017 J	0.0095 U	0.019 J	0.011 U	0.011 U	0.013 J
Phenol	0.33	0.011 UJ	0.014 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	0.012 U	0.011 U	0.013 U	0.013 U	0.011 U
Pyrene	1.3	0.025 J+	0.02 U	0.016 U	0.017 U	0.016 U	0.016 U	0.029 J	0.016 U	0.032 J	0.018 U	0.018 U	0.025 J+
VOLATILE ORGANIC COMPOUNDS (mg/kg)													
1,1,1-Trichloroethane	0.28	0.00058 U	0.00035 U	0.00043 UR	0.00028 U	0.00034 U	0.00023 U	0.00034 U	0.00027 U	0.00033 U	0.0003 U	0.00044 U	0.00032 U
1,1,2,2-Tetrachloroethane	0.00003	0.00026 U	0.00016 U	0.00019 UR	0.00017 U	0.00015 U	0.0001 U	0.00015 U	0.00012 U	0.00015 U	0.00013 U	0.0002 U	0.00014 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2.6	0.00068 UJ	0.00041 U	0.0005 UR	0.00044 U	0.00038 U	0.00026 U	0.00039 U	0.00032 U	0.00039 U	0.00035 U	0.00051 UJ	0.00037 U
1,1,2-Trichloroethane	0.000013	0.00043 U	0.00026 U	0.00032 UR	0.00028 U	0.00025 U	0.00017 U	0.00025 U	0.0002 U	0.00025 U	0.00022 U	0.0002 U	0.00023 U
1,1-Dichloroethane	0.00078	0.00052 U	0.00031 U	0.00039 UR	0.00034 U	0.0003 U	0.0002 U	0.0003 U	0.00024 U	0.0003 U	0.00027 U	0.00039 U	0.00028 U
1,1-Dichloroethene	0.01	0.00063 U	0.00038 U	0.00047 UR	0.00041 U	0.00037 U	0.00025 U	0.00037 U	0.00029 U	0.00036 U	0.00032 U	0.00047 U	0.00034 U
1,2,3-Trichlorobenzene	0.0021	0.00017 U	0.0001 U	0.00012 UR	0.00011 U	0.000098 U	0.000066 U	0.000098 U	0.000079 U	0.000097 U	0.000087 U	0.00013 U	0.000092 U
1,2,4-Trichlorobenzene	0.0012	0.00043 U	0.00029 U	0.00036 UR	0.00032 U	0.00029 U	0.00019 U	0.00029 U	0.00023 U	0.00028 U	0.00025 U	0.00037 U	0.00027 U
1,2-Dibromo-3-Chloropropane	0.00000014	0.00072 U	0.00043 U	0.00053 UR	0.00047 U	0.00042 U	0.00028 U	0.00042 U	0.00034 U	0.00041 U	0.00037 UJ	0.00054 U	0.00039 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0000021	0.00018 U	0.00011 U	0.00014 UR	0.00012 U	0.00011 U	0.000072 U	0.00011 U	0.000086 U	0.00011 U	0.000095 U	0.00014 U	0.0001 U
1,2-Dichlorobenzene	0.03	0.00021 U	0.00012 U	0.00016 UR	0.00014 U	0.00013 U	0.000084 U	0.00013 U	0.0001 U	0.00012 U	0.00011 U	0.00016 U	0.00012 U
1,2-Dichloroethane	0.000048	0.00017 U	0.0001 U	0.00012 UR	0.00011 U	0.000098 U	0.000066 U	0.000098 U	0.000079 U	0.000097 U	0.000087 U	0.00013 U	0.000092 U

Preliminary - Under EPA and MDEQ Review

Table C-1b
Summary of Subsurface Soil Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID	CFAC Site-Specific Human Health Subsurface Soil (mg/kg)	CFMW-064	CFSB-101	CFSB-102	CFSB-104	CFSB-109	CFSB-110	CFSB-113	CFSB-114	CFSB-115	CFSB-116	CFSB-118	CFSB-119
Sample Depth		10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	10-12 ft	2-4 ft	10-12 ft	2-4 ft	10-12 ft	10-12 ft	10-12 ft
Chemical Name		7/11/2016	7/21/2016	7/13/2016	7/13/2016	7/13/2016	7/14/2016	8/31/2016	7/12/2016	8/31/2016	7/22/2016	7/21/2016	7/12/2016
1,2-Dichloropropane	0.000047	0.00026 U	0.00016 U	0.00019 UR	0.00017 U	0.00015 U	0.001 U	0.00015 U	0.00012 U	0.00015 U	0.00013 U	0.002 U	0.00014 U
1,3-Dichlorobenzene	--	0.00018 U	0.00011 U	0.00014 UR	0.00012 U	0.00011 U	0.000072 U	0.00011 U	0.000086 U	0.00011 U	0.000095 U	0.00014 U	0.001 U
1,4-Dichlorobenzene	0.00046	0.0002 U	0.00012 U	0.00015 UR	0.00013 U	0.00012 U	0.000078 U	0.00012 U	0.000093 U	0.00011 U	0.0001 U	0.00015 U	0.00011 U
2-Hexanone	0.00088	0.014 U	0.0087 U	0.011 UR	0.0094 U	0.0084 U	0.0056 U	0.0084 U	0.00076 J	0.00083 UJ	0.0074 U	0.011 U	0.0078 U
Acetone	0.29	0.098	0.011	0.022 J-	0.0048 J	0.019	0.0035	0.018	0.0095 J+	0.01	0.013	0.0095	0.033
Benzene	0.00023	0.0022	0.00062 J	0.00023 UR	0.002 U	0.00027 J	0.00019 J	0.00042 J	0.00018 J	0.00023 J	0.00061 J	0.00013 U	0.00075 J
Bromochloromethane	0.0021	0.00026 U	0.00016 U	0.00019 UR	0.00017 U	0.00015 U	0.0001 U	0.00015 U	0.00012 U	0.00015 U	0.00013 U	0.002 U	0.00014 U
Bromodichloromethane	0.000036	0.00058 U	0.00035 U	0.00043 UR	0.00038 U	0.00034 U	0.00025 U	0.00034 U	0.00027 U	0.00033 U	0.0003 U	0.00044 U	0.00032 U
Bromoform	0.00087	0.0002 U	0.00012 U	0.00015 UR	0.00013 U	0.00012 U	0.000078 U	0.00012 U	0.000093 U	0.00011 U	0.0001 U	0.00015 U	0.00011 U
Bromomethane	0.00019	0.00049 UJ	0.00029 U	0.00036 UR	0.00032 U	0.00029 U	0.00021 U	0.00029 U	0.00023 U	0.00028 U	0.00025 U	0.00037 UJ	0.00027 U
Carbon Disulfide	0.024	0.00088 J-	0.004 U	0.0049 UR	0.0043 U	0.00044 J	0.0024	0.0029	0.0031 U	0.0028	0.0004 J	0.0005 U	0.00026 U
Carbon Tetrachloride	0.00018	0.00066 U	0.004 U	0.0049 UR	0.0043 U	0.0038 U	0.0026 U	0.0028 UJ	0.0031 U	0.0030 UJ	0.0034 U	0.0005 U	0.00026 U
Chlorobenzene	0.0053	0.00021 U	0.00013 U	0.00016 UR	0.00014 U	0.00013 U	0.00004 U	0.00013 U	0.001 U	0.00012 U	0.00011 U	0.00016 U	0.00012 U
Chloroethane	0.59	0.00054 U	0.00032 U	0.0004 UR	0.00035 U	0.00031 U	0.00021 U	0.00031 U	0.00025 U	0.00031 U	0.00028 U	0.0004 U	0.00029 U
Chloroform	0.000061	0.00032 U	0.00019 U	0.00024 UR	0.00021 U	0.00019 U	0.00013 U	0.00019 U	0.00015 U	0.00018 U	0.00017 U	0.00024 U	0.00017 U
Chloromethane	0.0049	0.00058 U	0.00035 U	0.00043 UR	0.00038 U	0.00034 U	0.00023 U	0.00034 U	0.00027 U	0.00033 U	0.0003 U	0.00044 U	0.00032 U
Cis-1,2-Dichloroethylene	0.0011	0.00034 U	0.0002 U	0.00025 UR	0.00022 U	0.00020 U	0.00013 U	0.0002 U	0.00016 U	0.00019 U	0.00017 U	0.00025 U	0.00018 U
Cis-1,3-Dichloropropene	--	0.00023 U	0.00014 U	0.00017 UR	0.00015 U	0.00013 U	0.00009 U	0.00013 U	0.00011 U	0.00013 U	0.00012 U	0.00017 U	0.00012 U
Cyclohexane	1.3	0.0077 J-	0.00095 J+	0.00052 UR	0.00046 U	0.00041 U	0.00065	0.00093	0.00033 U	0.00074 J	0.00036 U	0.00053 U	0.0015
Dibromochloromethane	0.00023	0.00023 U	0.00014 U	0.00017 UR	0.00015 U	0.00013 U	0.00009 U	0.00013 U	0.00011 U	0.00013 U	0.00012 U	0.00017 U	0.00012 U
Dichlorodifluoromethane	0.03	0.00049 U	0.00029 U	0.00036 UR	0.00032 U	0.00028 U	0.00019 U	0.00029 U	0.00023 U	0.00028 U	0.00025 U	0.00037 UJ	0.00027 U
Ethylbenzene	0.0017	0.0032	0.00017 J	0.0002 UR	0.00018 U	0.00017 J	0.00012 J	0.00037 J	0.00026 J	0.00016 U	0.00036 J	0.00021 U	0.00032 J
Isopropylbenzene (Cumene)	0.074	0.00039 J	0.00016 U	0.00019 UR	0.00017 U	0.00015 U	0.001 U	0.00015 U	0.00012 U	0.00015 U	0.00013 U	0.0002 U	0.00014 U
M,P-Xylene	--	0.008	0.00038 J	0.00012 UR	0.00011 U	0.00054 J	0.00028 J	0.00083 J	0.00073	0.00037 J	0.00067 J	0.00043 J	0.00092
Methyl Acetate	0.41	0.0014 U	0.00083 U	0.001 UR	0.0075	0.00081 U	0.00054 U	0.0008 U	0.00065 U	0.00079 U	0.00071 U	0.001 U	0.00075 U
Methyl Ethyl Ketone (2-Butanone)	0.12	0.014	0.00871 U	0.00387 UR	0.00777 U	0.0015 J	0.00546 U	0.0024 J-	0.00655 U	0.0015 J-	0.00361 U	0.0012 J	0.0034 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	0.14	0.0034 U	0.002 U	0.001 U	0.0022 U	0.002 U	0.0013 U	0.002 UJ	0.0016 U	0.002 UJ	0.0018 U	0.0026 U	0.0018 U
Methylcyclohexane	--	0.012	0.0013 J+	0.00057 UR	0.0005 U	0.00083 J	0.00069	0.0013	0.00036 U	0.00089	0.0015	0.00071 J	0.0024
Methylene Chloride	0.0027	0.00049 U	0.00029 U	0.003 J-	0.00032 U	0.00029 U	0.00019 U	0.00029 U	0.00023 U	0.00028 U	0.00025 U	0.00037 U	0.00027 U
O-Xylene (1,2-Dimethylbenzene)	0.019	0.0028	0.00015 U	0.00018 UR	0.00016 U	0.00018 J	0.0001 J	0.00031 J	0.00026 J	0.00014 U	0.00024 J	0.00018 U	0.00028 J
Styrene	0.13	0.00023 U	0.00014 U	0.00017 UR	0.00015 U	0.00013 U	0.00009 U	0.00013 U	0.00011 U	0.00013 U	0.00012 U	0.00017 U	0.00012 U
Tert-Butyl Methyl Ether	0.0032	0.00026 U	0.00016 U	0.00019 UR	0.00017 U	0.00015 U	0.0001 U	0.00015 U	0.00012 U	0.00015 U	0.00013 U	0.0002 U	0.00014 U
Tetrachloroethylene (PCE)	0.0018	0.00043 U	0.00027 U	0.00032 UR	0.00028 U	0.00025 U	0.00017 U	0.00025 U	0.0002 U	0.00025 U	0.00022 U	0.00032 U	0.00023 U
Toluene	0.076	0.01	0.001	0.00022 UR	0.00019 U	0.00088 J	0.00097	0.0013	0.001	0.00067 J	0.0014	0.00063 J	0.002
Trans-1,2-Dichloroethene	0.011	0.0006 U	0.00036 U	0.00044 UR	0.00039 U	0.00035 U	0.00023 U	0.00035 U	0.00028 U	0.00034 U	0.00031 U	0.00045 U	0.00032 U
Trans-1,3-Dichloropropene	--	0.00015 U	0.00092 U	0.00011 UR	0.0001 U	0.00009 U	0.000006 U	0.000089 U	0.000072 U	0.000088 U	0.000079 U	0.00012 U	0.000083 U
Trichloroethylene (TCE)	0.0001	0.0004 U	0.00024 U	0.0003 UR	0.00026 U	0.00023 U	0.00016 U	0.00023 U	0.00019 U	0.00023 U	0.00021 U	0.0003 U	0.00022 U
Trichlorofluoromethane	0.33	0.00054 U	0.00031 U	0.00039 UR	0.00034 U	0.0003 U	0.00021 U	0.0003 U	0.00024 U	0.0003 U	0.00027 U	0.00039 UJ	0.00028 U
Vinyl Chloride	0.0000065	0.0006 U	0.00036 U	0.00044 UR	0.00039 U	0.00035 U	0.00023 U	0.00035 U	0.00028 U	0.00034 U	0.00031 U	0.00045 U	0.00032 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone																
Sample Location ID	**CFAC Site-Specific Human Health Groundwater (µg/l)**	**CFMW-025A**	**CFMW-025A**	**CFMW-025A**	**CFMW-025A**	**CFMW-032A**	**CFMW-032A**	**CFMW-032A**	**CFMW-032A**	**CFMW-044B**	**CFMW-044B**	**CFMW-044B**	**CFMW-044B**	**CFMW-053A**	**CFMW-053A**	**CFMW-053A**
Sample Name		**CFMW-025a-GW**	**CFMW-025a-GW**	**CFMW-025a-GW**	**CFMW-025a-GW**	**CFMW-032a-GW**	**CFMW-032a-GW**	**CFMW-032a-GW**	**CFMW-032a-GW**	**CFMW-044b-GW**	**CFMW-044b-GW**	**CFMW-044b-GW**	**CFMW-044b-GW**	**CFMW-053a-GW**	**CFMW-053a-GW**	**CFMW-053a-GW**
Chemical Name		**9/13/2016**	**12/5/2016**	**3/24/2017**	**6/22/2017**	**9/16/2016**	**12/16/2016**	**3/29/2017**	**6/27/2017**	**9/19/2016**	**12/19/2016**	**3/24/2017**	**6/23/2017**	**9/19/2016**	**12/19/2016**	**3/27/2017**
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	--	422	--	--	--	193 J+	--	--	--	116	--	--	--
Fluoride	80	399	334 J-	524	413	49 J-	225 J	171	241	153	142	176	138 J+	15 U	537	428 J+
Cyanide (Dissolved)	0.15	--	--	--	2 U	--	--	--	2 U	--	--	--	10.1	--	--	--
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	--	--	1.5 U	--	--	--	1.5 U	--	--	--
Cyanide	0.15	2 U	2 U	2 U	2 U	2 U	2 U	3.9 J	2 U	5.9 J	8.2 J	9.8 J	10.5	2 U	2 U	2 U
Cyanide (Free)	--	--	--	--	--	--	--	--	1.5 U	--	--	1.5 U	1.5 U	--	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	22.9 J	18.2 U	23 J	69.3	20.5 J	102	97.5	18.2 U	18.2 U	18.2 U	18.2 U	90.6	115	110
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.86 J	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	1.3 J
Arsenic (Dissolved)	0.052	0.93 J	2.7	1.6 J	1.6 J	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	128	336	121	122	890	269	481	412	87.4	251	309	352	4430	2390	2540
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	38300	137000	38000	37900	628000	253000	436000	404000	13700	31300	37700	40200	922000	593000	588000
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	3.1 J	8.1	7.3	6.6	1.3 U	1.3 U	1.3 U	1.3 U	11.4	1.7 J	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	2.7 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	2.4 J	1.4 U	1.4 U	1.4 U	1.7 J	1.7 J	3.5 J	3.1 J	1.4 U	1.4 U	1.4 U	1.4 U	2.4 J	4.5	8.4
Iron (Dissolved)	1400	174	4350	293	314	42.4 U	42.4 U	42.4 U	42.4 U	732	2200	1760	1400	42.4 U	42.4 U	42.4 U
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.6 J	0.38 U	0.38 U	1.2	0.38 U	0.38 U	0.38 U	0.38 U	0.62 J	0.89 J	1.5
Magnesium (Dissolved)	--	24100	33000	22900	22900	63.6 U	69 J	63.6 U	63.6 U	16500	21500	21500	19700	63.6 U	63.6 U	63.6 U
Manganese (Dissolved)	43	297	1540	225	225	2.5 U	2.5 U	2.5 U	2.5 U	86.2	155	137	140	2.5 U	2.5 U	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	3.4 J
Potassium (Dissolved)	--	2090	2500	1950	2030	21600	3860	7870	17800	2520	1440	1010	950	65200	13500	12400
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	8850	9180	7410	8020	25400	11900	13900	16400	3900	4060	4020	4340	102000	47500	92700
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	26.6	7.2 J	7 U	7 U	7 U
Aluminum	2000	--	--	--	6370	--	--	--	195	--	--	--	40.9	--	--	--
Antimony	0.78	--	--	--	0.62 U	--	--	--	0.64 J	--	--	--	0.62 U	--	--	--
Arsenic	0.052	--	--	--	5.3	--	--	--	0.64 U	--	--	--	0.64 U	--	--	--
Barium	380	--	--	--	232	--	--	--	464	--	--	--	374	--	--	--
Beryllium	2.5	--	--	--	0.38 J	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--
Cadmium	0.92	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--
Calcium	--	--	--	--	48200	--	--	--	390000	--	--	--	41100	--	--	--
Chromium, Total	100	--	--	--	8.7	--	--	--	7.4	--	--	--	1.3 U	--	--	--
Cobalt	0.6	--	--	--	4.4	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--
Copper	80	--	--	--	13.2	--	--	--	7.9	--	--	--	1.4 U	--	--	--
Iron	1400	--	--	--	7860	--	--	--	181	--	--	--	4880	--	--	--
Lead	15	--	--	--	7.7	--	--	--	1 J	--	--	--	3.9	--	--	--
Magnesium	--	--	--	--	26200	--	--	--	259	--	--	--	22500	--	--	--
Manganese	43	--	--	--	347	--	--	--	3.8 J	--	--	--	169	--	--	--
Mercury	0.063	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--
Nickel	39	--	--	--	7.6	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--
Potassium	--	--	--	--	3110	--	--	--	16200	--	--	--	1000	--	--	--
Selenium	10	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--
Silver	9.4	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--
Sodium	--	--	--	--	7370	--	--	--	17700	--	--	--	4840	--	--	--
Thallium	0.02	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--
Vanadium	9	--	--	--	5.2	--	--	--	1.9 U	--	--	--	1.9 U	--	--	--
Zinc	600	--	--	--	45.5	--	--	--	11.3 J	--	--	--	384	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone																
Sample Location ID	**CFAC Site-Specific Human Health Groundwater (µg/l)**	**CFMW-025A**	**CFMW-025A**	**CFMW-025A**	**CFMW-025A**	**CFMW-032A**	**CFMW-032A**	**CFMW-032A**	**CFMW-032A**	**CFMW-044B**	**CFMW-044B**	**CFMW-044B**	**CFMW-044B**	**CFMW-053A**	**CFMW-053A**	**CFMW-053A**
Sample Name		**CFMW-025a-GW**	**CFMW-025a-GW**	**CFMW-025a-GW**	**CFMW-025a-GW**	**CFMW-032a-GW**	**CFMW-032a-GW**	**CFMW-032a-GW**	**CFMW-032a-GW**	**CFMW-044b-GW**	**CFMW-044b-GW**	**CFMW-044b-GW**	**CFMW-044b-GW**	**CFMW-053a-GW**	**CFMW-053a-GW**	**CFMW-053a-GW**
Chemical Name		**9/13/2016**	**12/5/2016**	**3/24/2017**	**6/22/2017**	**9/16/2016**	**12/16/2016**	**3/29/2017**	**6/27/2017**	**9/19/2016**	**12/19/2016**	**3/24/2017**	**6/23/2017**	**9/19/2016**	**12/19/2016**	**3/27/2017**
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	---	---	---	---	---	---	---	---	0.43 U	0.45 U	0.43 U	0.43 U	---	---	---
1,4-Dioxane (P-Dioxane)	0.46	---	---	---	---	---	---	---	---	3.1 U	3.3 U	3.1 U	3.1 U	---	---	---
2,3,4,6-Tetrachlorophenol	24	---	---	---	---	---	---	---	---	0.69 U	0.73 U	0.69 U	0.69 U	---	---	---
2,4,5-Trichlorophenol	120	---	---	---	---	---	---	---	---	0.49 U	0.52 U	0.49 U	0.49 U	---	---	---
2,4,6-Trichlorophenol	1.2	---	---	---	---	---	---	---	---	0.53 U	0.56 U	0.53 U	0.53 U	---	---	---
2,4-Dichlorophenol	4.6	---	---	---	---	---	---	---	---	0.63 U	0.66 U	0.63 U	0.63 U	---	---	---
2,4-Dimethylphenol	36	---	---	---	---	---	---	---	---	0.91 U	0.96 U	0.91 U	0.91 U	---	---	---
2,4-Dinitrophenol	3.9	---	---	---	---	---	---	---	---	2.4 U	2.5 U	2.4 U	2.4 U	---	---	---
2,4-Dinitrotoluene	0.24	---	---	---	---	---	---	---	---	1 U	1.1 U	1 U	1 U	---	---	---
2,6-Dinitrotoluene	0.049	---	---	---	---	---	---	---	---	0.88 U	0.93 U	0.88 U	0.88 U	---	---	---
2-Chloronaphthalene	75	---	---	---	---	---	---	---	---	0.61 U	0.64 U	0.61 U	0.61 U	---	---	---
2-Chlorophenol	9.1	---	---	---	---	---	---	---	---	0.74 U	0.78 U	0.74 U	0.74 U	---	---	---
2-Methylnaphthalene	3.6	---	---	---	---	---	---	---	---	0.88 U	0.93 U	0.88 U	0.88 U	---	---	---
2-Methylphenol (O-Cresol)	93	---	---	---	---	---	---	---	---	1.3 U	1.4 U	1.3 U	1.3 U	---	---	---
2-Nitroaniline	19	---	---	---	---	---	---	---	---	0.65 U	0.69 U	0.65 U	0.65 UJ	---	---	---
2-Nitrophenol	--	---	---	---	---	---	---	---	---	0.59 U	0.62 U	0.59 U	0.59 U	---	---	---
3- And 4- Methylphenol (Total)	--	---	---	---	---	---	---	---	---	0.88 U	1.4 J	0.88 U	0.88 U	---	---	---
3,3'-Dichlorobenzidine	0.13	---	---	---	---	---	---	---	---	1 U	1.1 U	1 U	1 U	---	---	---
3-Nitroaniline	--	---	---	---	---	---	---	---	---	0.82 U	0.86 U	0.82 U	0.82 U	---	---	---
4,6-Dinitro-2-Methylphenol	0.15	---	---	---	---	---	---	---	---	2 U	2.1 U	2 U	2 U	---	---	---
4-Bromophenyl Phenyl Ether	--	---	---	---	---	---	---	---	---	1 U	1.1 U	1 U	1 U	---	---	---
4-Chloro-3-Methylphenol	140	---	---	---	---	---	---	---	---	0.76 U	0.8 U	0.76 U	0.76 U	---	---	---
4-Chloroaniline	0.37	---	---	---	---	---	---	---	---	0.73 U	0.77 U	0.73 U	0.73 U	---	---	---
4-Chlorophenyl Phenyl Ether	--	---	---	---	---	---	---	---	---	0.96 U	1 U	0.96 U	0.96 U	---	---	---
4-Nitroaniline	3.8	---	---	---	---	---	---	---	---	0.48 U	0.51 U	0.48 U	0.48 UJ	---	---	---
4-Nitrophenol	50	---	---	---	---	---	---	---	---	4.7 U	4.9 U	4.7 U	4.7 UJ	---	---	---
Acenaphthene	53	---	---	---	---	---	---	---	---	0.88 U	0.93 U	0.88 U	0.88 UJ	---	---	---
Acenaphthylene	--	---	---	---	---	---	---	---	---	0.65 U	0.69 U	0.65 U	0.65 U	---	---	---
Acetophenone	190	---	---	---	---	---	---	---	---	1 U	1.1 U	1 U	1 U	---	---	---
Anthracene	180	---	---	---	---	---	---	---	---	0.57 U	0.6 U	0.57 U	0.57 U	---	---	---
Atrazine	0.3	---	---	---	---	---	---	---	---	0.77 U	0.81 U	0.77 U	0.77 U	---	---	---
Benzaldehyde	19	---	---	---	---	---	---	---	---	0.86 U	0.91 U	0.86 U	0.86 U	---	---	---
Benzo(A)Anthracene	0.03	---	---	---	---	---	---	---	---	0.55 U	0.58 U	0.55 U	0.55 U	---	---	---
Benzo(A)Pyrene	0.025	---	---	---	---	---	---	---	---	0.16 U	0.17 U	0.16 U	0.16 U	---	---	---
Benzo(B)Fluoranthene	0.25	---	---	---	---	---	---	---	---	0.44 U	0.46 U	0.44 U	0.44 U	---	---	---
Benzo(G,H,I)Perylene	--	---	---	---	---	---	---	---	---	0.75 U	0.79 U	0.75 U	0.75 U	---	---	---
Benzo(K)Fluoranthene	2.5	---	---	---	---	---	---	---	---	0.18 U	0.19 U	0.18 U	0.18 U	---	---	---
Benzyl Butyl Phthalate	1	---	---	---	---	---	---	---	---	0.6 U	0.63 U	0.6 U	0.6 U	---	---	---
Biphenyl (Diphenyl)	0.083	---	---	---	---	---	---	---	---	0.63 U	0.66 UJ	0.63 U	0.63 U	---	---	---
Bis(2-Chloroethoxy) Methane	5.9	---	---	---	---	---	---	---	---	0.69 U	0.73 U	0.69 U	0.69 U	---	---	---
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	---	---	---	---	---	---	---	---	0.12 U	0.13 UJ	0.12 U	0.12 U	---	---	---
Bis(2-Chloroisopropyl) Ether	71	---	---	---	---	---	---	---	---	0.93 U	0.98 U	0.93 U	0.93 UJ	---	---	---
Bis(2-Ethylhexyl) Phthalate	5.6	---	---	---	---	---	---	---	---	0.72 U	0.76 U	0.72 U	0.72 U	---	---	---
Caprolactam	990	---	---	---	---	---	---	---	---	1.1 U	1.1 U	1.1 UJ	1.1 U	---	---	---
Carbazole	--	---	---	---	---	---	---	---	---	0.85 U	0.9 U	0.85 U	0.85 U	---	---	---
Chrysene	25	---	---	---	---	---	---	---	---	0.67 U	0.71 U	0.67 U	0.67 U	---	---	---
Dibenz(A,H)Anthracene	0.025	---	---	---	---	---	---	---	---	0.09 U	0.095 U	0.09 U	0.09 U	---	---	---
Dibenzofuran	0.79	---	---	---	---	---	---	---	---	0.85 U	0.9 U	0.85 U	0.85 U	---	---	---
Diethyl Phthalate	600	---	---	---	---	---	---	---	---	1 U	1.1 UJ	1 U	1 U	---	---	---
Dimethyl Phthalate	2000	---	---	---	---	---	---	---	---	0.98 U	1 UJ	0.98 U	0.98 U	---	---	---
Di-N-Butyl Phthalate	20	---	---	---	---	---	---	---	---	0.82 U	0.86 U	0.82 UJ	0.82 U	---	---	---
Di-N-Octylphthalate	20	---	---	---	---	---	---	---	---	0.69 U	0.73 U	0.69 U	0.69 U	---	---	---
Fluoranthene	20	---	---	---	---	---	---	---	---	0.72 U	0.76 U	0.72 U	0.72 U	---	---	---
Fluorene	29	---	---	---	---	---	---	---	---	0.8 U	0.84 U	0.8 U	0.8 U	---	---	---
Hexachlorobenzene	0.0098	---	---	---	---	---	---	---	---	0.47 U	0.5 U	0.47 U	0.47 U	---	---	---
Hexachlorobutadiene	0.14	---	---	---	---	---	---	---	---	0.76 U	0.8 U	0.76 U	0.76 U	---	---	---

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone															
Sample Location ID	**CFAC Site-Specific Human Health Groundwater (µg/l)**	**CFMW-025A**	**CFMW-025A**	**CFMW-025A**	**CFMW-025A**	**CFMW-032A**	**CFMW-032A**	**CFMW-032A**	**CFMW-032A**	**CFMW-044B**	**CFMW-044B**	**CFMW-044B**	**CFMW-044B**	**CFMW-053A**	**CFMW-053A**	**CFMW-053A**
Sample Name		**CFMW-025a-GW**	**CFMW-025a-GW**	**CFMW-025a-GW**	**CFMW-025a-GW**	**CFMW-032a-GW**	**CFMW-032a-GW**	**CFMW-032a-GW**	**CFMW-032a-GW**	**CFMW-044b-GW**	**CFMW-044b-GW**	**CFMW-044b-GW**	**CFMW-044b-GW**	**CFMW-053a-GW**	**CFMW-053a-GW**	**CFMW-053a-GW**
Chemical Name		**9/13/2016**	**12/5/2016**	**3/24/2017**	**6/22/2017**	**9/16/2016**	**12/16/2016**	**3/29/2017**	**6/27/2017**	**9/19/2016**	**12/19/2016**	**3/24/2017**	**6/23/2017**	**9/19/2016**	**12/19/2016**	**3/27/2017**
Hexachlorocyclopentadiene	0.041	---	---	---	---	---	---	---	---	0.61 U	0.64 U	0.61 UJ	0.61 U	---	---	---
Hexachloroethane	0.33	---	---	---	---	---	---	---	---	0.09 U	0.095 U	0.09 U	0.09 U	---	---	---
Indeno(1,2,3-C,D)Pyrene	0.25	---	---	---	---	---	---	---	---	0.21 U	0.22 U	0.21 U	0.21 U	---	---	---
Isophorone	78	---	---	---	---	---	---	---	---	0.67 U	0.71 U	0.67 U	0.67 U	---	---	---
Naphthalene	0.17	---	---	---	---	---	---	---	---	0.8	0.84 U	0.8 U	0.8 U	---	---	---
Nitrobenzene	0.14	---	---	---	---	---	---	---	---	0.49	0.52 U	0.49 U	0.49 U	---	---	---
N-Nitrosodi-N-Propylamine	0.011	---	---	---	---	---	---	---	---	0.83 U	0.88 U	0.83 U	0.83 U	---	---	---
N-Nitrosodiphenylamine	12	---	---	---	---	---	---	---	---	0.74 U	0.78 U	0.74 U	0.74 U	---	---	---
Pentachlorophenol	0.041	---	---	---	---	---	---	---	---	2.2 U	2.3 U	2.2 U	2.2 U	---	---	---
Phenanthrene	--	---	---	---	---	---	---	---	---	0.65 U	0.69 U	0.65 U	0.65 U	---	---	---
Phenol	580	---	---	---	---	---	---	---	---	0.41 U	0.43 U	0.41 U	0.41 U	---	---	---
Pyrene	12	---	---	---	---	---	---	---	---	0.83 U	0.89 U	0.83 U	0.83 U	---	---	---
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	---	---	---	---	---	---	---	---	0.28 U	0.29 U	0.28 U	0.28 U	---	---	---
1,1,2,2-Tetrachloroethane	0.076	---	---	---	---	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 UJ	---	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	---	---	---	---	---	---	---	---	0.34 U	0.34 UJ	0.34 U	0.34 U	---	---	---
1,1,2-Trichloroethane	0.041	---	---	---	---	---	---	---	---	0.08 U	0.08 U	0.08 U	0.08 U	---	---	---
1,1-Dichloroethane	2.8	---	---	---	---	---	---	---	---	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---
1,1-Dichloroethene	7	---	---	---	---	---	---	---	---	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---
1,2,3-Trichlorobenzene	0.7	---	---	---	---	---	---	---	---	0.35 U	0.35 U	0.35 U	0.35 U	---	---	---
1,2,4-Trichlorobenzene	0.4	---	---	---	---	---	---	---	---	0.27 U	0.27 U	0.27 U	0.27 U	---	---	---
1,2-Dibromo-3-Chloropropane	0.00033	---	---	---	---	---	---	---	---	0.23 U	0.23 U	0.23 U	0.23 UJ	---	---	---
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	---	---	---	---	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---
1,2-Dichlorobenzene	30	---	---	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---
1,2-Dichloroethane	0.17	---	---	---	---	---	---	---	---	0.28 J	0.25 U	0.25 U	0.25 UJ	---	---	---
1,2-Dichloropropane	0.14	---	---	---	---	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---
1,3-Dichlorobenzene	600	---	---	---	---	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---
1,4-Dichlorobenzene	0.48	---	---	---	---	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---
2-Hexanone	3.8	---	---	---	---	---	---	---	---	0.72 U	0.72 U	0.72 U	0.72 U	---	---	---
Acetone	1400	---	---	---	---	---	---	---	---	1.1 U	1.1 U	4.9 J	1.1 U	---	---	---
Benzene	0.46	---	---	---	---	---	---	---	---	0.09 U	0.09 U	0.09 U	0.09 U	---	---	---
Bromochloromethane	8.3	---	---	---	---	---	---	---	---	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---
Bromodichloromethane	0.13	---	---	---	---	---	---	---	---	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---
Bromoform	3.3	---	---	---	---	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---
Bromomethane	0.75	---	---	---	---	---	---	---	---	0.18 U	0.18 UJ	0.18 U	0.18 UJ	---	---	---
Carbon Disulfide	81	---	---	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 UJ	---	---	---
Carbon Tetrachloride	0.46	---	---	---	---	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---
Chlorobenzene	7.8	---	---	---	---	---	---	---	---	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---
Chloroethane	2100	---	---	---	---	---	---	---	---	0.37 UJ	0.37 U	0.37 U	0.37 U	---	---	---
Chloroform	0.22	---	---	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---
Chloromethane	19	---	---	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 UJ	---	---	---
Cis-1,2-Dichloroethylene	3.6	---	---	---	---	---	---	---	---	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---
Cis-1,3-Dichloropropene	4	---	---	---	---	---	---	---	---	0.16 U	0.16 U	0.16 U	0.16 U	---	---	---
Cyclohexane	1300	---	---	---	---	---	---	---	---	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---
Dibromochloromethane	0.87	---	---	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---
Dichlorodifluoromethane	20	---	---	---	---	---	---	---	---	3.1	3.5 J	0.81 J	0.14 UJ	---	---	---
Ethylbenzene	1.5	---	---	---	---	---	---	---	---	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---
Isopropylbenzene (Cumene)	45	---	---	---	---	---	---	---	---	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---
M,P-Xylene	--	---	---	---	---	---	---	---	---	0.28 U	0.29 U	0.28 U	0.28 U	---	---	---
Methyl Acetate	2000	---	---	---	---	---	---	---	---	0.58 U	0.58 U	0.58 U	0.58 U	---	---	---
Methyl Ethyl Ketone (2-Butanone)	560	---	---	---	---	---	---	---	---	2.2 U	2.2 U	2.2 U	2.2 U	---	---	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	---	---	---	---	---	---	---	---	0.63 U	0.63 U	0.63 U	0.63 U	---	---	---
Methylcyclohexane	--	---	---	---	---	---	---	---	---	0.22 U	0.22 UJ	0.22 U	0.22 U	---	---	---
Methylene Chloride	5	---	---	---	---	---	---	---	---	0.21 U	0.21 U	0.21 U	0.21 U	---	---	---
O-Xylene (1,2-Dimethylbenzene)	19	---	---	---	---	---	---	---	---	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---
Styrene	100	---	---	---	---	---	---	---	---	0.17 U	0.17 U	0.17 U	0.17 U	---	---	---
Tert-Butyl Methyl Ether	14	---	---	---	---	---	---	---	---	0.13 U	0.13 U	0.13 U	0.13 U	---	---	---

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Groundwater (µg/l)	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit
Sample Water Bearing Zone																
Sample Location ID		CFMW-025A	CFMW-025A	CFMW-025A	CFMW-025A	CFMW-032A	CFMW-032A	CFMW-032A	CFMW-032A	CFMW-044B	CFMW-044B	CFMW-044B	CFMW-044B	CFMW-053A	CFMW-053A	CFMW-053A
Sample Name		CFMW-025a-GW	CFMW-025a-GW	CFMW-025a-GW	CFMW-025a-GW	CFMW-032a-GW	CFMW-032a-GW	CFMW-032a-GW	CFMW-032a-GW	CFMW-044b-GW	CFMW-044b-GW	CFMW-044b-GW	CFMW-044b-GW	CFMW-053a-GW	CFMW-053a-GW	CFMW-053a-GW
Chemical Name		9/13/2016	12/5/2016	3/24/2017	6/22/2017	9/16/2016	12/16/2016	3/29/2017	6/27/2017	9/19/2016	12/19/2016	3/24/2017	6/23/2017	9/19/2016	12/19/2016	3/27/2017
Tetrachloroethylene (PCE)	4.1	---	---	---	---	---	---	---	---	0.12 U	0.12 U	0.12 U	0.12 U	---	---	---
Toluene	110	---	---	---	---	---	---	---	---	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---
Trans-1,2-Dichloroethene	36	---	---	---	---	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---
Trans-1,3-Dichloropropene	2	---	---	---	---	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---
Trichloroethylene (TCE)	0.28	---	---	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---
Trichlorofluoromethane	520	---	---	---	---	---	---	---	---	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---
Vinyl Chloride	0.019	---	---	---	---	---	---	---	---	0.06 U	0.06 U	0.06 U	0.06 U	---	---	---

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-053A	CFMW-025B	CFMW-025B	CFMW-025B	CFMW-025B	CFMW-026	CFMW-026	CFMW-026	CFMW-026	CFMW-028	CFMW-028	CFMW-028	CFMW-028	CFMW-028A	CFMW-028A
Sample Name		CFMW-053a-GW	CFMW-025b-GW	CFMW-025b-GW	CFMW-25B-GW	CFMW-025b-GW	CFMW-026-GW	CFMW-026-GW	CFMW-026-GW	CFMW-026-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028a-GW	CFMW-028a-GW
Chemical Name		6/28/2017	9/13/2016	12/7/2016	3/20/2017	6/22/2017	9/13/2016	12/5/2016	3/20/2017	6/22/2017	9/13/2016	12/5/2016	3/20/2017	6/26/2017	9/20/2016	12/9/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	595 J+	--	--	--	525	--	--	--	1260	--	--	--	3770	--	--
Fluoride	80	487 J-	585	970 J-	828	515	1650	1440 J-	2010	1150	3170 J+	3130 J-	4400	3800 J+	1020	557 J-
Cyanide (Dissolved)	0.15	2 U	--	--	--	2 U	--	--	--	2 U	--	--	--	304	--	--
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	--	--	--	1.5	--	--	--	10.5	--	--
Cyanide	0.15	2 U	2 U	2 U	2 U	2 U	3.9 J	3.4 J	7.5 J	2 U	104	195	283	315	2 J	2.9 J
Cyanide (Free)	--	--	--	--	--	--	--	--	1.5 U	1.5 U	--	--	10.4	10.7	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	115	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	34.6 J	310
Antimony (Dissolved)	0.78	8.2	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	1 J	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	1.7 J	8.2
Barium (Dissolved)	380	2120	320	314	308	295	260	289	266	266	141	152	154	177	48	35.5
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	627000	50700	46200	55700	44700	59900	66400	59900	59000	44100	48700	49600	51500	12200	43200
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	8	1.4 U	3.1 J	1.4 U	1.4 U	1.4 U	2.7 J	1.4 U	1.4 U	4.2	1.4 U	1.4 U	1.4 U	2.2 J	1.4 U
Iron (Dissolved)	1400	42.4 U	101 J	42.4 U	81.3 J	1250	42.4 U	42.4 U	42.4 U	42.4 U	46.6 J	80.1 J	124	134	42.4 U	42.4 U
Lead (Dissolved)	15	1.5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	53.6 U	20000	20200	20500	18900	14600	15700	14400	13900	15900	15800	15500	15400	8100	282
Manganese (Dissolved)	43	2.5 U	111	69.2	79.7	99.8	65	97.6	2.5 U	2.5 U	366	10.7	2.5 U	2.5 U	2.5 U	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.8 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	10400	932	1040	1050	988	858	905	860	631	4230	2730	1630	1170	3260	2080
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.84 J	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	27200	6430	6590	6730	6460	11600	10700	10500	7410	26000	24900	23200	26700	13600	9320
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	7.2	22.1
Zinc (Dissolved)	600	7.8 J	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	151	--	--	--	63.1	--	--	--	28.8 J	--	--	--	38.6 J	--	--
Antimony	0.78	10	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--
Arsenic	0.052	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U	--	--
Barium	380	2310	--	--	--	313	--	--	--	272	--	--	--	181	--	--
Beryllium	2.5	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--
Cadmium	0.92	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--
Calcium	--	602000	--	--	--	44400	--	--	--	60700	--	--	--	51400	--	--
Chromium, Total	100	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--
Cobalt	0.6	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--
Copper	80	12	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U	--	--
Iron	1400	269	--	--	--	4140	--	--	--	42.4 U	--	--	--	188	--	--
Lead	15	2	--	--	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U	--	--
Magnesium	--	53.6 U	--	--	--	20100	--	--	--	15000	--	--	--	16100	--	--
Manganese	43	2.5 U	--	--	--	114	--	--	--	2.5 U	--	--	--	2.5 U	--	--
Mercury	0.063	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--
Nickel	39	2.2 J	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U	--	--
Potassium	--	10800	--	--	--	981	--	--	--	630	--	--	--	1230	--	--
Selenium	10	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--
Silver	9.4	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--
Sodium	--	31200	--	--	--	6460	--	--	--	7610	--	--	--	29300	--	--
Thallium	0.02	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--
Vanadium	9	1.9 U	--	--	--	1.9 U	--	--	--	1.9 J	--	--	--	1.9 U	--	--
Zinc	600	15.5 J	--	--	--	23.5	--	--	--	7 U	--	--	--	7 U	--	--

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA Below Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit	Exp Area 1 MAIN PLANT AREA Upper Hydrogeologic Unit
Sample Water Bearing Zone															
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-053A	CFMW-025B	CFMW-025B	CFMW-025B	CFMW-025B	CFMW-026	CFMW-026	CFMW-026	CFMW-026	CFMW-028	CFMW-028	CFMW-028	CFMW-028	CFMW-028A	CFMW-028A
Sample Name		CFMW-053a-GW	CFMW-025b-GW	CFMW-025b-GW	CFMW-25B-GW	CFMW-025b-GW	CFMW-026-GW	CFMW-026-GW	CFMW-026-GW	CFMW-026-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028a-GW	CFMW-028a-GW
Chemical Name		6/28/2017	9/13/2016	12/7/2016	3/20/2017	6/22/2017	9/13/2016	12/5/2016	3/20/2017	6/22/2017	9/13/2016	12/5/2016	3/20/2017	6/26/2017	9/20/2016	12/9/2016
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	---	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	---	---
1,4-Dioxane (P-Dioxane)	0.46	---	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	---	---
2,3,4,6-Tetrachlorophenol	24	---	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	---	---
2,4,5-Trichlorophenol	120	---	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	---	---
2,4,6-Trichlorophenol	1.2	---	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	---	---
2,4-Dichlorophenol	4.6	---	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	---	---
2,4-Dimethylphenol	36	---	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	---	---
2,4-Dinitrophenol	3.9	---	2.4 UJ	2.4 U	2.4 U	2.4 U	2.4 UJ	2.4 U	2.4 U	2.4 U	2.4 UJ	2.4 U	2.4 U	2.4 U	---	---
2,4-Dinitrotoluene	0.24	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	---	---
2,6-Dinitrotoluene	0.049	---	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	---	---
2-Chloronaphthalene	75	---	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	---	---
2-Chlorophenol	9.1	---	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	---	---
2-Methylnaphthalene	3.6	---	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	---	---
2-Methylphenol (O-Cresol)	93	---	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	---	---
2-Nitroaniline	19	---	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 UJ	0.65 U	0.65 U	0.65 U	0.65 U	---	---
2-Nitrophenol	--	---	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	---	---
3- And 4- Methylphenol (Total)	--	---	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	---	---
3,3'-Dichlorobenzidine	0.13	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	---	---
3-Nitroaniline	--	---	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	---	---
4,6-Dinitro-2-Methylphenol	0.15	---	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	---	---
4-Bromophenyl Phenyl Ether	--	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	---	---
4-Chloro-3-Methylphenol	140	---	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	---	---
4-Chloroaniline	0.37	---	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	---	---
4-Chlorophenyl Phenyl Ether	--	---	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	---	---
4-Nitroaniline	3.8	---	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 UJ	0.48 U	0.48 U	0.48 U	0.48 U	---	---
4-Nitrophenol	50	---	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 U	4.7 U	---	---
Acenaphthene	53	---	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 UJ	0.88 U	0.88 U	0.88 U	0.88 U	---	---
Acenaphthylene	--	---	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	---	---
Acetophenone	190	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	---	---
Anthracene	180	---	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	---	---
Atrazine	0.3	---	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	---	---
Benzaldehyde	19	---	0.86 U	0.86 U	0.86 U	0.86 UJ	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 UJ	---	---
Benzo(A)Anthracene	0.03	---	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	---	---
Benzo(A)Pyrene	0.025	---	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	---	---
Benzo(B)Fluoranthene	0.25	---	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	---	---
Benzo(G,H,I)Perylene	--	---	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	---	---
Benzo(K)Fluoranthene	2.5	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
Benzyl Butyl Phthalate	1	---	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	---	---
Biphenyl (Diphenyl)	0.083	---	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	---	---
Bis(2-Chloroethoxy) Methane	5.9	---	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	---	---
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	---	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	---	---
Bis(2-Chloroisopropyl) Ether	71	---	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 UJ	0.93 U	0.93 U	0.93 U	0.93 U	---	---
Bis(2-Ethylhexyl) Phthalate	5.6	---	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	---	---
Caprolactam	990	---	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	---	---
Carbazole	--	---	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	---	---
Chrysene	25	---	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	---	---
Dibenz(A,H)Anthracene	0.025	---	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	---	---
Dibenzofuran	0.79	---	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	---	---
Diethyl Phthalate	600	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	---	---
Dimethyl Phthalate	2000	---	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	---	---
Di-N-Butyl Phthalate	20	---	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	---	---
Di-N-Octylphthalate	20	---	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	---	---
Fluoranthene	20	---	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	---	---
Fluorene	29	---	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	---	---
Hexachlorobenzene	0.0098	---	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	---	---
Hexachlorobutadiene	0.14	---	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	---	---

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-053A	CFMW-025B	CFMW-025B	CFMW-025B	CFMW-025B	CFMW-026	CFMW-026	CFMW-026	CFMW-026	CFMW-028	CFMW-028	CFMW-028	CFMW-028	CFMW-028A	CFMW-028A
Sample Name		CFMW-053a-GW	CFMW-025b-GW	CFMW-025b-GW	CFMW-25B-GW	CFMW-025b-GW	CFMW-026-GW	CFMW-026-GW	CFMW-026-GW	CFMW-026-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028a-GW	CFMW-028a-GW
Chemical Name		6/28/2017	9/13/2016	12/7/2016	3/20/2017	6/22/2017	9/13/2016	12/5/2016	3/20/2017	6/22/2017	9/13/2016	12/5/2016	3/20/2017	6/26/2017	9/20/2016	12/9/2016
Hexachlorocyclopentadiene	0.041	---	0.61 U	0.61 U	0.61 U	0.61 UJ	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 UJ	---	---
Hexachloroethane	0.33	---	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	---	---
Indeno(1,2,3-C,D)Pyrene	0.25	---	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	---	---
Isophorone	78	---	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	---	---
Naphthalene	0.17	---	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	---	---
Nitrobenzene	0.14	---	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	---	---
N-Nitrosodi-N-Propylamine	0.011	---	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	---	---
N-Nitrosodiphenylamine	12	---	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	---	---
Pentachlorophenol	0.041	---	2.2 UR	2.2 U	2.2 U	2.2 U	2.2 UR	2.2 U	2.2 U	2.2 U	2.2 UR	2.2 U	2.2 U	2.2 U	---	---
Phenanthrene	--	---	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	---	---
Phenol	580	---	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	---	---
Pyrene	12	---	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	---	---
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	---	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 UJ	---	---
1,1,2,2-Tetrachloroethane	0.076	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	---	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---
1,1,2-Trichloroethane	0.041	---	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	---	---
1,1-Dichloroethane	2.8	---	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---
1,1-Dichloroethene	7	---	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---
1,2,3-Trichlorobenzene	0.7	---	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	---	---
1,2,4-Trichlorobenzene	0.4	---	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	---	---
1,2-Dibromo-3-Chloropropane	0.00033	---	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	---	---
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---
1,2-Dichlorobenzene	30	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
1,2-Dichloroethane	0.17	---	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---
1,2-Dichloropropane	0.14	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
1,3-Dichlorobenzene	600	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---
1,4-Dichlorobenzene	0.48	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---
2-Hexanone	3.8	---	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	---	---
Acetone	1400	---	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	---	---
Benzene	0.46	---	0.09 U	0.09 U	0.09 U	0.13 J	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	---	---
Bromochloromethane	8.3	---	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---
Bromodichloromethane	0.13	---	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	---	---
Bromoform	3.3	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
Bromomethane	0.75	---	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 UJ	0.18 U	0.18 UJ	0.18 U	0.18 UJ	0.18 UJ	---	---
Carbon Disulfide	81	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Carbon Tetrachloride	0.46	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---
Chlorobenzene	7.8	---	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---
Chloroethane	2100	---	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 U	---	---
Chloroform	0.22	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Chloromethane	19	---	0.22 U	0.22 U	0.22 UJ	0.22 UJ	0.22 U	0.22 U	0.22 UJ	0.22 UJ	0.22 U	0.22 U	0.22 UJ	0.22 U	---	---
Cis-1,2-Dichloroethylene	3.6	---	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---
Cis-1,3-Dichloropropene	4	---	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	---	---
Cyclohexane	1300	---	0.26 U	0.26 U	0.26 UJ	0.26 U	0.26 U	0.26 U	0.26 UJ	0.26 U	0.26 U	0.26 U	0.26 UJ	0.26 U	---	---
Dibromochloromethane	0.87	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Dichlorodifluoromethane	20	---	0.14 UJ	0.14 U	0.14 UJ	0.14 UJ	0.14 UJ	0.14 U	0.14 UJ	0.14 UJ	0.14 UJ	0.14 U	0.14 UJ	0.14 UJ	---	---
Ethylbenzene	1.5	---	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---
Isopropylbenzene (Cumene)	45	---	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---
M,P-Xylene	--	---	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	---	---
Methyl Acetate	2000	---	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	---	---
Methyl Ethyl Ketone (2-Butanone)	560	---	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	---	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	---	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	---	---
Methylcyclohexane	--	---	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	---	---
Methylene Chloride	5	---	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	---	---
O-Xylene (1,2-Dimethylbenzene)	19	---	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---
Styrene	100	---	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	---	---
Tert-Butyl Methyl Ether	14	---	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	---	---

Preliminary Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-053A	CFMW-025B	CFMW-025B	CFMW-025B	CFMW-025B	CFMW-026	CFMW-026	CFMW-026	CFMW-026	CFMW-028	CFMW-028	CFMW-028	CFMW-028	CFMW-028A	CFMW-028A
Sample Name		CFMW-053a-GW	CFMW-025b-GW	CFMW-025b-GW	CFMW-25B-GW	CFMW-025b-GW	CFMW-026-GW	CFMW-026-GW	CFMW-026-GW	CFMW-026-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028-GW	CFMW-028a-GW	CFMW-028a-GW
Chemical Name		6/28/2017	9/13/2016	12/7/2016	3/20/2017	6/22/2017	9/13/2016	12/5/2016	3/20/2017	6/22/2017	9/13/2016	12/5/2016	3/20/2017	6/26/2017	9/20/2016	12/9/2016
Tetrachloroethylene (PCE)	4.1	---	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	---	---
Toluene	110	---	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---
Trans-1,2-Dichloroethene	36	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
Trans-1,3-Dichloropropene	2	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---
Trichloroethylene (TCE)	0.28	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Trichlorofluoromethane	520	---	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	---	---
Vinyl Chloride	0.019	---	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	---	---

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

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Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-028A	CFMW-028A	CFMW-031	CFMW-031	CFMW-031	CFMW-031	CFMW-031-DUP	CFMW-032	CFMW-032	CFMW-032	CFMW-032	CFMW-032-DUP	CFMW-033	CFMW-033	CFMW-033
Sample Name		CFMW-028a-GW	CFMW-028a-GW	CFMW-031-GW	CFMW-031-GW	CFMW-031-GW	CFMW-031-GW	CFMW-DUP13-GW	CFMW-032-GW	CFMW-032-GW	CFMW-032-GW	CFMW-032-GW	CFMW-DUP12-GW	CFMW-033-GW	CFMW-033-GW	CFMW-033-GW
Chemical Name		3/21/2017	6/27/2017	9/15/2016	12/9/2016	3/21/2017	6/21/2017	6/21/2017	9/15/2016	12/13/2016	3/27/2017	6/20/2017	6/20/2017	9/15/2016	12/6/2016	3/21/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	293 J+	--	--	--	2900	2900	--	--	--	8400	8420	--	--	--
Fluoride	80	408	286	2440	2100 J-	2700	2770 J-	2800 J-	5210 J-	2490	3060 J+	8570	8460	2340	2040 J-	2620
Cyanide (Dissolved)	0.15	--	2 U	--	--	--	101	100	--	--	--	494 J-	483 J-	--	--	--
Cyanide (Free) (Dissolved)	--	--	1.5 U	--	--	--	2.4 J	3.1 J	--	--	--	45.9 J	135 J	--	--	--
Cyanide	0.15	2 U	2 U	233	690	520	104	103	412 J-	152	238	478	470	478	483	515
Cyanide (Free)	--	1.5 U	1.5 U	--	--	45.7	2.8 J	3.5 J	--	--	4.2 J	46.1 J	129 J	--	--	12.8
METALS (µg/l)																
Aluminum (Dissolved)	2000	266	60.5	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	8.9	9.4	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	36.3	40.2	164	217	213	151	150	147	297	285	146	145	176	172	174
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	35000	33700	47700	60300	59000	40000	39600	88800	88000	85700	42800	42300	53600	53600	55600
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.6 J	1.4 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.4 J
Copper (Dissolved)	80	1.4 U	1.4 U	1.4 U	1.7 J	1.4 U	1.4 U	1.4 U	2.1 J	2.9 J	2.6 J	1.4 J	1.4 U	4.1	1.4 U	1.4 U
Iron (Dissolved)	1400	230	42.4 U	99.8 J	300	224	42.4 U	42.4 U	198	52.2 J	121	209	206	210	223	228
Lead (Dissolved)	15	0.39 J	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	3940	6150	13200	17300	17200	11100	10900	11700	22100	23100	10500	10400	16600	15600 J	17000
Manganese (Dissolved)	43	23.7	3 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	536	211	3 J	74	72.2	2.5 U	2.5 U	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	1520	1490	736	842	861	691	678	2630	3020	3120	2380	2270	944	1040	891
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	6190	6370	29800	32200	40600	30100	29700	155000	153000	132000	159000	160000	43500	39500	37900
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	7.7	2.7 J	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	1350	--	--	--	18.2 U	18.2 U	--	--	--	131	169	--	--	--
Antimony	0.78	--	0.62 U	--	--	--	0.62 U	0.62 U	--	--	--	0.62 U	0.62 U	--	--	--
Arsenic	0.052	--	10.2	--	--	--	0.64 U	0.64 U	--	--	--	0.64 U	0.64 U	--	--	--
Barium	380	--	53.5	--	--	--	150	147	--	--	--	156	158	--	--	--
Beryllium	2.5	--	0.24 U	--	--	--	0.24 U	0.24 U	--	--	--	0.24 U	0.24 U	--	--	--
Cadmium	0.92	--	0.71 U	--	--	--	0.71 U	0.71 U	--	--	--	0.71 U	0.71 U	--	--	--
Calcium	--	--	35900	--	--	--	40500	39600	--	--	--	42900	42800	--	--	--
Chromium, Total	100	--	1.9 J	--	--	--	1.3 U	1.3 U	--	--	--	1.6 J	2.1 J	--	--	--
Cobalt	0.6	--	1.3 U	--	--	--	1.3 U	1.3 U	--	--	--	1.4 J	1.5 J	--	--	--
Copper	80	--	5.3	--	--	--	1.4 U	1.4 U	--	--	--	2.1 J	2.2 J	--	--	--
Iron	1400	--	1540	--	--	--	46.4 J	46.4 J	--	--	--	407	446	--	--	--
Lead	15	--	1.3	--	--	--	0.38 U	0.38 U	--	--	--	0.38 U	0.38 U	--	--	--
Magnesium	--	--	6560	--	--	--	12100	11900	--	--	--	11900	12000	--	--	--
Manganese	43	--	49.9	--	--	--	2.5 U	2.5 U	--	--	--	83.2	84.3	--	--	--
Mercury	0.063	--	0.17 U	--	--	--	0.17 U	0.17 U	--	--	--	0.17 U	0.17 U	--	--	--
Nickel	39	--	1.6 J	--	--	--	1.4 U	1.4 U	--	--	--	1.4 U	1.4 U	--	--	--
Potassium	--	--	1710	--	--	--	712	697	--	--	--	2300	2350	--	--	--
Selenium	10	--	0.73 U	--	--	--	0.73 U	0.73 U	--	--	--	0.73 U	0.73 U	--	--	--
Silver	9.4	--	1.3 U	--	--	--	1.3 U	1.3 U	--	--	--	1.3 U	1.3 U	--	--	--
Sodium	--	--	7040	--	--	--	35000	34400	--	--	--	198000	200000	--	--	--
Thallium	0.02	--	0.26 U	--	--	--	0.26 U	0.26 U	--	--	--	0.26 U	0.26 U	--	--	--
Vanadium	9	--	5	--	--	--	1.9 U	1.9 U	--	--	--	1.9 U	1.9 U	--	--	--
Zinc	600	--	7 U	--	--	--	7 U	7 U	--	--	--	7 U	7 U	--	--	--

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Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-028A	CFMW-028A	CFMW-031	CFMW-031	CFMW-031	CFMW-031	CFMW-031-DUP	CFMW-032	CFMW-032	CFMW-032	CFMW-032	CFMW-032-DUP	CFMW-033	CFMW-033	CFMW-033
Sample Name		CFMW-028a-GW	CFMW-028a-GW	CFMW-031-GW	CFMW-031-GW	CFMW-031-GW	CFMW-031-GW	CFMW-DUP13-GW	CFMW-032-GW	CFMW-032-GW	CFMW-032-GW	CFMW-032-GW	CFMW-DUP12-GW	CFMW-033-GW	CFMW-033-GW	CFMW-033-GW
Chemical Name		3/21/2017	6/27/2017	9/15/2016	12/9/2016	3/21/2017	6/21/2017	6/21/2017	9/15/2016	12/13/2016	3/27/2017	6/20/2017	6/20/2017	9/15/2016	12/6/2016	3/21/2017
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	---	---	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
1,4-Dioxane (P-Dioxane)	0.46	---	---	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.2 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
2,3,4,6-Tetrachlorophenol	24	---	---	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U
2,4,5-Trichlorophenol	120	---	---	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
2,4,6-Trichlorophenol	1.2	---	---	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.55 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
2,4-Dichlorophenol	4.6	---	---	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
2,4-Dimethylphenol	36	---	---	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 UJ	0.95 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U
2,4-Dinitrophenol	3.9	---	---	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.5 U	2.4 UJ	2.4 UJ	2.4 U	2.4 U	2.4 U
2,4-Dinitrotoluene	0.24	---	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	0.049	---	---	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U
2-Chloronaphthalene	75	---	---	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U
2-Chlorophenol	9.1	---	---	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
2-Methylnaphthalene	3.6	---	---	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U
2-Methylphenol (O-Cresol)	93	---	---	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 UJ	1.3 U
2-Nitroaniline	19	---	---	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 UJ	0.65 U	0.65 U
2-Nitrophenol	--	---	---	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.61 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U
3- And 4- Methylphenol (Total)	--	---	---	0.88 UJ	0.88 U	0.88 U	0.88 U	0.88 U	0.88 UJ	0.88 U	0.92 U	0.88 U	0.88 U	0.88 UJ	0.88 UJ	0.88 U
3,3'-Dichlorobenzidine	0.13	---	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
3-Nitroaniline	--	---	---	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.85 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
4,6-Dinitro-2-Methylphenol	0.15	---	---	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2.1 U	2 U	2 U	2 U	2 U	2 U
4-Bromophenyl Phenyl Ether	--	---	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-Methylphenol	140	---	---	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U
4-Chloroaniline	0.37	---	---	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.76 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
4-Chlorophenyl Phenyl Ether	--	---	---	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	1 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
4-Nitroaniline	3.8	---	---	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.5 UJ	0.48 UJ	0.48 UJ	0.48 U	0.48 U	0.48 U
4-Nitrophenol	50	---	---	4.7 UJ	4.7 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 UJ	4.8 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U
Acenaphthene	53	---	---	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 UJ	0.92 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U
Acenaphthylene	--	---	---	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U
Acetophenone	190	---	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
Anthracene	180	---	---	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.59 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U
Atrazine	0.3	---	---	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.8 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U
Benzaldehyde	19	---	---	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.9 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U
Benzo(A)Anthracene	0.03	---	---	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.57 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Benzo(A)Pyrene	0.025	---	---	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Benzo(B)Fluoranthene	0.25	---	---	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.46 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
Benzo(G,H,I)Perylene	--	---	---	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.78 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Benzo(K)Fluoranthene	2.5	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Benzyl Butyl Phthalate	1	---	---	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 UJ	0.63 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Biphenyl (Diphenyl)	0.083	---	---	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
Bis(2-Chloroethoxy) Methane	5.9	---	---	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	---	---	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.13 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U
Bis(2-Chloroisopropyl) Ether	71	---	---	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.97 U	0.93 U	0.93 U	0.93 U	0.93 UJ	0.93 U
Bis(2-Ethylhexyl) Phthalate	5.6	---	---	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
Caprolactam	990	---	---	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Carbazole	--	---	---	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U
Chrysene	25	---	---	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.67 UJ	0.67 U
Dibenz(A,H)Anthracene	0.025	---	---	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Dibenzofuran	0.79	---	---	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U
Diethyl Phthalate	600	---	---	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Dimethyl Phthalate	2000	---	---	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U
Di-N-Butyl Phthalate	20	---	---	0.82 U	1.3 J	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.85 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
Di-N-Octylphthalate	20	---	---	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 UJ	0.72 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U
Fluoranthene	20	---	---	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
Fluorene	29	---	---	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.83 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Hexachlorobenzene	0.0098	---	---	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U
Hexachlorobutadiene	0.14	---	---	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-028A	CFMW-028A	CFMW-031	CFMW-031	CFMW-031	CFMW-031	CFMW-031-DUP	CFMW-032	CFMW-032	CFMW-032	CFMW-032	CFMW-032-DUP	CFMW-033	CFMW-033	CFMW-033
Sample Name		CFMW-028a-GW	CFMW-028a-GW	CFMW-031-GW	CFMW-031-GW	CFMW-031-GW	CFMW-031-GW	CFMW-DUP13-GW	CFMW-032-GW	CFMW-032-GW	CFMW-032-GW	CFMW-032-GW	CFMW-DUP12-GW	CFMW-033-GW	CFMW-033-GW	CFMW-033-GW
Chemical Name		3/21/2017	6/27/2017	9/15/2016	12/9/2016	3/21/2017	6/21/2017	6/21/2017	9/15/2016	12/13/2016	3/27/2017	6/20/2017	6/20/2017	9/15/2016	12/6/2016	3/21/2017
Hexachlorocyclopentadiene	0.041	---	---	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U
Hexachloroethane	0.33	---	---	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Indeno(1,2,3-C,D)Pyrene	0.25	---	---	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Isophorone	78	---	---	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U
Naphthalene	0.17	---	---	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.83 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Nitrobenzene	0.14	---	---	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
N-Nitrosodi-N-Propylamine	0.011	---	---	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.86 U	0.83 U	0.83 U	0.83 UJ	0.83 U	0.83 U
N-Nitrosodiphenylamine	12	---	---	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
Pentachlorophenol	0.041	---	---	2.2 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.2 U	2.2 UJ	2.3 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Phenanthrene	--	---	---	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U
Phenol	580	---	---	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.43 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Pyrene	12	---	---	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.86 UJ	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	---	---	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
1,1,2,2-Tetrachloroethane	0.076	---	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	---	---	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.041	---	---	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethane	2.8	---	---	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethene	7	---	---	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,2,3-Trichlorobenzene	0.7	---	---	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,2,4-Trichlorobenzene	0.4	---	---	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	---	---	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 UJ	0.23 U	0.23 U	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	---	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-Dichlorobenzene	30	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,2-Dichloroethane	0.17	---	---	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloropropane	0.14	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	600	---	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	0.48	---	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Hexanone	3.8	---	---	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
Acetone	1400	---	---	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 UJ	1.1 U	1.1 U	1.1 U
Benzene	0.46	---	---	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Bromochloromethane	8.3	---	---	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromodichloromethane	0.13	---	---	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Bromoform	3.3	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 U
Bromomethane	0.75	---	---	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ
Carbon Disulfide	81	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Carbon Tetrachloride	0.46	---	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Chlorobenzene	7.8	---	---	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chloroethane	2100	---	---	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 UJ	0.37 U	0.37 U	0.37 U
Chloroform	0.22	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloromethane	19	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Cis-1,2-Dichloroethylene	3.6	---	---	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Cis-1,3-Dichloropropene	4	---	---	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Cyclohexane	1300	---	---	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Dibromochloromethane	0.87	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Dichlorodifluoromethane	20	---	---	0.14 U	0.14 U	0.14 UJ	0.14 UJ	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 UJ	0.14 U	0.14 U	0.14 U
Ethylbenzene	1.5	---	---	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Isopropylbenzene (Cumene)	45	---	---	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
M,P-Xylene	--	---	---	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Methyl Acetate	2000	---	---	0.58 U	0.58 U	0.58 U	0.58 UJ	0.58 UJ	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U
Methyl Ethyl Ketone (2-Butanone)	560	---	---	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	---	---	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
Methylcyclohexane	--	---	---	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Methylene Chloride	5	---	---	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.55
O-Xylene (1,2-Dimethylbenzene)	19	---	---	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Styrene	100	---	---	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Tert-Butyl Methyl Ether	14	---	---	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Groundwater (µg/l)	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID		CFMW-028A	CFMW-028A	CFMW-031	CFMW-031	CFMW-031	CFMW-031	CFMW-031-DUP	CFMW-032	CFMW-032	CFMW-032	CFMW-032	CFMW-032-DUP	CFMW-033	CFMW-033	CFMW-033
Sample Name		CFMW-028a-GW	CFMW-028a-GW	CFMW-031-GW	CFMW-031-GW	CFMW-031-GW	CFMW-031-GW	CFMW-DUP13-GW	CFMW-032-GW	CFMW-032-GW	CFMW-032-GW	CFMW-032-GW	CFMW-DUP12-GW	CFMW-033-GW	CFMW-033-GW	CFMW-033-GW
Chemical Name		3/21/2017	6/27/2017	9/15/2016	12/9/2016	3/21/2017	6/21/2017	6/21/2017	9/15/2016	12/13/2016	3/27/2017	6/20/2017	6/20/2017	9/15/2016	12/6/2016	3/21/2017
Tetrachloroethylene (PCE)	4.1	---	---	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.16 J	0.12 U	0.12 U
Toluene	110	---	---	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trans-1,2-Dichloroethene	36	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Trans-1,3-Dichloropropene	2	---	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Trichloroethylene (TCE)	0.28	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichlorofluoromethane	520	---	---	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 UJ	0.15 U	0.15 U	0.15 U
Vinyl Chloride	0.019	---	---	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-033	CFMW-034	CFMW-034	CFMW-034	CFMW-034	CFMW-035	CFMW-035	CFMW-035	CFMW-035	CFMW-037	CFMW-037	CFMW-037	CFMW-037	CFMW-038	CFMW-038
Sample Name		CFMW-033-GW	CFMW-034-GW	CFMW-034-GW	CFMW-034-GW	CFMW-034-GW	CFMW-035-GW	CFMW-035-GW	CFMW-035-GW	CFMW-035-GW	CFMW-037-GW	CFMW-037-GW	CFMW-037-GW	CFMW-037-GW	CFMW-038-GW	CFMW-038-GW
Chemical Name		6/19/2017	9/14/2016	12/13/2016	3/21/2017	6/19/2017	9/14/2016	12/13/2016	3/21/2017	6/20/2017	9/16/2016	12/8/2016	3/23/2017	6/20/2017	9/14/2016	12/9/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	3220	--	--	--	6500	--	--	--	190	--	--	--	1100	--	--
Fluoride	80	3250	4530 J-	40 U	3200	6590	415	305	276	209	1030 J-	1060 J	1530	1030	2590	2400 J-
Cyanide (Dissolved)	0.15	190	--	--	--	287	--	--	--	51.4 J-	--	--	--	6 J-	--	--
Cyanide (Free) (Dissolved)	--	5.7	--	--	--	6.7	--	--	--	4.6 J	--	--	--	1.5 U	--	--
Cyanide	0.15	181	327	255	275	287	57.1	51.7	45.1	53	66.7	40.7	37.5	75.8	260	286
Cyanide (Free)	--	10.6	--	--	17.1	24.9	--	--	1.5 U	4.4 J-	--	--	1.5 U	2.1 J	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	177	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	5.8	10.4	9.5	11.3	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	134	199	300	321	157	546	582	613	702	272	280	262	288	253	250
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	41700	59100	82500	84000	44100	76700	77200	79600	84800	49100	46700	46000	48400	60600	60000
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3	1.3 U	1.4 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	1.4 U	4.5	1.4 U	1.4 U	1.4 U	1.4 U	1.4	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 J
Iron (Dissolved)	1400	75.8 J	148	86.2 J	123	112 J	502	1230	1220	1670	42.4 U	42.4 U	42.4 U	42.4 U	115 J	128
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	1 J	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	11800	15500	19200	20700	11600	32700	31100	35600	31600	14200	14400	13800	14000	16300	16900
Manganese (Dissolved)	43	2.5 U	9.4	20.5	48.9	2.5 U	1450	1320	1100	1030	2.5 U	2.5 U	2.5 J	2.5 U	2.5 U	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	799	918	970	959	830	2430	1930	1890	2030	807	789	783	870	1030	961
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	38400	27400	31500	29200	43600	34500	32700	32000	33500	8930	9550	9640	14400	37300	36500
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	18.2 U	--	--	--	59.5	--	--	--	6950	--	--	--	70.3	--	--
Antimony	0.78	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--
Arsenic	0.052	0.64 U	--	--	--	0.64 U	--	--	--	13.2	--	--	--	0.64 U	--	--
Barium	380	143	--	--	--	176	--	--	--	745	--	--	--	298	--	--
Beryllium	2.5	0.24 U	--	--	--	0.24 U	--	--	--	0.4 J	--	--	--	0.24 U	--	--
Cadmium	0.92	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--
Calcium	--	40600	--	--	--	45100	--	--	--	121000	--	--	--	48000	--	--
Chromium, Total	100	1.3 U	--	--	--	1.3 U	--	--	--	8.2	--	--	--	1.3 U	--	--
Cobalt	0.6	1.3 U	--	--	--	1.3 U	--	--	--	6.2	--	--	--	1.3 U	--	--
Copper	80	1.4 U	--	--	--	1.4 U	--	--	--	20.9	--	--	--	1.4 U	--	--
Iron	1400	94.5 J	--	--	--	228	--	--	--	10600	--	--	--	108 J	--	--
Lead	15	0.38 U	--	--	--	0.38 U	--	--	--	13.2	--	--	--	0.38 U	--	--
Magnesium	--	12800	--	--	--	13100	--	--	--	41000	--	--	--	15600	--	--
Manganese	43	2.5 U	--	--	--	2.6 J	--	--	--	1270	--	--	--	2.5 U	--	--
Mercury	0.063	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--
Nickel	39	1.4 U	--	--	--	1.4 U	--	--	--	9.3	--	--	--	1.4 U	--	--
Potassium	--	806	--	--	--	902	--	--	--	2910	--	--	--	869	--	--
Selenium	10	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--
Silver	9.4	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--
Sodium	--	44900	--	--	--	53100	--	--	--	33600	--	--	--	16200	--	--
Thallium	0.02	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--
Vanadium	9	1.9 U	--	--	--	1.9 U	--	--	--	7.1	--	--	--	1.9 U	--	--
Zinc	600	7 U	--	--	--	7 U	--	--	--	47.3	--	--	--	7 U	--	--

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Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-033	CFMW-034	CFMW-034	CFMW-034	CFMW-034	CFMW-035	CFMW-035	CFMW-035	CFMW-035	CFMW-037	CFMW-037	CFMW-037	CFMW-037	CFMW-038	CFMW-038
Sample Name		CFMW-033-GW	CFMW-034-GW	CFMW-034-GW	CFMW-034-GW	CFMW-034-GW	CFMW-035-GW	CFMW-035-GW	CFMW-035-GW	CFMW-035-GW	CFMW-037-GW	CFMW-037-GW	CFMW-037-GW	CFMW-037-GW	CFMW-038-GW	CFMW-038-GW
Chemical Name		6/19/2017	9/14/2016	12/13/2016	3/21/2017	6/19/2017	9/14/2016	12/13/2016	3/21/2017	6/20/2017	9/16/2016	12/8/2016	3/23/2017	6/20/2017	9/14/2016	12/9/2016
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	0.43 U	0.45 U	0.43 U	0.43 U	0.44 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.45 U	0.43 U	0.45 U	0.43 U
1,4-Dioxane (P-Dioxane)	0.46	3.1 U	3.3 U	3.1 U	3.1 U	3.2 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.3 U	3.1 U	3.2 U	3.1 U
2,3,4,6-Tetrachlorophenol	24	0.69 U	0.72 U	0.69 U	0.69 U	0.7 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.72 U	0.69 U
2,4,5-Trichlorophenol	120	0.49 U	0.51 U	0.49 U	0.49 U	0.5 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.51 U	0.49 U
2,4,6-Trichlorophenol	1.2	0.53 U	0.55 U	0.53 U	0.53 U	0.54 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.55 U	0.53 U	0.55 U	0.53 U
2,4-Dichlorophenol	4.6	0.63 U	0.66 U	0.63 U	0.63 U	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.66 U	0.63 U	0.66 U	0.63 U
2,4-Dimethylphenol	36	0.91 U	0.95 U	0.91 UJ	0.91 U	0.93 U	0.91 U	0.91 UJ	0.91 U	0.91 U	0.91 U	0.91 U	0.95 U	0.91 U	0.95 U	0.91 U
2,4-Dinitrophenol	3.9	2.4 UJ	2.5 UJ	2.4 U	2.4 U	2.4 UJ	2.4 UJ	2.4 U	2.4 U	2.4 UJ	2.4 U	2.4 U	2.5 U	2.4 UJ	2.5 UJ	2.4 U
2,4-Dinitrotoluene	0.24	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U
2,6-Dinitrotoluene	0.049	0.88 U	0.92 U	0.88 U	0.88 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.92 U	0.88 U
2-Chloronaphthalene	75	0.61 U	0.64 U	0.61 U	0.61 U	0.62 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.64 U	0.61 U	0.64 U	0.61 U
2-Chlorophenol	9.1	0.74 U	0.77 U	0.74 U	0.74 U	0.76 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.77 U	0.74 U	0.77 U	0.74 U
2-Methylnaphthalene	3.6	0.88 U	0.92 U	0.88 U	0.88 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.92 U	0.88 U
2-Methylphenol (O-Cresol)	93	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2-Nitroaniline	19	0.65 U	0.68 UJ	0.65 U	0.65 U	0.66 U	0.65 UJ	0.65 U	0.65 U	0.65 U	0.65 UJ	0.65 U	0.68 U	0.65 U	0.68 UJ	0.65 U
2-Nitrophenol	--	0.59 U	0.62 U	0.59 U	0.59 U	0.6 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.62 U	0.59 U	0.61 U	0.59 U
3- And 4- Methylphenol (Total)	--	0.88 U	0.92 UJ	0.88 U	0.88 U	0.9 U	0.88 UJ	0.88 U	0.88 U	0.88 U	0.88 UJ	0.88 U	0.92 U	0.88 U	0.92 UJ	0.88 U
3,3'-Dichlorobenzidine	0.13	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U
3-Nitroaniline	--	0.82 U	0.86 U	0.82 U	0.82 U	0.84 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.86 U	0.82 U	0.85 U	0.82 U
4,6-Dinitro-2-Methylphenol	0.15	2 UJ	2.1 U	2 U	2 U	2.1 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2.1 U	2 U	2.1 U	2 U
4-Bromophenyl Phenyl Ether	--	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U
4-Chloro-3-Methylphenol	140	0.76 U	0.79 U	0.76 U	0.76 U	0.78 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.79 U	0.76 U	0.79 U	0.76 U
4-Chloroaniline	0.37	0.73 U	0.76 U	0.73 U	0.73 U	0.74 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.76 U	0.73 U	0.76 U	0.73 U
4-Chlorophenyl Phenyl Ether	--	0.96 U	1 U	0.96 U	0.96 U	0.98 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	1 U	0.96 U	1 U	0.96 U
4-Nitroaniline	3.8	0.48 U	0.5 U	0.48 U	0.48 U	0.49 U	0.48 U	0.48 U	0.48 U	0.48 UJ	0.48 U	0.48 U	0.5 U	0.48 UJ	0.5 U	0.48 U
4-Nitrophenol	50	4.7 U	4.9 U	4.7 UJ	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 U	4.7 U	4.9 U	4.7 U	4.8 U	4.7 U
Acenaphthene	53	0.88 U	0.92 U	0.88 UJ	0.88 U	0.9 U	0.88 U	0.88 UJ	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.92 U	0.88 UJ
Acenaphthylene	--	0.65 U	0.68 U	0.65 U	0.65 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.68 U	0.65 U
Acetophenone	190	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U
Anthracene	180	0.57 U	0.6 U	0.57 U	0.57 U	0.58 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.6 U	0.57 U	0.59 U	0.57 U
Atrazine	0.3	0.77 U	0.81 U	0.77 U	0.77 U	0.79 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.81 U	0.77 U	0.8 U	0.77 U
Benzaldehyde	19	0.86 U	0.9 U	0.86 U	0.86 U	0.88 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.9 U	0.86 U	0.9 U	0.86 UJ
Benzo(A)Anthracene	0.03	0.55 U	0.58 U	0.55 U	0.55 U	0.56 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.58 U	0.55 U	0.57 U	0.55 U
Benzo(A)Pyrene	0.025	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.17 U	0.16 U
Benzo(B)Fluoranthene	0.25	0.44 U	0.46 U	0.44 U	0.44 U	0.45 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.46 U	0.44 U	0.46 U	0.44 U
Benzo(G,H,I)Perylene	--	0.75 U	0.78 U	0.75 U	0.75 U	0.77 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.78 U	0.75 U	0.78 U	0.75 U
Benzo(K)Fluoranthene	2.5	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.19 U	0.18 U
Benzyl Butyl Phthalate	1	0.6 U	0.63 U	0.6 UJ	0.6 U	0.61 U	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.63 U	0.6 U	0.63 U	0.6 U
Biphenyl (Diphenyl)	0.083	0.63 U	0.66 U	0.63 U	0.63 U	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.66 U	0.63 U	0.66 U	0.63 U
Bis(2-Chloroethoxy) Methane	5.9	0.69 U	0.72 U	0.69 U	0.69 U	0.7 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.72 U	0.69 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	0.12 U	0.13 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.13 U	0.12 U	0.13 U	0.12 UJ
Bis(2-Chloroisopropyl) Ether	71	0.93 U	0.97 U	0.93 U	0.93 U	0.95 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.97 U	0.93 U	0.97 U	0.93 U
Bis(2-Ethylhexyl) Phthalate	5.6	0.72 U	0.75 U	0.72 U	0.72 U	0.73 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.75 U	0.72 U	1.1 J	0.72 U
Caprolactam	990	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Carbazole	--	0.85 U	0.89 U	0.85 U	0.85 U	0.87 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.88 U	0.85 U
Chrysene	25	0.67 U	0.7 U	0.67 U	0.67 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.7 U	0.67 U
Dibenz(A,H)Anthracene	0.025	0.09 U	0.094 U	0.09 U	0.09 U	0.092 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.094 U	0.09 U	0.094 U	0.09 U
Dibenzofuran	0.79	0.85 U	0.89 U	0.85 U	0.85 U	0.87 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.88 U	0.85 U
Diethyl Phthalate	600	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethyl Phthalate	2000	0.98 U	1 U	0.98 U	0.98 U	1 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U	1 U	0.98 U
Di-N-Butyl Phthalate	20	0.82 U	0.86 U	0.82 U	0.82 U	0.84 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.86 U	0.82 U	0.85 U	0.82 U
Di-N-Octylphthalate	20	0.69 U	0.72 U	0.69 UJ	0.69 U	0.7 U	0.69 U	0.69 UJ	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.72 U	0.69 U
Fluoranthene	20	0.72 U	0.75 U	0.72 U	0.72 U	0.73 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.75 U	0.72 U	0.75 U	0.72 U
Fluorene	29	0.8 U	0.84 U	0.8 U	0.8 U	0.82 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.84 U	0.8 U	0.83 U	0.8 U
Hexachlorobenzene	0.0098	0.47 U	0.49 U	0.47 U	0.47 U	0.48 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.49 U	0.47 U	0.48 U	0.47 U
Hexachlorobutadiene	0.14	0.76 UJ	0.79 U	0.76 U	0.76 U	0.78 UJ	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.79 U	0.76 U	0.78 U	0.76 U

Preliminary Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-033	CFMW-034	CFMW-034	CFMW-034	CFMW-034	CFMW-035	CFMW-035	CFMW-035	CFMW-035	CFMW-037	CFMW-037	CFMW-037	CFMW-037	CFMW-038	CFMW-038
Sample Name		CFMW-033-GW	CFMW-034-GW	CFMW-034-GW	CFMW-034-GW	CFMW-034-GW	CFMW-035-GW	CFMW-035-GW	CFMW-035-GW	CFMW-035-GW	CFMW-037-GW	CFMW-037-GW	CFMW-037-GW	CFMW-037-GW	CFMW-038-GW	CFMW-038-GW
Chemical Name		6/19/2017	9/14/2016	12/13/2016	3/21/2017	6/19/2017	9/14/2016	12/13/2016	3/21/2017	6/20/2017	9/16/2016	12/8/2016	3/23/2017	6/20/2017	9/14/2016	12/9/2016
Hexachlorocyclopentadiene	0.041	0.61 UJ	0.64 U	0.61 U	0.61 U	0.62 UJ	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.64 U	0.61 U	0.64 U	0.61 U
Hexachloroethane	0.33	0.09 U	0.094 U	0.09 U	0.09 U	0.092 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.094 U	0.09 U	0.094 U	0.09 U
Indeno(1,2,3-C,D)Pyrene	0.25	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.21 U
Isophorone	78	0.67 U	0.7 U	0.67 U	0.67 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.7 U	0.67 U
Naphthalene	0.17	0.8 U	0.84 U	0.8 U	0.8 U	0.82 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.84 U	0.8 U	0.83 U	0.8 U
Nitrobenzene	0.14	0.49 UJ	0.51 U	0.49 U	0.49 U	0.5 UJ	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.51 U	0.49 U
N-Nitrosodi-N-Propylamine	0.011	0.83 U	0.87 UJ	0.83 U	0.83 U	0.85 U	0.83 UJ	0.83 U	0.83 U	0.83 U	0.83 UJ	0.83 U	0.87 U	0.83 U	0.86 UJ	0.83 U
N-Nitrosodiphenylamine	12	0.74 U	0.77 U	0.74 U	0.74 U	0.76 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.77 U	0.74 U	0.77 U	0.74 U
Pentachlorophenol	0.041	2.2 U	2.3 UR	2.2 UJ	2.2 U	2.2 U	2.2 UR	2.2 UJ	2.2 U	2.2 U	2.2 U	2.2 U	2.3 U	2.2 U	2.3 UR	2.2 U
Phenanthrene	--	0.65 U	0.68 U	0.65 U	0.65 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.68 U	0.65 U
Phenol	580	0.41 U	0.43 U	0.41 U	0.41 U	0.42 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.43 U	0.41 U	0.43 U	0.41 U
Pyrene	12	0.83 U	0.87 U	0.83 U	0.83 U	0.85 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.87 U	0.83 U	0.86 U	0.83 U
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
1,1,2,2-Tetrachloroethane	0.076	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.041	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethane	2.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethene	7	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,2,3-Trichlorobenzene	0.7	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,2,4-Trichlorobenzene	0.4	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-Dichlorobenzene	30	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,2-Dichloroethane	0.17	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloropropane	0.14	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	600	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	0.48	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Hexanone	3.8	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
Acetone	1400	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U
Benzene	0.46	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Bromochloromethane	8.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromodichloromethane	0.13	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Bromoform	3.3	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U
Bromomethane	0.75	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Carbon Disulfide	81	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.37 J	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Carbon Tetrachloride	0.46	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Chlorobenzene	7.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chloroethane	2100	0.37 UJ	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 U
Chloroform	0.22	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloromethane	19	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Cis-1,2-Dichloroethylene	3.6	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Cis-1,3-Dichloropropene	4	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Cyclohexane	1300	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Dibromochloromethane	0.87	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Dichlorodifluoromethane	20	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 U	0.14 U
Ethylbenzene	1.5	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Isopropylbenzene (Cumene)	45	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
M,P-Xylene	--	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Methyl Acetate	2000	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U
Methyl Ethyl Ketone (2-Butanone)	560	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
Methylcyclohexane	--	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Methylene Chloride	5	0.21 U	0.21 U	0.21 U	0.59	0.21 U	0.21 U	0.21 U	0.51	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
O-Xylene (1,2-Dimethylbenzene)	19	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Styrene	100	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Tert-Butyl Methyl Ether	14	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-033	CFMW-034	CFMW-034	CFMW-034	CFMW-034	CFMW-035	CFMW-035	CFMW-035	CFMW-035	CFMW-037	CFMW-037	CFMW-037	CFMW-037	CFMW-038	CFMW-038
Sample Name		CFMW-033-GW	CFMW-034-GW	CFMW-034-GW	CFMW-034-GW	CFMW-034-GW	CFMW-035-GW	CFMW-035-GW	CFMW-035-GW	CFMW-035-GW	CFMW-037-GW	CFMW-037-GW	CFMW-037-GW	CFMW-037-GW	CFMW-038-GW	CFMW-038-GW
Chemical Name		6/19/2017	9/14/2016	12/13/2016	3/21/2017	6/19/2017	9/14/2016	12/13/2016	3/21/2017	6/20/2017	9/16/2016	12/8/2016	3/23/2017	6/20/2017	9/14/2016	12/9/2016
Tetrachloroethylene (PCE)	4.1	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Toluene	110	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trans-1,2-Dichloroethene	36	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Trans-1,3-Dichloropropene	2	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Trichloroethylene (TCE)	0.28	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichlorofluoromethane	520	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U
Vinyl Chloride	0.019	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
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Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-038	CFMW-038	CFMW-040	CFMW-040	CFMW-040	CFMW-040	CFMW-042	CFMW-042	CFMW-043	CFMW-043	CFMW-043	CFMW-043	CFMW-044	CFMW-044	CFMW-044
Sample Name		CFMW-038-GW	CFMW-038-GW	CFMW-040-GW	CFMW-040-GW	CFMW-040-GW	CFMW-040-GW	CFMW-042-GW	CFMW-042-GW	CFMW-043-GW	CFMW-043-GW	CFMW-043-GW	CFMW-043-GW	CFMW-044-GW	CFMW-044-GW	CFMW-044-GW
Chemical Name		3/24/2017	6/27/2017	9/14/2016	12/13/2016	3/30/2017	6/20/2017	9/14/2016	6/20/2017	9/13/2016	12/14/2016	3/20/2017	6/21/2017	9/15/2016	12/9/2016	3/28/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	2830 J+	--	--	--	2560	--	2590	--	--	--	2210	--	--	--
Fluoride	80	2830 J+	2810	2650	2360	3090	2830	2410	2780	2280	2050 J-	2730	2020 J-	2150	1670 J-	2050
Cyanide (Dissolved)	0.15	--	197	--	--	--	391 J-	--	391 J-	--	--	--	530	--	--	--
Cyanide (Free) (Dissolved)	--	--	4.4 J	--	--	--	45	--	21.1	--	--	--	66.2	--	--	--
Cyanide	0.15	110	298	304	288	288	385	402	395	516	423	477	535	430	220	233
Cyanide (Free)	--	3.3 J	4.8 J	--	--	5.7	40.4	--	27.6 J-	--	--	14.7	120	--	--	4.9 J
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	20.2 J	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	239	231	148	150	131	175	157	171	136	142	150	169	109	119	96.8 J
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	59000	57800	55700	53600	53700	58200	56000	62100	51600	51700	55400	60800	50100	45200	51700 J
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 J	1.3 U	1.3 J	1.3 U	1.3 U	1.4 J	1.4 J	1.3 J	1.3 U
Copper (Dissolved)	80	1.4 U	1.4 U	4	1.4 U	1.4 U	1.4 U	--	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Iron (Dissolved)	1400	120	125	140	96.4 J	130	147	184	178	207	185	222	228	370	5120	387 J
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	16500	15300	15600	15200	16300	15800	16200	14600	15900	15600	16700	17000	16200	17000	16700 J
Manganese (Dissolved)	43	2.5 U	2.5 U	54.5	7.1 J	2.5 U	2.5 U	2.5 U	2.5 U	38.8	11.4	3.1 J	2.5 U	45.4	209	77.6
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	2.6 J	2 J
Potassium (Dissolved)	--	947	910	1180	1020	1040	1100	1010	1010	999	960	988	986	888	1980	958
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 UJ	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	35700	32100	34700	32500	31900	39900	43900	51100	44200	37900	41700	37100	45000	48100	42400
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	27.1 J	--	--	--	18.5 J	--	38.8 J	--	--	--	22.9 J	--	--	--
Antimony	0.78	--	0.62 U	--	--	--	0.62 U	--	0.62 U	--	--	--	0.62 U	--	--	--
Arsenic	0.052	--	0.64 U	--	--	--	0.64 U	--	0.64 U	--	--	--	0.64 U	--	--	--
Barium	380	--	266	--	--	--	184	--	178	--	--	--	171	--	--	--
Beryllium	2.5	--	0.24 U	--	--	--	0.24 U	--	0.24 U	--	--	--	0.24 U	--	--	--
Cadmium	0.92	--	0.71 U	--	--	--	0.71 U	--	0.71 U	--	--	--	0.71 U	--	--	--
Calcium	--	--	63100	--	--	--	58300	--	50400	--	--	--	63000	--	--	--
Chromium, Total	100	--	1.3 U	--	--	--	1.3 U	--	1.3 U	--	--	--	1.3 U	--	--	--
Cobalt	0.6	--	1.3 U	--	--	--	1.3 U	--	1.3 J	--	--	--	1.6 J	--	--	--
Copper	80	--	1.4 U	--	--	--	1.4 U	--	1.4 U	--	--	--	1.8 J	--	--	--
Iron	1400	--	192	--	--	--	225	--	297	--	--	--	308	--	--	--
Lead	15	--	0.38 U	--	--	--	0.38 U	--	0.38 U	--	--	--	0.38 U	--	--	--
Magnesium	--	--	18300	--	--	--	18800	--	16500	--	--	--	20300	--	--	--
Manganese	43	--	6.8 J	--	--	--	2.5 U	--	2.5 U	--	--	--	2.5 U	--	--	--
Mercury	0.063	--	0.17 U	--	--	--	0.17 U	--	0.17 U	--	--	--	0.17 U	--	--	--
Nickel	39	--	1.4 U	--	--	--	1.4 U	--	1.4 U	--	--	--	1.4 U	--	--	--
Potassium	--	--	1040	--	--	--	1150	--	1030	--	--	--	1030	--	--	--
Selenium	10	--	0.73 U	--	--	--	0.73 U	--	0.73 U	--	--	--	0.73 U	--	--	--
Silver	9.4	--	1.3 U	--	--	--	1.3 U	--	1.3 U	--	--	--	1.3 U	--	--	--
Sodium	--	--	40800	--	--	--	47200	--	59600	--	--	--	44900	--	--	--
Thallium	0.02	--	0.26 U	--	--	--	0.26 U	--	0.26 U	--	--	--	0.26 U	--	--	--
Vanadium	9	--	1.9 U	--	--	--	1.9 U	--	1.9 U	--	--	--	1.9 U	--	--	--
Zinc	600	--	7 U	--	--	--	7 U	--	7 U	--	--	--	7 U	--	--	--

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Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-038	CFMW-038	CFMW-040	CFMW-040	CFMW-040	CFMW-040	CFMW-042	CFMW-042	CFMW-043	CFMW-043	CFMW-043	CFMW-043	CFMW-044	CFMW-044	CFMW-044
Sample Name		CFMW-038-GW	CFMW-038-GW	CFMW-040-GW	CFMW-040-GW	CFMW-040-GW	CFMW-040-GW	CFMW-042-GW	CFMW-042-GW	CFMW-043-GW	CFMW-043-GW	CFMW-043-GW	CFMW-043-GW	CFMW-044-GW	CFMW-044-GW	CFMW-044-GW
Chemical Name		3/24/2017	6/27/2017	9/14/2016	12/13/2016	3/30/2017	6/20/2017	9/14/2016	6/20/2017	9/13/2016	12/14/2016	3/20/2017	6/21/2017	9/15/2016	12/9/2016	3/28/2017
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	0.43 U	0.43 U	0.44 U	0.43 U	0.44 U	0.43 U	0.45 U	0.43 U	0.46 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.46 U
1,4-Dioxane (P-Dioxane)	0.46	3.1 U	3.1 U	3.2 U	3.1 U	3.2 U	3.1 U	3.2 U	3.1 U	3.3 U	3.1 UJ	3.1 U	3.1 U	3.1 U	3.1 U	3.3 U
2,3,4,6-Tetrachlorophenol	24	0.69 U	0.7 U	0.7 U	0.69 U	0.7 U	0.69 U	0.72 U	0.69 U	0.73 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.73 U
2,4,5-Trichlorophenol	120	0.49 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.51 U	0.49 U	0.52 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U
2,4,6-Trichlorophenol	1.2	0.53 U	0.53 U	0.54 U	0.53 U	0.54 U	0.53 U	0.55 U	0.53 U	0.56 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.56 U
2,4-Dichlorophenol	4.6	0.63 U	0.64 U	0.64 U	0.63 U	0.64 U	0.63 U	0.66 U	0.63 U	0.67 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.67 U
2,4-Dimethylphenol	36	0.91 U	0.92 U	0.93 U	0.91 UJ	0.93 U	0.91 U	0.95 U	0.91 U	0.97 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.97 U
2,4-Dinitrophenol	3.9	2.4 U	2.4 U	2.4 UJ	2.4 U	2.4 U	2.4 UJ	2.5 UJ	2.4 UJ	2.5 UJ	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.5 UJ
2,4-Dinitrotoluene	0.24	1 U	1 U	1.1 U	1 U	1.1 U	1 U	1.1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1.1 U
2,6-Dinitrotoluene	0.049	0.88 U	0.89 U	0.9 U	0.88 U	0.9 U	0.88 U	0.92 U	0.88 U	0.94 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.94 U
2-Chloronaphthalene	75	0.61 U	0.61 U	0.62 U	0.61 U	0.62 U	0.61 U	0.64 U	0.61 U	0.65 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.65 U
2-Chlorophenol	9.1	0.74 U	0.75 U	0.76 U	0.74 U	0.76 U	0.74 U	0.77 U	0.74 U	0.79 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.79 U
2-Methylnaphthalene	3.6	0.88 U	0.89 U	0.9 U	0.88 U	0.9 U	0.88 U	0.92 U	0.88 U	0.94 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.94 U
2-Methylphenol (O-Cresol)	93	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.4 U
2-Nitroaniline	19	0.65 U	0.66 U	0.66 UJ	0.65 U	0.66 U	0.65 U	0.68 UJ	0.65 U	0.69 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.69 U
2-Nitrophenol	--	0.59 U	0.59 U	0.6 U	0.59 U	0.6 U	0.59 U	0.61 U	0.59 U	0.63 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.63 U
3- And 4- Methylphenol (Total)	--	0.88 U	0.89 U	0.9 UJ	0.88 U	0.9 U	0.88 U	0.92 U	0.88 U	0.94 U	0.88 U	0.88 U	0.88 U	0.88 UJ	34	0.94 U
3,3'-Dichlorobenzidine	0.13	1 U	1 U	1.1 U	1 U	1.1 U	1 U	1.1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1.1 U
3-Nitroaniline	--	0.82 U	0.83 U	0.84 U	0.82 U	0.84 U	0.82 U	0.85 U	0.82 U	0.87 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.87 U
4,6-Dinitro-2-Methylphenol	0.15	2 U	2 U	2.1 U	2 U	2.1 U	2 U	2.1 U	2 U	2.1 U	2 U	2 U	2 U	2 U	2 U	2.1 U
4-Bromophenyl Phenyl Ether	--	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1.1 U
4-Chloro-3-Methylphenol	140	0.76 U	0.77 U	0.78 U	0.76 U	0.78 U	0.76 U	0.79 U	0.76 U	0.81 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.81 U
4-Chloroaniline	0.37	0.73 U	0.74 U	0.74 U	0.73 U	0.74 U	0.73 U	0.76 U	0.73 U	0.78 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.78 U
4-Chlorophenyl Phenyl Ether	--	0.96 U	0.97 U	0.98 U	0.96 U	0.98 U	0.96 U	1 U	0.96 U	1 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	1 U
4-Nitroaniline	3.8	0.48 U	0.48 U	0.49 U	0.48 U	0.49 U	0.48 UJ	0.5 U	0.48 UJ	0.51 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.51 UJ
4-Nitrophenol	50	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.8 U	4.7 U	4.9 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.9 U
Acenaphthene	53	0.88 U	0.89 U	0.9 U	0.88 UJ	0.9 U	0.88 U	0.92 U	0.88 U	0.94 U	0.88 UJ	0.88 U	0.88 U	0.88 U	0.88 UJ	0.94 U
Acenaphthylene	--	0.65 U	0.66 U	0.66 U	0.65 U	0.66 U	0.65 U	0.68 U	0.65 U	0.69 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.69 U
Acetophenone	190	1 U	1 U	1.1 U	1 U	1.1 U	1 U	1.1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1.1 U
Anthracene	180	0.57 U	0.57 U	0.58 U	0.57 U	0.58 U	0.57 U	0.59 U	0.57 U	0.61 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.61 U
Atrazine	0.3	0.77 U	0.78 U	0.79 U	0.77 U	0.79 U	0.77 U	0.8 U	0.77 U	0.82 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.82 U
Benzaldehyde	19	0.86 U	0.87 U	0.88 U	0.86 U	0.88 U	0.86 U	0.9 U	0.86 U	0.91 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 UJ	0.91 U
Benzo(A)Anthracene	0.03	0.55 U	0.55 U	0.56 U	0.55 U	0.56 U	0.55 U	0.57 U	0.55 U	0.59 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.59 U
Benzo(A)Pyrene	0.025	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U
Benzo(B)Fluoranthene	0.25	0.44 U	0.44 U	0.45 U	0.44 U	0.45 U	0.44 U	0.46 U	0.44 U	0.47 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.47 U
Benzo(G,H,I)Perylene	--	0.75 U	0.76 U	0.77 U	0.75 U	0.77 U	0.75 U	0.78 U	0.75 U	0.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U
Benzo(K)Fluoranthene	2.5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U
Benzyl Butyl Phthalate	1	0.6 U	0.6 U	0.61 U	0.6 UJ	0.61 U	0.6 U	0.63 U	0.6 U	0.64 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.64 UJ
Biphenyl (Diphenyl)	0.083	0.63 U	0.64 U	0.64 U	0.63 U	0.64 U	0.63 U	0.66 U	0.63 U	0.67 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.67 U
Bis(2-Chloroethoxy) Methane	5.9	0.69 U	0.7 U	0.7 U	0.69 U	0.7 U	0.69 U	0.72 U	0.69 U	0.73 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.73 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.13 U	0.12 U	0.13 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.13 U
Bis(2-Chloroisopropyl) Ether	71	0.93 U	0.94 U	0.95 U	0.93 U	0.95 U	0.93 U	0.97 U	0.93 U	0.99 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.99 U
Bis(2-Ethylhexyl) Phthalate	5.6	0.72 U	0.73 U	0.73 U	0.72 U	0.73 U	0.72 U	0.75 U	0.72 U	0.77 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.77 U
Caprolactam	990	1.1 UJ	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Carbazole	--	0.85 U	0.86 U	0.87 U	0.85 U	0.87 U	0.85 U	0.89 U	0.85 U	0.9 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.9 U
Chrysene	25	0.67 U	0.68 U	0.68 U	0.67 U	0.68 U	0.67 U	0.7 U	0.67 U	0.71 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.71 U
Dibenz(A,H)Anthracene	0.025	0.09 U	0.091 U	0.092 U	0.09 U	0.092 U	0.09 U	0.094 U	0.09 U	0.096 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.096 U
Dibenzofuran	0.79	0.85 U	0.86 U	0.87 U	0.85 U	0.87 U	0.85 U	0.89 U	0.85 U	0.9 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.9 U
Diethyl Phthalate	600	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1.1 UJ
Dimethyl Phthalate	2000	0.98 U	0.99 U	1 U	0.98 U	1 U	0.98 U	1 U	0.98 U	1 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	1 UJ
Di-N-Butyl Phthalate	20	0.82 UJ	0.83 U	0.84 U	0.82 U	0.84 U	0.82 U	0.85 U	0.82 U	0.87 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.87 U
Di-N-Octylphthalate	20	0.69 U	0.7 U	0.7 U	0.69 UJ	0.7 U	0.69 U	0.72 U	0.69 U	0.73 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.73 U
Fluoranthene	20	0.72 U	0.73 U	0.73 U	0.72 U	0.73 U	0.72 U	0.75 U	0.72 U	0.77 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.77 U
Fluorene	29	0.8 U	0.81 U	0.82 U	0.8 U	0.82 U	0.8 U	0.83 U	0.8 U	0.85 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.85 U
Hexachlorobenzene	0.0098	0.47 U	0.47 U	0.48 U	0.47 U	0.48 U	0.47 U	0.49 U	0.47 U	0.5 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.5 U
Hexachlorobutadiene	0.14	0.76 U	0.77 U	0.78 U	0.76 U	0.78 U	0.76 U	0.79 U	0.76 U	0.81 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.81 U

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-038	CFMW-038	CFMW-040	CFMW-040	CFMW-040	CFMW-040	CFMW-042	CFMW-042	CFMW-043	CFMW-043	CFMW-043	CFMW-043	CFMW-044	CFMW-044	CFMW-044
Sample Name		CFMW-038-GW	CFMW-038-GW	CFMW-040-GW	CFMW-040-GW	CFMW-040-GW	CFMW-040-GW	CFMW-042-GW	CFMW-042-GW	CFMW-043-GW	CFMW-043-GW	CFMW-043-GW	CFMW-043-GW	CFMW-044-GW	CFMW-044-GW	CFMW-044-GW
Chemical Name		3/24/2017	6/27/2017	9/14/2016	12/13/2016	3/30/2017	6/20/2017	9/14/2016	6/20/2017	9/13/2016	12/14/2016	3/20/2017	6/21/2017	9/15/2016	12/9/2016	3/28/2017
Hexachlorocyclopentadiene	0.041	0.61 UJ	0.61 U	0.62 U	0.61 U	0.62 U	0.61 U	0.64 U	0.61 U	0.65 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.65 U
Hexachloroethane	0.33	0.09 U	0.091 U	0.092 U	0.09 U	0.092 U	0.09 U	0.094 U	0.09 U	0.096 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.096 U
Indeno(1,2,3-C,D)Pyrene	0.25	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U
Isophorone	78	0.67 U	0.68 U	0.68 U	0.67 U	0.68 U	0.67 U	0.7 U	0.67 U	0.71 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.71 U
Naphthalene	0.17	0.8 U	0.81 U	0.82 U	0.8 U	0.82 U	0.8 U	0.83 U	0.8 U	0.85 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.85 U
Nitrobenzene	0.14	0.49 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.51 U	0.49 U	0.52 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.52 U
N-Nitrosodi-N-Propylamine	0.011	0.83 U	0.84 U	0.85 UJ	0.83 U	0.85 U	0.83 U	0.86 UJ	0.83 U	0.88 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.88 U
N-Nitrosodiphenylamine	12	0.74 U	0.75 U	0.76 U	0.74 U	0.76 U	0.74 U	0.77 U	0.74 U	0.79 U	0.74 UJ	0.74 U	0.74 U	0.74 U	0.74 U	0.79 U
Pentachlorophenol	0.041	2.2 U	2.2 U	2.2 UR	2.2 UJ	2.2 U	2.2 U	2.3 UR	2.2 U	2.3 UR	2.2 UJ	2.2 U	2.2 U	2.2 U	2.2 U	2.3 U
Phenanthrene	--	0.65 U	0.66 U	0.66 U	0.65 U	0.66 U	0.65 U	0.68 U	0.65 U	0.69 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.69 U
Phenol	580	0.41 U	0.41 U	0.42 U	0.41 U	0.42 U	0.41 U	0.43 U	0.41 U	0.44 U	0.41 U	0.41 U	0.41 U	0.41 U	1.6 J	0.44 U
Pyrene	12	0.83 U	0.84 U	0.85 U	0.83 U	0.85 U	0.83 U	0.86 U	0.83 U	0.88 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.88 UJ
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
1,1,2,2-Tetrachloroethane	0.076	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.041	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethane	2.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethene	7	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,2,3-Trichlorobenzene	0.7	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,2,4-Trichlorobenzene	0.4	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 UJ	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-Dichlorobenzene	30	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,2-Dichloroethane	0.17	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloropropane	0.14	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	600	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	0.48	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Hexanone	3.8	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
Acetone	1400	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 UJ	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Benzene	0.46	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Bromochloromethane	8.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromodichloromethane	0.13	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Bromoform	3.3	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Bromomethane	0.75	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 U
Carbon Disulfide	81	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Carbon Tetrachloride	0.46	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Chlorobenzene	7.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chloroethane	2100	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 UJ	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 U	0.37 U	0.37 U
Chloroform	0.22	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloromethane	19	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U
Cis-1,2-Dichloroethylene	3.6	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Cis-1,3-Dichloropropene	4	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Cyclohexane	1300	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 UJ	0.26 U	0.26 U	0.26 U	0.26 U
Dibromochloromethane	0.87	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Dichlorodifluoromethane	20	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 U	0.14 UJ	0.14 UJ	0.14 U	0.14 UJ	0.14 UJ	0.14 U	0.14 U	0.14 U
Ethylbenzene	1.5	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Isopropylbenzene (Cumene)	45	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
M,P-Xylene	--	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Methyl Acetate	2000	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 UJ	0.58 U	0.58 UJ	0.58 U	0.58 U	0.58 U
Methyl Ethyl Ketone (2-Butanone)	560	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
Methylcyclohexane	--	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U
Methylene Chloride	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
O-Xylene (1,2-Dimethylbenzene)	19	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Styrene	100	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Tert-Butyl Methyl Ether	14	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U

Preliminary Under EPA and MDEQ Review

Table C-2
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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-038	CFMW-038	CFMW-040	CFMW-040	CFMW-040	CFMW-040	CFMW-042	CFMW-042	CFMW-043	CFMW-043	CFMW-043	CFMW-043	CFMW-044	CFMW-044	CFMW-044
Sample Name Chemical Name		CFMW-038-GW 3/24/2017	CFMW-038-GW 6/27/2017	CFMW-040-GW 9/14/2016	CFMW-040-GW 12/13/2016	CFMW-040-GW 3/30/2017	CFMW-040-GW 6/20/2017	CFMW-042-GW 9/14/2016	CFMW-042-GW 6/20/2017	CFMW-043-GW 9/13/2016	CFMW-043-GW 12/14/2016	CFMW-043-GW 3/20/2017	CFMW-043-GW 6/21/2017	CFMW-044-GW 9/15/2016	CFMW-044-GW 12/9/2016	CFMW-044-GW 3/28/2017
Tetrachloroethylene (PCE)	4.1	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.14 J	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Toluene	110	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trans-1,2-Dichloroethene	36	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Trans-1,3-Dichloropropene	2	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Trichloroethylene (TCE)	0.28	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichlorofluoromethane	520	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 UJ	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Vinyl Chloride	0.019	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-044	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-045	CFMW-045	CFMW-045	CFMW-045	CFMW-045A	CFMW-045A	CFMW-045A	CFMW-045A	CFMW-047	CFMW-047
Sample Name		CFMW-044-GW	CFMW-044a-GW	CFMW-044a-GW	CFMW-044a-GW	CFMW-044a-GW	CFMW-045-GW	CFMW-045-GW	CFMW-045-GW	CFMW-045-GW	CFMW-045a-GW	CFMW-045a-GW	CFMW-045a-GW	CFMW-045a-GW	CFMW-047-GW	CFMW-047-GW
Chemical Name		6/21/2017	9/19/2016	12/19/2016	3/21/2017	6/23/2017	9/15/2016	12/14/2016	3/23/2017	6/28/2017	9/19/2016	12/9/2016	3/24/2017	6/23/2017	9/14/2016	12/15/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	1580	--	--	--	2350	--	--	--	2370 J+	--	--	--	3230	--	--
Fluoride	80	1400 J-	1720	2280	2720	2250 J+	2300	1920 J-	2550	2150 J-	2980	1650 J-	3520 J+	3400 J+	2160	1960
Cyanide (Dissolved)	0.15	89.4	--	--	--	120	--	--	--	428	--	--	--	67.3	--	--
Cyanide (Free) (Dissolved)	--	2.8 J	--	--	--	10.3	--	--	--	14.4 J	--	--	--	2.4 J	--	--
Cyanide	0.15	69.5	32.8	125	80.8	119	365	392	381	456	56	34.8	52.9	63.2	120	145
Cyanide (Free)	--	4.5 J	--	--	11.4	7.8	--	--	2.9 J	33.7 J-	--	--	1.9 U	1.6 J	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	108	41.1	171	21.9 J	18.2 U	18.5 J	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	2	1.1 J	1.5 J	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	147	75	18.7	24.2	31	150	155	130	156	88.5	18.9	115	124	232	244
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	67300	155000	24600	23900	25200	53700	52900	48600	53000	45800	4500	53700	56800	57100	58400
Chromium, Total (Dissolved)	100	1.3 U	4.2	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	5	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.5 J	1.4 J	1.3 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	1.4 U	1.9 J	2.9 J	8.7	6.2	3.8 J	2.8 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	4.1	1.4 J
Iron (Dissolved)	1400	42.4 U	42.4 U	42.4 U	230	53.6 J	152	170	147	169	42.4 U	42.4 U	317	316	55.1 J	42.4 U
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	13600	121 J	9190	11600	10600	15600	15500	14100	14300	13000	4800	15100	15200	15600	16600
Manganese (Dissolved)	43	2.5 U	2.5 U	2.5 U	10.5	22.6	8.8	6.6 J	10.1	2.5 U	23.6	2.5 U	58.2	66.9	2.5 U	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	1050	1660	1120	900	889	936	986	860	962	2300	3590	1560	1180	1200	972
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	19100	40700	38700	38700	38800	39000	40700	36000	44300	31100	27700	31600	28300	18500	21100
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	10.3	8.6	4.5	3.6 J	1.9 U	1.9 U	1.9 U	1.9 U	2.3 J	4	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	18.2 U	--	--	--	417	--	--	--	139	--	--	--	25.1 J	--	--
Antimony	0.78	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--
Arsenic	0.052	0.64 U	--	--	--	1.5 J	--	--	--	0.64 U	--	--	--	0.64 U	--	--
Barium	380	125	--	--	--	35.5	--	--	--	175	--	--	--	127	--	--
Beryllium	2.5	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--
Cadmium	0.92	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--
Calcium	--	45100	--	--	--	27000	--	--	--	55500	--	--	--	57000	--	--
Chromium, Total	100	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	3.2 J	--	--
Cobalt	0.6	2.1 J	--	--	--	1.6 J	--	--	--	1.3 J	--	--	--	1.3 U	--	--
Copper	80	1.5 J	--	--	--	9.5	--	--	--	1.4 U	--	--	--	1.4 U	--	--
Iron	1400	20400	--	--	--	486	--	--	--	432	--	--	--	489	--	--
Lead	15	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U	--	--
Magnesium	--	19700	--	--	--	12100	--	--	--	17100	--	--	--	16100	--	--
Manganese	43	829	--	--	--	36	--	--	--	3.5 J	--	--	--	74.9	--	--
Mercury	0.063	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--
Nickel	39	8.8	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U	--	--
Potassium	--	3210	--	--	--	987	--	--	--	1090	--	--	--	1240	--	--
Selenium	10	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--
Silver	9.4	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--
Sodium	--	50600	--	--	--	44700	--	--	--	54200	--	--	--	32600	--	--
Thallium	0.02	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--
Vanadium	9	1.9 U	--	--	--	4.8	--	--	--	1.9 U	--	--	--	1.9 U	--	--
Zinc	600	15.9 J	--	--	--	12.9 J	--	--	--	7 U	--	--	--	7 U	--	--

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Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-044	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-045	CFMW-045	CFMW-045	CFMW-045	CFMW-045A	CFMW-045A	CFMW-045A	CFMW-045A	CFMW-047	CFMW-047
Sample Name		CFMW-044-GW	CFMW-044a-GW	CFMW-044a-GW	CFMW-044a-GW	CFMW-044a-GW	CFMW-045-GW	CFMW-045-GW	CFMW-045-GW	CFMW-045-GW	CFMW-045a-GW	CFMW-045a-GW	CFMW-045a-GW	CFMW-045a-GW	CFMW-047-GW	CFMW-047-GW
Chemical Name		6/21/2017	9/19/2016	12/19/2016	3/21/2017	6/23/2017	9/15/2016	12/14/2016	3/23/2017	6/28/2017	9/19/2016	12/9/2016	3/24/2017	6/23/2017	9/14/2016	12/15/2016
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	0.43 U	---	---	---	---	0.43 U	0.43 U	0.45 U	0.43 U	---	---	---	---	0.44 U	0.45 UJ
1,4-Dioxane (P-Dioxane)	0.46	3.1 U	---	---	---	---	3.1 U	3.1 UJ	3.3 U	3.1 U	---	---	---	---	3.2 U	3.2 U
2,3,4,6-Tetrachlorophenol	24	0.69 U	---	---	---	---	0.69 U	0.69 U	0.72 U	0.69 U	---	---	---	---	0.7 U	0.72 U
2,4,5-Trichlorophenol	120	0.49 U	---	---	---	---	0.49 U	0.49 U	0.51 U	0.49 U	---	---	---	---	0.5 U	0.51 U
2,4,6-Trichlorophenol	1.2	0.53 U	---	---	---	---	0.53 U	0.53 U	0.55 U	0.53 U	---	---	---	---	0.54 U	0.55 U
2,4-Dichlorophenol	4.6	0.63 U	---	---	---	---	0.63 U	0.63 U	0.66 U	0.63 U	---	---	---	---	0.64 U	0.65 U
2,4-Dimethylphenol	36	0.91 U	---	---	---	---	0.91 U	0.91 U	0.95 U	0.91 U	---	---	---	---	0.93 U	0.94 U
2,4-Dinitrophenol	3.9	2.4 U	---	---	---	---	2.4 U	2.4 U	2.5 U	2.4 U	---	---	---	---	2.4 UJ	2.5 U
2,4-Dinitrotoluene	0.24	1 U	---	---	---	---	1 U	1 U	1.1 U	1 U	---	---	---	---	1.1 U	1.1 U
2,6-Dinitrotoluene	0.049	0.88 U	---	---	---	---	0.88 U	0.88 U	0.92 U	0.88 U	---	---	---	---	0.9 U	0.91 U
2-Chloronaphthalene	75	0.61 U	---	---	---	---	0.61 U	0.61 U	[illegible]	0.61 U	---	---	---	---	0.62 U	0.63 U
2-Chlorophenol	9.1	0.74 U	---	---	---	---	0.74 U	0.74 U	[illegible]	0.74 U	---	---	---	---	0.76 U	0.77 U
2-Methylnaphthalene	3.6	0.88 U	---	---	---	---	0.88 U	0.88 U	0.92 U	0.88 U	---	---	---	---	0.9 U	0.91 U
2-Methylphenol (O-Cresol)	93	1.3 U	---	---	---	---	1.3 U	1.3 U	1.3 U	1.3 U	---	---	---	---	1.3 U	1.3 U
2-Nitroaniline	19	0.65 U	---	---	---	---	0.65 UJ	0.65 U	0.68 U	0.65 U	---	---	---	---	0.66 UJ	0.67 U
2-Nitrophenol	--	0.59 U	---	---	---	---	0.59 U	0.59 U	0.62 U	0.59 U	---	---	---	---	0.6 U	0.61 U
3- And 4- Methylphenol (Total)	--	42	---	---	---	---	0.88 UJ	0.88 U	0.92 U	0.88 U	---	---	---	---	0.9 UJ	0.91 U
3,3'-Dichlorobenzidine	0.13	1 U	---	---	---	---	1 U	1 U	1.1 U	1 U	---	---	---	---	1.1 U	1.1 U
3-Nitroaniline	--	0.82 U	---	---	---	---	0.82 U	0.82 U	0.86 U	0.82 U	---	---	---	---	0.84 U	0.85 U
4,6-Dinitro-2-Methylphenol	0.15	2 U	---	---	---	---	2 U	2 U	2.1 U	2 U	---	---	---	---	2.1 U	2.1 U
4-Bromophenyl Phenyl Ether	--	1 U	---	---	---	---	1 U	1 U	1.1 U	1 U	---	---	---	---	1 U	1.1 U
4-Chloro-3-Methylphenol	140	0.76 U	---	---	---	---	0.76 U	0.76 U	0.79 U	0.76 U	---	---	---	---	0.78 U	0.79 U
4-Chloroaniline	0.37	0.73 U	---	---	---	---	0.73 U	0.73 U	0.76 U	0.73 U	---	---	---	---	0.74 U	0.76 U
4-Chlorophenyl Phenyl Ether	--	0.96 U	---	---	---	---	0.96 U	0.96 U	1 U	0.96 U	---	---	---	---	0.98 U	1 U
4-Nitroaniline	3.8	0.48 U	---	---	---	---	0.48 U	0.48 U	0.5 U	0.48 U	---	---	---	---	0.49 U	0.5 U
4-Nitrophenol	50	4.7 U	---	---	---	---	4.7 U	4.7 U	4.9 U	4.7 U	---	---	---	---	4.7 U	4.8 U
Acenaphthene	53	0.88 U	---	---	---	---	0.88 U	0.88 UJ	0.92 U	0.88 U	---	---	---	---	0.9 U	0.91 UJ
Acenaphthylene	--	0.65 U	---	---	---	---	0.65 U	0.65 U	0.68 U	0.65 U	---	---	---	---	0.66 U	0.67 U
Acetophenone	190	1 U	---	---	---	---	1 U	1 U	1.1 U	1 U	---	---	---	---	1.1 U	1.1 U
Anthracene	180	0.57 U	---	---	---	---	0.57 U	0.57 U	0.6 U	0.57 U	---	---	---	---	0.58 U	0.59 U
Atrazine	0.3	0.77 U	---	---	---	---	0.77 U	0.77 U	0.81 U	0.77 U	---	---	---	---	0.78 U	0.8 U
Benzaldehyde	19	0.86 U	---	---	---	---	0.86 U	0.86 U	0.9 U	0.86 U	---	---	---	---	0.88 U	0.89 U
Benzo(A)Anthracene	0.03	0.55 U	---	---	---	---	0.55 U	0.55 U	0.58 U	0.55 U	---	---	---	---	0.56 U	0.57 U
Benzo(A)Pyrene	0.025	0.16 U	---	---	---	---	0.16 U	0.16 U	0.17 U	0.16 U	---	---	---	---	0.16 U	0.17 U
Benzo(B)Fluoranthene	0.25	0.44 U	---	---	---	---	0.44 U	0.44 U	0.46 U	0.44 U	---	---	---	---	0.45 U	0.46 U
Benzo(G,H,I)Perylene	--	0.75 U	---	---	---	---	0.75 U	0.75 U	0.78 U	0.75 U	---	---	---	---	0.77 U	0.78 U
Benzo(K)Fluoranthene	2.5	0.18 U	---	---	---	---	0.18 U	0.18 U	0.19 U	0.18 U	---	---	---	---	0.18 U	0.19 U
Benzyl Butyl Phthalate	1	0.6 U	---	---	---	---	0.6 U	0.6 U	0.63 U	0.6 U	---	---	---	---	0.61 U	0.62 U
Biphenyl (Diphenyl)	0.083	0.63 U	---	---	---	---	0.63 U	0.63 U	0.66 U	0.63 U	---	---	---	---	0.64 U	0.65 UJ
Bis(2-Chloroethoxy) Methane	5.9	0.69 U	---	---	---	---	0.69 U	0.69 U	0.72 U	0.69 U	---	---	---	---	0.7 U	0.72 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	0.12 U	---	---	---	---	0.12 U	0.12 UJ	0.13 U	0.12 U	---	---	---	---	0.12 U	0.12 UJ
Bis(2-Chloroisopropyl) Ether	71	0.93 U	---	---	---	---	0.93 U	0.93 U	0.97 U	0.93 U	---	---	---	---	0.95 U	0.96 U
Bis(2-Ethylhexyl) Phthalate	5.6	0.72 U	---	---	---	---	0.72 U	0.72 U	0.75 U	0.72 U	---	---	---	---	0.73 U	0.75 U
Caprolactam	990	1.1 U	---	---	---	---	1.1 U	1.1 U	1.1 U	1.1 U	---	---	---	---	1.1 U	1.1 U
Carbazole	--	0.85 U	---	---	---	---	0.85 U	0.85 U	0.89 U	0.85 U	---	---	---	---	0.87 U	0.88 U
Chrysene	25	0.67 U	---	---	---	---	0.67 U	0.67 U	0.7 U	0.67 U	---	---	---	---	0.68 U	0.7 U
Dibenz(A,H)Anthracene	0.025	0.09 U	---	---	---	---	0.09 U	0.09 U	0.094 U	0.09 U	---	---	---	---	0.092 U	0.093 U
Dibenzofuran	0.79	0.85 U	---	---	---	---	0.85 U	0.85 U	0.89 U	0.85 U	---	---	---	---	0.87 U	0.88 U
Diethyl Phthalate	600	1 U	---	---	---	---	1 U	1 U	1 U	1 U	---	---	---	---	1 U	1 U
Dimethyl Phthalate	2000	0.98 U	---	---	---	---	0.98 U	0.98 U	1 U	0.98 U	---	---	---	---	1 U	1 U
Di-N-Butyl Phthalate	20	0.82 U	---	---	---	---	0.82 U	0.82 U	0.86 U	0.82 U	---	---	---	---	0.84 U	0.85 U
Di-N-Octylphthalate	20	0.69 U	---	---	---	---	0.69 U	0.69 U	0.72 U	0.69 U	---	---	---	---	0.7 U	0.72 U
Fluoranthene	20	0.72 U	---	---	---	---	0.72 U	0.72 U	0.75 U	0.72 U	---	---	---	---	0.73 U	0.75 U
Fluorene	29	0.8 U	---	---	---	---	0.8 U	0.8 U	0.84 U	0.8 U	---	---	---	---	0.82 U	0.83 U
Hexachlorobenzene	0.0098	0.47 U	---	---	---	---	0.47 U	0.47 U	0.49 U	0.47 U	---	---	---	---	0.48 U	0.49 U
Hexachlorobutadiene	0.14	0.76 U	---	---	---	---	0.76 U	0.76 U	0.79 U	0.76 U	---	---	---	---	0.78 U	0.79 U

Preliminary - Under EPA and MDEQ Review

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Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-044	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-045	CFMW-045	CFMW-045	CFMW-045	CFMW-045A	CFMW-045A	CFMW-045A	CFMW-045A	CFMW-047	CFMW-047
Sample Name		CFMW-044-GW	CFMW-044a-GW	CFMW-044a-GW	CFMW-044a-GW	CFMW-044a-GW	CFMW-045-GW	CFMW-045-GW	CFMW-045-GW	CFMW-045-GW	CFMW-045a-GW	CFMW-045a-GW	CFMW-045a-GW	CFMW-045a-GW	CFMW-047-GW	CFMW-047-GW
Chemical Name		6/21/2017	9/19/2016	12/19/2016	3/21/2017	6/23/2017	9/15/2016	12/14/2016	3/23/2017	6/28/2017	9/19/2016	12/9/2016	3/24/2017	6/23/2017	9/14/2016	12/15/2016
Hexachlorocyclopentadiene	0.041	0.61 U	---	---	---	---	0.61 U	0.61 U	0.64 U	0.61 U	---	---	---	---	0.62 U	0.63 U
Hexachloroethane	0.33	0.09 U	---	---	---	---	0.09 U	0.09 U	0.094 U	0.09 U	---	---	---	---	0.092 U	0.093 U
Indeno(1,2,3-C,D)Pyrene	0.25	0.21 U	---	---	---	---	0.21 U	0.21 U	0.22 U	0.21 U	---	---	---	---	0.21 U	0.22 U
Isophorone	78	0.67 U	---	---	---	---	0.67 U	0.67 U	0.7 U	0.67 U	---	---	---	---	0.68 U	0.7 U
Naphthalene	0.17	0.8 U	---	---	---	---	0.8 U	0.8 U	0.84 U	0.8 U	---	---	---	---	0.82 U	0.83 U
Nitrobenzene	0.14	0.49 U	---	---	---	---	0.49 U	0.49 U	0.51 U	0.49 U	---	---	---	---	0.5 U	0.51 U
N-Nitrosodi-N-Propylamine	0.011	0.83 U	---	---	---	---	0.83 UJ	0.83 U	0.87 U	0.83 U	---	---	---	---	0.85 UJ	0.86 U
N-Nitrosodiphenylamine	12	0.74 U	---	---	---	---	0.74 U	0.74 UJ	0.77 U	0.74 U	---	---	---	---	0.76 U	0.77 U
Pentachlorophenol	0.041	2.2 U	---	---	---	---	2.2 U	2.2 UJ	2.3 U	2.2 U	---	---	---	---	2.2 UR	2.3 UJ
Phenanthrene	--	0.65 U	---	---	---	---	0.65 U	0.65 U	0.68 U	0.65 U	---	---	---	---	0.66 U	0.67 U
Phenol	580	3.9 J	---	---	---	---	0.41 U	0.41 U	0.43 U	0.41 U	---	---	---	---	0.42 U	0.43 U
Pyrene	12	0.83 U	---	---	---	---	0.83 U	0.83 U	0.86 U	0.83 U	---	---	---	---	0.85 U	0.86 U
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	0.28 U	---	---	---	---	0.28 U	0.28 U	0.28 U	0.28 U	---	---	---	---	0.28 U	0.28 U
1,1,2,2-Tetrachloroethane	0.076	0.19 U	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	0.19 U	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	0.34 U	---	---	---	---	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---	0.34 U	0.34 U
1,1,2-Trichloroethane	0.041	0.08 U	---	---	---	---	0.08 U	0.08 U	0.08 U	0.08 U	---	---	---	---	0.08 U	0.08 U
1,1-Dichloroethane	2.8	0.24 U	---	---	---	---	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---	0.24 U	0.24 U
1,1-Dichloroethene	7	0.34 U	---	---	---	---	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---	0.34 U	0.34 U
1,2,3-Trichlorobenzene	0.7	0.35 U	---	---	---	---	0.35 U	0.35 U	0.35 U	0.35 U	---	---	---	---	0.35 U	0.35 U
1,2,4-Trichlorobenzene	0.4	0.27 U	---	---	---	---	0.27 U	0.27 U	0.27 U	0.27 U	---	---	---	---	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	0.23 U	---	---	---	---	0.23 U	0.23 UJ	0.23 U	0.23 U	---	---	---	---	0.23 U	0.23 UJ
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	0.19 U	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	0.19 U	0.19 U
1,2-Dichlorobenzene	30	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U
1,2-Dichloroethane	0.17	0.25 U	---	---	---	---	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---	---	0.25 U	0.25 U
1,2-Dichloropropane	0.14	0.18 U	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	0.18 U	0.18 U
1,3-Dichlorobenzene	600	0.33 U	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	0.33 U	0.33 U
1,4-Dichlorobenzene	0.48	0.33 U	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	0.33 U	0.33 U
2-Hexanone	3.8	0.72 U	---	---	---	---	0.72 U	0.72 U	0.72 U	0.72 U	---	---	---	---	0.72 U	0.72 U
Acetone	1400	5.3	---	---	---	---	1.1 U	1.1 UJ	2.8 J	1.1 U	---	---	---	---	10	1.1 UJ
Benzene	0.46	0.09 U	---	---	---	---	0.09 U	0.09 U	0.09 U	0.09 U	---	---	---	---	0.09 U	0.09 U
Bromochloromethane	8.3	0.3 U	---	---	---	---	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---	0.3 U	0.3 U
Bromodichloromethane	0.13	0.15 U	---	---	---	---	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---	---	0.15 U	0.15 U
Bromoform	3.3	0.18 U	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	0.18 U	0.18 U
Bromomethane	0.75	0.18 UJ	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	0.18 U	0.18 U
Carbon Disulfide	81	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	3	0.22 U
Carbon Tetrachloride	0.46	0.33 U	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	0.33 U	0.33 U
Chlorobenzene	7.8	0.24 U	---	---	---	---	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---	0.24 U	0.24 U
Chloroethane	2100	0.37 U	---	---	---	---	0.37 U	0.37 U	0.37 U	0.37 U	---	---	---	---	0.37 U	0.37 U
Chloroform	0.22	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U
Chloromethane	19	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U
Cis-1,2-Dichloroethylene	3.6	0.26 U	---	---	---	---	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---	---	0.26 U	0.26 U
Cis-1,3-Dichloropropene	4	0.16 U	---	---	---	---	0.16 U	0.16 U	0.16 U	0.16 U	---	---	---	---	0.16 U	0.16 U
Cyclohexane	1300	0.26 U	---	---	---	---	0.26 U	0.26 U	0.26 U	0.26 UJ	---	---	---	---	0.26 U	0.26 U
Dibromochloromethane	0.87	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U
Dichlorodifluoromethane	20	0.14 UJ	---	---	---	---	0.14 U	0.14 U	0.14 U	0.14 UJ	---	---	---	---	0.14 U	0.14 U
Ethylbenzene	1.5	0.3 U	---	---	---	---	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---	0.3 U	0.3 U
Isopropylbenzene (Cumene)	45	0.32 U	---	---	---	---	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---	0.32 U	0.32 U
M,P-Xylene	--	0.28 U	---	---	---	---	0.28 U	0.28 U	0.28 U	0.28 U	---	---	---	---	0.28 U	0.28 U
Methyl Acetate	2000	0.58 UJ	---	---	---	---	0.58 U	0.58 UJ	0.58 U	0.58 U	---	---	---	---	0.58 U	0.58 UJ
Methyl Ethyl Ketone (2-Butanone)	560	2.2 U	---	---	---	---	2.2 U	2.2 U	2.2 U	2.2 U	---	---	---	---	2.2 U	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	0.63 U	---	---	---	---	0.63 U	0.63 U	0.63 U	0.63 U	---	---	---	---	0.63 U	0.63 U
Methylcyclohexane	--	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 UJ	---	---	---	---	0.22 U	0.22 U
Methylene Chloride	5	0.21 U	---	---	---	---	0.21 U	0.51 J	0.21 U	0.21 U	---	---	---	---	0.21 U	0.21 U
O-Xylene (1,2-Dimethylbenzene)	19	0.32 U	---	---	---	---	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---	0.32 U	0.32 U
Styrene	100	0.17 U	---	---	---	---	0.17 U	0.17 U	0.17 U	0.17 U	---	---	---	---	0.17 U	0.17 U
Tert-Butyl Methyl Ether	14	0.13 U	---	---	---	---	0.13 U	0.13 U	0.13 U	0.13 U	---	---	---	---	0.13 U	0.13 U

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Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-044	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-044A	CFMW-045	CFMW-045	CFMW-045	CFMW-045	CFMW-045A	CFMW-045A	CFMW-045A	CFMW-045A	CFMW-047	CFMW-047
Sample Name Chemical Name		CFMW-044-GW 6/21/2017	CFMW-044a-GW 9/19/2016	CFMW-044a-GW 12/19/2016	CFMW-044a-GW 3/21/2017	CFMW-044a-GW 6/23/2017	CFMW-045-GW 9/15/2016	CFMW-045-GW 12/14/2016	CFMW-045-GW 3/23/2017	CFMW-045-GW 6/28/2017	CFMW-045a-GW 9/19/2016	CFMW-045a-GW 12/9/2016	CFMW-045a-GW 3/24/2017	CFMW-045a-GW 6/23/2017	CFMW-047-GW 9/14/2016	CFMW-047-GW 12/15/2016
Tetrachloroethylene (PCE)	4.1	0.12 U	...	...	...	...	0.12 U	0.12 U	0.12 U	0.12 U	...	...	...	...	0.12 U	0.12 U
Toluene	110	0.25 U	...	...	...	...	0.25 U	0.25 U	0.25 U	0.25 U	...	...	...	...	2.2	0.66 J
Trans-1,2-Dichloroethene	36	0.18 U	...	...	...	...	0.18 U	0.18 U	0.18 U	0.18 U	...	...	...	...	0.18 U	0.18 U
Trans-1,3-Dichloropropene	2	0.19 U	...	...	...	...	0.19 U	0.19 U	0.19 U	0.19 U	...	...	...	...	0.19 U	0.19 U
Trichloroethylene (TCE)	0.28	0.22 U	...	...	...	...	0.22 U	0.22 U	0.22 U	0.22 U	...	...	...	...	0.22 U	0.22 U
Trichlorofluoromethane	520	0.15 U	...	...	...	...	0.15 U	0.15 UJ	0.15 U	0.15 U	...	...	...	...	0.15 U	0.15 UJ
Vinyl Chloride	0.019	0.06 U	...	...	...	...	0.06 U	0.06 U	0.06 U	0.06 U	...	...	...	...	0.06 U	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

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Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-047	CFMW-047	CFMW-049	CFMW-049	CFMW-049-DUP	CFMW-049	CFMW-049	CFMW-049A	CFMW-049A	CFMW-049A	CFMW-049A	CFMW-050	CFMW-050	CFMW-050	CFMW-050
Sample Name		CFMW-047-GW	CFMW-047-GW	CFMW-049-GW	CFMW-049-GW	CFMW-DUP6-GW	CFMW-049-GW	CFMW-049-GW	CFMW-049a-GW	CFMW-049a-GW	CFMW-049a-GW	CFMW-049a-GW	CFMW-050-GW	CFMW-050-GW	CFMW-050-GW	CFMW-050-GW
Chemical Name		3/23/2017	6/21/2017	9/21/2016	12/15/2016	12/15/2016	3/23/2017	6/21/2017	9/16/2016	12/15/2016	3/23/2017	6/21/2017	9/19/2016	12/15/2016	3/23/2017	6/21/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	2100	--	--	--	--	815	--	--	--	444	--	--	--	808
Fluoride	80	2470	1920	861	834	827	980 J+	720 J-	470 J-	433	439	405 J-	811	809	945	744 J-
Cyanide (Dissolved)	0.15	--	120	--	--	--	--	89.8	--	--	--	38.2	--	--	--	105
Cyanide (Free) (Dissolved)	--	--	4.1 J	--	--	--	--	4.7 J	--	--	--	1.6 J	--	--	--	3.9 J
Cyanide	0.15	171	119	93.2	82.9	84.6	87.5	89.7	47.1	71.5	8 J	58.6	51.7	51.6	72.4	106
Cyanide (Free)	--	1.5 U	10	--	--	--	1.5 U	5.5	--	--	1.5 U	1.8 J	--	--	1.5 U	4.5 J
METALS (µg/l)																
Aluminum (Dissolved)	2000	20.7 J	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	21.9 J	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	217	201	273	278	278	280	276	520	224	1010	275	255	257	256	271
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	53000	49500	47600	47200	47500	48500	46400	198000	41100	233000	51100	46800	46600	49400	48600
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	4	1.4 J	4.3	2.4 J	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	1.4 J	1.4 U	4	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	3.8 J	1.7 J	1.4 U	3.8 J	4.2	1.4 U	1.4 U
Iron (Dissolved)	1400	95.6 J	45.6 J	42.4 U	42.4 U	42.4 U	79.3 J	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	15300	13700	15500	15400	15300	16000	14400	291	13600	605	6200	15300	15400	16300	14800
Manganese (Dissolved)	43	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	7.4 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	3.1 J	3.7 J	2.7 J	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	907	875	857	783	804	803	786	19700	3480	10800	3400	845	844	820	801
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	23600	16400	10100	10200	10200	10300	10500	25200	12000	20400	12000	11700	10700	9690	11300
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 J	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	39.6 J	--	--	--	--	23.2 J	--	--	--	42.7	--	--	--	18.2 U
Antimony	0.78	--	0.62 U	--	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U
Arsenic	0.052	--	0.64 U	--	--	--	--	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U
Barium	380	--	209	--	--	--	--	276	--	--	--	371	--	--	--	276
Beryllium	2.5	--	0.24 U	--	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U
Cadmium	0.92	--	0.71 U	--	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U
Calcium	--	--	51300	--	--	--	--	46400	--	--	--	86300	--	--	--	49400
Chromium, Total	100	--	1.3 U	--	--	--	--	1.3 U	--	--	--	3 J	--	--	--	1.3 U
Cobalt	0.6	--	1.3 U	--	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U
Copper	80	--	2.3 J	--	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U
Iron	1400	--	105 J	--	--	--	--	68.9 J	--	--	--	50.4 J	--	--	--	42.4 J
Lead	15	--	0.38 U	--	--	--	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U
Magnesium	--	--	15700	--	--	--	--	16400	--	--	--	13300	--	--	--	17500
Manganese	43	--	2.5 U	--	--	--	--	2.5 U	--	--	--	2.5 U	--	--	--	2.5 U
Mercury	0.063	--	0.17 U	--	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U
Nickel	39	--	1.4 U	--	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U
Potassium	--	--	909	--	--	--	--	806	--	--	--	3750	--	--	--	840
Selenium	10	--	0.73 U	--	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U
Silver	9.4	--	1.3 U	--	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U
Sodium	--	--	19100	--	--	--	--	12200	--	--	--	13700	--	--	--	13000
Thallium	0.02	--	0.26 U	--	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U
Vanadium	9	--	1.9 U	--	--	--	--	1.9 U	--	--	--	1.9 U	--	--	--	1.9 U
Zinc	600	--	7 U	--	--	--	--	7 U	--	--	--	7 U	--	--	--	7 U

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-047	CFMW-047	CFMW-049	CFMW-049	CFMW-049-DUP	CFMW-049	CFMW-049	CFMW-049A	CFMW-049A	CFMW-049A	CFMW-049A	CFMW-050	CFMW-050	CFMW-050	CFMW-050
Sample Name		CFMW-047-GW	CFMW-047-GW	CFMW-049-GW	CFMW-049-GW	CFMW-DUP6-GW	CFMW-049-GW	CFMW-049-GW	CFMW-049a-GW	CFMW-049a-GW	CFMW-049a-GW	CFMW-049a-GW	CFMW-050-GW	CFMW-050-GW	CFMW-050-GW	CFMW-050-GW
Chemical Name		3/23/2017	6/21/2017	9/21/2016	12/15/2016	12/15/2016	3/23/2017	6/21/2017	9/16/2016	12/15/2016	3/23/2017	6/21/2017	9/19/2016	12/15/2016	3/23/2017	6/21/2017
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	0.45 U	0.43 U	0.43 U	0.44 UJ	0.44 UJ	0.45 U	0.43 U	---	---	---	---	0.43 U	0.45 UJ	0.45 U	0.43 U
1,4-Dioxane (P-Dioxane)	0.46	3.2 U	3.1 U	3.1 UJ	3.2 U	3.2 U	3.2 U	3.1 U	---	---	---	---	3.1 U	3.3 U	3.2 U	3.1 U
2,3,4,6-Tetrachlorophenol	24	0.72 U	0.69 U	0.69 U	0.7 U	0.71 U	0.72 U	0.69 U	---	---	---	---	0.69 U	0.72 U	0.72 U	0.69 U
2,4,5-Trichlorophenol	120	0.51 U	0.49 U	0.49 U	0.5 U	0.5 U	0.51 U	0.49 U	---	---	---	---	0.49 U	0.51 U	0.51 U	0.49 U
2,4,6-Trichlorophenol	1.2	0.55 U	0.53 U	0.53 U	0.54 U	0.55 U	0.55 U	0.53 U	---	---	---	---	0.53 U	0.55 U	0.55 U	0.53 U
2,4-Dichlorophenol	4.6	0.66 U	0.63 U	0.63 U	0.64 U	0.65 U	0.66 U	0.63 U	---	---	---	---	0.63 U	0.66 U	0.66 U	0.63 U
2,4-Dimethylphenol	36	0.95 U	0.91 U	0.91 U	0.93 U	0.94 U	0.95 U	0.91 U	---	---	---	---	0.91 U	0.95 U	0.95 U	0.91 U
2,4-Dinitrophenol	3.9	2.5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	---	---	---	---	2.4 U	2.5 U	2.5 U	2.4 U
2,4-Dinitrotoluene	0.24	1.1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1 U	---	---	---	---	1 U	1.1 U	1.1 U	1 U
2,6-Dinitrotoluene	0.049	0.92 U	0.88 U	0.88 U	0.9 U	0.91 U	0.92 U	0.88 U	---	---	---	---	0.88 U	0.92 U	0.92 U	0.88 U
2-Chloronaphthalene	75	0.64 U	0.61 U	0.61 U	0.62 U	0.63 U	0.64 U	0.61 U	---	---	---	---	0.61 U	0.64 U	0.64 U	0.61 U
2-Chlorophenol	9.1	0.77 U	0.74 U	0.74 U	0.76 U	0.76 U	0.77 U	0.74 U	---	---	---	---	0.74 U	0.77 U	0.77 U	0.74 U
2-Methylnaphthalene	3.6	0.92 U	0.88 U	0.88 U	0.9 U	0.91 U	0.92 U	0.88 U	---	---	---	---	0.88 U	0.92 U	0.92 U	0.88 U
2-Methylphenol (O-Cresol)	93	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	---	---	---	---	1.3 U	1.3 U	1.3 U	1.3 U
2-Nitroaniline	19	0.68 U	0.65 U	0.65 U	0.66 U	0.67 U	0.68 U	0.65 U	---	---	---	---	0.65 U	0.68 U	0.68 U	0.65 U
2-Nitrophenol	--	0.61 U	0.59 U	0.59 U	0.6 U	0.61 U	0.61 U	0.59 U	---	---	---	---	0.59 U	0.62 U	0.61 U	0.59 U
3- And 4- Methylphenol (Total)	--	0.92 U	0.88 U	0.88 U	0.9 U	0.91 U	0.92 U	0.88 U	---	---	---	---	0.88 U	0.92 U	0.92 U	0.88 U
3,3'-Dichlorobenzidine	0.13	1.1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1 U	---	---	---	---	1 U	1.1 U	1.1 U	1 U
3-Nitroaniline	--	0.85 U	0.82 U	0.82 U	0.84 U	0.84 U	0.85 U	0.82 U	---	---	---	---	0.82 U	0.86 U	0.85 U	0.82 U
4,6-Dinitro-2-Methylphenol	0.15	2.1 U	2 U	2 U	2.1 U	2.1 U	2.1 U	2 U	---	---	---	---	2 U	2.1 U	2.1 U	2 U
4-Bromophenyl Phenyl Ether	--	1.1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	---	---	---	---	1 U	1.1 U	1.1 U	1 U
4-Chloro-3-Methylphenol	140	0.79 U	0.76 U	0.76 U	0.78 U	0.78 U	0.79 U	0.76 U	---	---	---	---	0.76 U	0.79 U	0.79 U	0.76 U
4-Chloroaniline	0.37	0.76 U	0.73 U	0.73 U	0.74 U	0.75 U	0.76 U	0.73 U	---	---	---	---	0.73 U	0.76 U	0.76 U	0.73 U
4-Chlorophenyl Phenyl Ether	--	1 U	0.96 U	0.96 U	0.98 U	0.99 U	1 U	0.96 U	---	---	---	---	0.96 U	1 U	1 U	0.96 U
4-Nitroaniline	3.8	0.5 U	0.48 U	0.48 U	0.49 U	0.49 U	0.5 U	0.48 U	---	---	---	---	0.48 U	0.5 U	0.5 U	0.48 U
4-Nitrophenol	50	4.8 U	4.7 U	4.7 U	4.7 U	4.8 U	4.8 U	4.7 U	---	---	---	---	4.7 U	4.9 U	4.8 U	4.7 U
Acenaphthene	53	0.92 U	0.88 U	0.88 U	0.9 UJ	0.91 UJ	0.92 U	0.88 U	---	---	---	---	0.88 U	0.92 UJ	0.92 U	0.88 U
Acenaphthylene	--	0.68 U	0.65 U	0.65 U	0.66 U	0.67 U	0.68 U	0.65 U	---	---	---	---	0.65 U	0.68 U	0.68 U	0.65 U
Acetophenone	190	1.1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1 U	---	---	---	---	1 U	1.1 U	1.1 U	1 U
Anthracene	180	0.59 U	0.57 U	0.57 U	0.58 U	0.59 U	0.59 U	0.57 U	---	---	---	---	0.57 U	0.6 U	0.59 U	0.57 U
Atrazine	0.3	0.8 U	0.77 U	0.77 U	0.79 U	0.79 U	0.8 U	0.77 U	---	---	---	---	0.77 U	0.81 U	0.8 U	0.77 U
Benzaldehyde	19	0.9 U	0.86 U	0.86 U	0.88 U	0.88 U	0.9 U	0.86 U	---	---	---	---	0.86 U	0.9 U	0.9 U	0.86 U
Benzo(A)Anthracene	0.03	0.57 U	0.55 U	0.55 U	0.56 U	0.57 U	0.57 U	0.55 U	---	---	---	---	0.55 U	0.58 U	0.57 U	0.55 U
Benzo(A)Pyrene	0.025	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	---	---	---	---	0.16 U	0.17 U	0.17 U	0.16 U
Benzo(B)Fluoranthene	0.25	0.46 U	0.44 U	0.44 U	0.45 U	0.45 U	0.46 U	0.44 U	---	---	---	---	0.44 U	0.46 U	0.46 U	0.44 U
Benzo(G,H,I)Perylene	--	0.78 U	0.75 U	0.75 U	0.77 U	0.77 U	0.78 U	0.75 U	---	---	---	---	0.75 U	0.78 U	0.78 U	0.75 U
Benzo(K)Fluoranthene	2.5	0.19 U	0.18 U	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	---	---	---	---	0.18 U	0.19 U	0.19 U	0.18 U
Benzyl Butyl Phthalate	1	0.63 U	0.6 U	0.6 U	0.61 U	0.62 U	0.63 U	0.6 U	---	---	---	---	0.6 U	0.63 U	0.63 U	0.6 U
Biphenyl (Diphenyl)	0.083	0.66 U	0.63 U	0.63 U	0.64 UJ	0.65 UJ	0.66 U	0.63 U	---	---	---	---	0.63 U	0.66 UJ	0.66 U	0.63 U
Bis(2-Chloroethoxy) Methane	5.9	0.72 U	0.69 U	0.69 U	0.7 U	0.71 U	0.72 U	0.69 U	---	---	---	---	0.69 U	0.72 U	0.72 U	0.69 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	0.13 U	0.12 U	0.12 U	0.12 UJ	0.12 UJ	0.13 U	0.12 U	---	---	---	---	0.12 U	0.13 UJ	0.13 U	0.12 U
Bis(2-Chloroisopropyl) Ether	71	0.97 U	0.93 U	0.93 U	0.95 U	0.96 U	0.97 U	0.93 U	---	---	---	---	0.93 U	0.97 U	0.97 U	0.93 U
Bis(2-Ethylhexyl) Phthalate	5.6	0.75 U	0.72 U	0.72 U	0.73 U	0.74 U	0.75 U	0.72 U	---	---	---	---	0.72 U	0.75 U	0.75 U	0.72 U
Caprolactam	990	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	---	---	---	---	1.1 U	1.1 U	1.1 U	1.1 U
Carbazole	--	0.89 U	0.85 U	0.85 U	0.87 U	0.87 U	0.89 U	0.85 U	---	---	---	---	0.85 U	0.89 U	0.89 U	0.85 U
Chrysene	25	0.7 U	0.67 U	0.67 U	0.68 U	0.69 U	0.7 U	0.67 U	---	---	---	---	0.67 U	0.7 U	0.7 U	0.67 U
Dibenz(A,H)Anthracene	0.025	0.094 U	0.09 U	0.09 U	0.092 U	0.093 U	0.094 U	0.09 U	---	---	---	---	0.09 U	0.094 U	0.094 U	0.09 U
Dibenzofuran	0.79	0.89 U	0.85 U	0.85 U	0.87 U	0.87 U	0.89 U	0.85 U	---	---	---	---	0.85 U	0.89 U	0.89 U	0.85 U
Diethyl Phthalate	600	1 U	1 U	1 U	1 U	1 U	1 U	1 U	---	---	---	---	1 U	1 U	1 U	1 U
Dimethyl Phthalate	2000	1 U	0.98 U	0.98 U	1 U	1 U	1 U	0.98 U	---	---	---	---	0.98 U	1 U	1 U	0.98 U
Di-N-Butyl Phthalate	20	0.85 U	0.82 U	0.82 U	0.84 U	0.84 U	0.85 U	0.82 U	---	---	---	---	0.82 U	0.86 U	0.85 U	0.82 U
Di-N-Octylphthalate	20	0.72 U	0.69 U	0.69 U	0.7 U	0.71 U	0.72 U	0.69 U	---	---	---	---	0.69 U	0.72 U	0.72 U	0.69 U
Fluoranthene	20	0.75 U	0.72 U	0.72 U	0.73 U	0.74 U	0.75 U	0.72 U	---	---	---	---	0.72 U	0.75 U	0.75 U	0.72 U
Fluorene	29	0.83 U	0.8 U	0.8 U	0.82 U	0.82 U	0.83 U	0.8 U	---	---	---	---	0.8 U	0.84 U	0.83 U	0.8 U
Hexachlorobenzene	0.0098	0.49 U	0.47 U	0.47 U	0.48 U	0.48 U	0.49 U	0.47 U	---	---	---	---	0.47 U	0.49 U	0.49 U	0.47 U
Hexachlorobutadiene	0.14	0.79 U	0.76 U	0.76 U	0.78 U	0.78 U	0.79 U	0.76 U	---	---	---	---	0.76 U	0.79 U	0.79 U	0.76 U

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Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-047	CFMW-047	CFMW-049	CFMW-049	CFMW-049-DUP	CFMW-049	CFMW-049	CFMW-049A	CFMW-049A	CFMW-049A	CFMW-049A	CFMW-050	CFMW-050	CFMW-050	CFMW-050
Sample Name Chemical Name		CFMW-047-GW 3/23/2017	CFMW-047-GW 6/21/2017	CFMW-049-GW 9/21/2016	CFMW-049-GW 12/15/2016	CFMW-DUP6-GW 12/15/2016	CFMW-049-GW 3/23/2017	CFMW-049-GW 6/21/2017	CFMW-049a-GW 9/16/2016	CFMW-049a-GW 12/15/2016	CFMW-049a-GW 3/23/2017	CFMW-049a-GW 6/21/2017	CFMW-050-GW 9/19/2016	CFMW-050-GW 12/15/2016	CFMW-050-GW 3/23/2017	CFMW-050-GW 6/21/2017
Hexachlorocyclopentadiene	0.041	0.64 U	0.61 U	0.61 U	0.62 U	0.63 U	0.64 U	0.61 U	---	---	---	---	0.61 U	0.64 U	0.64 U	0.61 U
Hexachloroethane	0.33	0.094 U	0.09 U	0.09 U	0.092 U	0.093 U	0.094 U	0.09 U	---	---	---	---	0.09 U	0.094 U	0.094 U	0.09 U
Indeno(1,2,3-C,D)Pyrene	0.25	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	0.21 U	---	---	---	---	0.21 U	0.22 U	0.22 U	0.21 U
Isophorone	78	0.7 U	0.67 U	0.67 U	0.68 U	0.69 U	0.7 U	0.67 U	---	---	---	---	0.67 U	0.7 U	0.7 U	0.67 U
Naphthalene	0.17	0.83 U	0.8 U	0.8 U	0.82 U	0.82 U	0.83 U	0.8 U	---	---	---	---	0.8 U	0.84 U	0.83 U	0.8 U
Nitrobenzene	0.14	0.51 U	0.49 U	0.49 U	0.5 U	0.5 U	0.51 U	0.49 U	---	---	---	---	0.49 U	0.51 U	0.51 U	0.49 U
N-Nitrosodi-N-Propylamine	0.011	0.86 U	0.83 U	0.83 U	0.85 U	0.85 U	0.86 U	0.83 U	---	---	---	---	0.83 U	0.87 U	0.86 U	0.83 U
N-Nitrosodiphenylamine	12	0.77 U	0.74 U	0.74 U	0.76 U	0.76 U	0.77 U	0.74 U	---	---	---	---	0.74 U	0.77 U	0.77 U	0.74 U
Pentachlorophenol	0.041	2.3 U	2.2 U	2.2 U	2.2 UJ	2.2 UJ	2.3 U	2.2 U	---	---	---	---	2.2 U	2.3 UJ	2.3 U	2.2 U
Phenanthrene	--	0.68 U	0.65 U	0.65 U	0.66 U	0.67 U	0.68 U	0.65 U	---	---	---	---	0.65 U	0.68 U	0.68 U	0.65 U
Phenol	580	0.43 U	0.41 U	0.41 U	0.42 U	0.42 U	0.43 U	0.41 U	---	---	---	---	0.41 U	0.43 U	0.43 U	0.41 U
Pyrene	12	0.86 U	0.83 U	0.83 U	0.85 U	0.85 U	0.86 U	0.83 U	---	---	---	---	0.83 U	0.87 U	0.86 U	0.83 U
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	---	---	---	---	0.28 U	0.28 U	0.28 U	0.28 U
1,1,2,2-Tetrachloroethane	0.076	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---	0.34 U	0.34 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.041	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	---	---	---	---	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethane	2.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethene	7	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---	0.34 U	0.34 U	0.34 U	0.34 U
1,2,3-Trichlorobenzene	0.7	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	---	---	---	---	0.35 U	0.35 U	0.35 U	0.35 U
1,2,4-Trichlorobenzene	0.4	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	---	---	---	---	0.27 U	0.27 U	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	0.23 U	0.23 U	0.23 UJ	0.23 UJ	0.23 UJ	0.23 U	0.23 U	---	---	---	---	0.23 U	0.23 UJ	0.23 U	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 U
1,2-Dichlorobenzene	30	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U
1,2-Dichloroethane	0.17	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---	---	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloropropane	0.14	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	600	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	0.48	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U
2-Hexanone	3.8	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	---	---	---	---	0.72 U	0.72 U	0.72 U	0.72 U
Acetone	1400	3.2 J	1.1 U	1.1 U	1.1 UJ	1.1 U	3 J	1.1 U	---	---	---	---	1.1 U	1.1 UJ	1.1 U	1.1 U
Benzene	0.46	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	---	---	---	---	0.09 U	0.09 U	0.09 U	0.09 U
Bromochloromethane	8.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---	0.3 U	0.3 U	0.3 U	0.3 U
Bromodichloromethane	0.13	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---	---	0.15 U	0.15 U	0.15 U	0.15 U
Bromoform	3.3	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U
Bromomethane	0.75	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 UJ
Carbon Disulfide	81	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U
Carbon Tetrachloride	0.46	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U
Chlorobenzene	7.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---	0.24 U	0.24 U	0.24 U	0.24 U
Chloroethane	2100	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	---	---	---	---	0.37 UJ	0.37 U	0.37 U	0.37 U
Chloroform	0.22	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U
Chloromethane	19	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U
Cis-1,2-Dichloroethylene	3.6	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---	---	0.26 U	0.26 U	0.26 U	0.26 U
Cis-1,3-Dichloropropene	4	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	---	---	---	---	0.16 U	0.16 U	0.16 U	0.16 U
Cyclohexane	1300	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---	---	0.26 U	0.26 U	0.26 U	0.26 U
Dibromochloromethane	0.87	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U
Dichlorodifluoromethane	20	0.14 U	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 U	0.14 UJ	---	---	---	---	0.14 U	0.14 U	0.14 U	0.14 UJ
Ethylbenzene	1.5	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---	0.3 U	0.3 U	0.3 U	0.3 U
Isopropylbenzene (Cumene)	45	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---	0.32 U	0.32 U	0.32 U	0.32 U
M,P-Xylene	--	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	---	---	---	---	0.28 U	0.28 U	0.28 U	0.28 U
Methyl Acetate	2000	0.58 U	0.58 UJ	0.58 U	0.58 UJ	0.58 UJ	0.58 U	0.58 UJ	---	---	---	---	0.58 U	0.58 UJ	0.58 U	0.58 UJ
Methyl Ethyl Ketone (2-Butanone)	560	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	---	---	---	---	2.2 U	2.2 U	2.2 U	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	---	---	---	---	0.63 U	0.63 U	0.63 U	0.63 U
Methylcyclohexane	--	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U
Methylene Chloride	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	---	---	---	---	0.21 U	0.21 U	0.21 U	0.21 U
O-Xylene (1,2-Dimethylbenzene)	19	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---	0.32 U	0.32 U	0.32 U	0.32 U
Styrene	100	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	---	---	---	---	0.17 U	0.17 U	0.17 U	0.17 U
Tert-Butyl Methyl Ether	14	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	---	---	---	---	0.13 U	0.13 U	0.13 U	0.13 U

Preliminary Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-047	CFMW-047	CFMW-049	CFMW-049	CFMW-049-DUP	CFMW-049	CFMW-049	CFMW-049A	CFMW-049A	CFMW-049A	CFMW-049A	CFMW-050	CFMW-050	CFMW-050	CFMW-050
Sample Name Chemical Name		CFMW-047-GW 3/23/2017	CFMW-047-GW 6/21/2017	CFMW-049-GW 9/21/2016	CFMW-049-GW 12/15/2016	CFMW-DUP6-GW 12/15/2016	CFMW-049-GW 3/23/2017	CFMW-049-GW 6/21/2017	CFMW-049a-GW 9/16/2016	CFMW-049a-GW 12/15/2016	CFMW-049a-GW 3/23/2017	CFMW-049a-GW 6/21/2017	CFMW-050-GW 9/19/2016	CFMW-050-GW 12/15/2016	CFMW-050-GW 3/23/2017	CFMW-050-GW 6/21/2017
Tetrachloroethylene (PCE)	4.1	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	---	---	---	---	0.14 J	0.12 U	0.12 U	0.12 U
Toluene	110	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---	---	0.25 U	0.25 U	0.25 U	0.25 U
Trans-1,2-Dichloroethene	36	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U
Trans-1,3-Dichloropropene	2	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 U
Trichloroethylene (TCE)	0.28	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U
Trichlorofluoromethane	520	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 UJ	0.15 U	0.15 U	---	---	---	---	0.15 U	0.15 UJ	0.15 U	0.15 U
Vinyl Chloride	0.019	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	---	---	---	---	0.06 U	0.06 U	0.06 U	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-053	CFMW-053	CFMW-053	CFMW-054	CFMW-054	CFMW-054	CFMW-054	CFMW-027	CFMW-027	CFMW-027	CFMW-027	CFMW-012A	CFMW-012A-DUP	CFMW-012A	CFMW-012A
Sample Name		CFMW-053-GW	CFMW-053-GW	CFMW-053-GW	CFMW-054-GW	CFMW-054-GW	CFMW-054-GW	CFMW-054-GW	CFMW-027-GW	CFMW-027-GW	CFMW-027-GW	CFMW-027-GW	CFMW-012a-GW	CFMW-DUP2-GW	CFMW-012a-GW	CFMW-012a-GW
Chemical Name		9/14/2016	12/12/2016	6/28/2017	9/14/2016	12/12/2016	3/22/2017	6/21/2017	9/13/2016	12/14/2016	3/27/2017	6/26/2017	9/15/2016	9/15/2016	12/13/2016	3/20/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	1740 J+	--	--	--	1910	--	--	--	5160	--	--	--	--
Fluoride	80	1990	1870	1610 J-	1920	1610	2070	1880	2390	1970 J-	2560 J+	5190	54.6 J	55.8 J	119	135
Cyanide (Dissolved)	0.15	--	--	238	--	--	--	284	--	--	--	520	--	--	--	--
Cyanide (Free) (Dissolved)	--	--	--	3.3 J-	--	--	--	19.1	--	--	--	46.3	--	--	--	--
Cyanide	0.15	363	386	239	327	382	391	302	603	798	755	560	2 U	2 U	2 U	2 U
Cyanide (Free)	--	--	--	5.2 J-	--	--	13.5	40.3	--	--	33.7	62	--	--	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	9.1 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.31 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.32 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	147	143	132	153	153	146	145	89.1	187	200	148	78.2	77.7	84.1	79.6
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.36 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	58200	55100	57100	59400	56200	56100	57400	24500	51500	55800	37900	51300	50800	52900	51000
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	0.66 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	0.85 J	2 J	2.5 J	1.3 J	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	4.6	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.9 J	1.4 U	1.4 U	1.4 U	1.4 UJ	3.3 J	1.4 U	1.4 U
Iron (Dissolved)	1400	179	135	86.8 J	156	126	167	163	147	341	371	237	42.4 U	42.4 U	42.4 U	42.4 U
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.19 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	16600	15600	15500	16500	15600	16200	16200	7890	16100	17400	11500	13000	13000	12900	13100
Manganese (Dissolved)	43	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	1.2 J	2.5 U	2.5 U	2.5 U	21.6	21.3	5.9 J	32.8
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	0.68 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	1070	918	868	1050	931	1000	958	520	1090	1110 J+	965	721	726	767	796
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.37 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	0.64 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	44000	41900	24500	38800	38900	41100	34800	31000	56500	60800	72300	6380	6190	6490	6130
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.13 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	0.95 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	3.5 U	7 U	7 U	7 U	7 U	7 U	7.6 J	7 U
Aluminum	2000	--	--	18.2 U	--	--	--	277	--	--	--	56.3	--	--	--	--
Antimony	0.78	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	--
Arsenic	0.052	--	--	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U	--	--	--	--
Barium	380	--	--	145	--	--	--	148	--	--	--	146	--	--	--	--
Beryllium	2.5	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	--
Cadmium	0.92	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	--
Calcium	--	--	--	57600	--	--	--	57800	--	--	--	38300	--	--	--	--
Chromium, Total	100	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	--
Cobalt	0.6	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.4 J	--	--	--	--
Copper	80	--	--	2 J	--	--	--	1.4 U	--	--	--	1.5 J	--	--	--	--
Iron	1400	--	--	116 J	--	--	--	463	--	--	--	329	--	--	--	--
Lead	15	--	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U	--	--	--	--
Magnesium	--	--	--	17800	--	--	--	17400	--	--	--	11600	--	--	--	--
Manganese	43	--	--	2.5 U	--	--	--	9.2	--	--	--	2.5 U	--	--	--	--
Mercury	0.063	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	--
Nickel	39	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.7 J	--	--	--	--
Potassium	--	--	--	920	--	--	--	1020	--	--	--	998	--	--	--	--
Selenium	10	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--	--
Silver	9.4	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	--
Sodium	--	--	--	28600	--	--	--	36400	--	--	--	76700	--	--	--	--
Thallium	0.02	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	--
Vanadium	9	--	--	1.9 U	--	--	--	1.9 U	--	--	--	1.9 U	--	--	--	--
Zinc	600	--	--	7 U	--	--	--	7 U	--	--	--	7 U	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-053	CFMW-053	CFMW-053	CFMW-054	CFMW-054	CFMW-054	CFMW-054	CFMW-027	CFMW-027	CFMW-027	CFMW-027	CFMW-012A	CFMW-012A-DUP	CFMW-012A	CFMW-012A
Sample Name		CFMW-053-GW	CFMW-053-GW	CFMW-053-GW	CFMW-054-GW	CFMW-054-GW	CFMW-054-GW	CFMW-054-GW	CFMW-027-GW	CFMW-027-GW	CFMW-027-GW	CFMW-027-GW	CFMW-012a-GW	CFMW-DUP2-GW	CFMW-012a-GW	CFMW-012a-GW
Chemical Name		9/14/2016	12/12/2016	6/28/2017	9/14/2016	12/12/2016	3/22/2017	6/21/2017	9/13/2016	12/14/2016	3/27/2017	6/26/2017	9/15/2016	9/15/2016	12/13/2016	3/20/2017
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	0.45 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.43 U	0.44 U	0.43 U	0.45 U	0.43 U	---	---	---	---
1,4-Dioxane (P-Dioxane)	0.46	3.3 U	3.1 U	3.1 U	3.2 U	3.1 U	3.1 U	3.1 U	3.2 U	3.1 UJ	3.2 U	3.1 U	---	---	---	---
2,3,4,6-Tetrachlorophenol	24	0.72 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.7 U	0.69 U	0.72 U	0.69 U	---	---	---	---
2,4,5-Trichlorophenol	120	0.51 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.5 U	0.49	0.51 U	0.49 U	---	---	---	---
2,4,6-Trichlorophenol	1.2	0.55 U	0.53 U	0.53 U	0.55 U	0.53 U	0.53 U	0.53 U	0.54 U	0.53 U	0.55 U	0.53 U	---	---	---	---
2,4-Dichlorophenol	4.6	0.66 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.63 U	0.64 U	0.63 U	0.66 U	0.63 U	---	---	---	---
2,4-Dimethylphenol	36	0.95 U	0.91 U	0.91 U	0.95 U	0.91 U	0.91 U	0.91 U	0.93 U	0.91 U	0.95 U	0.91 U	---	---	---	---
2,4-Dinitrophenol	3.9	2.5 UJ	2.4 U	2.4 U	2.5 UJ	2.4 U	2.4 U	2.4 U	2.4 UJ	2.4 U	2.5 U	2.4 U	---	---	---	---
2,4-Dinitrotoluene	0.24	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U	---	---	---	---
2,6-Dinitrotoluene	0.049	0.92 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.9 U	0.88 U	0.92 U	0.88 U	---	---	---	---
2-Chloronaphthalene	75	0.64 U	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.61 U	0.62 U	0.61 U	0.64 U	0.61 U	---	---	---	---
2-Chlorophenol	9.1	0.77 U	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.74 U	0.75 U	0.74 U	0.77 U	0.74 U	---	---	---	---
2-Methylnaphthalene	3.6	0.92 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.9 U	0.88 U	0.92 U	0.88 U	---	---	---	---
2-Methylphenol (O-Cresol)	93	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	---	---	---	---
2-Nitroaniline	19	0.68 UJ	0.65 U	0.65 U	0.68 UJ	0.65 U	0.65 U	0.65 U	0.66 U	0.65 U	0.68 U	0.65 U	---	---	---	---
2-Nitrophenol	--	0.62 U	0.59 U	0.59 U	0.61 U	0.59 U	0.59 U	0.59 U	0.6 U	0.59 U	0.61 U	0.59 U	---	---	---	---
3- And 4- Methylphenol (Total)	--	0.92 UJ	0.88 U	0.88 U	0.92 UJ	0.88 U	0.88 U	0.88 U	0.9 U	0.88 U	0.92 U	0.88 U	---	---	---	---
3,3'-Dichlorobenzidine	0.13	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U	---	---	---	---
3-Nitroaniline	--	0.86 U	0.82 U	0.82 U	0.85 U	0.82 U	0.82 U	0.82 U	0.84 U	0.82 U	0.85 U	0.82 U	---	---	---	---
4,6-Dinitro-2-Methylphenol	0.15	2.1 U	2 U	2 U	2.1 U	2 U	2 U	2 U	2.1 U	2 U	2.1 U	2 U	---	---	---	---
4-Bromophenyl Phenyl Ether	--	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U	---	---	---	---
4-Chloro-3-Methylphenol	140	0.79 U	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.78 U	0.76 U	0.79 U	0.76 U	---	---	---	---
4-Chloroaniline	0.37	0.76 U	0.73 U	0.73 U	0.76 U	0.73 U	0.73 U	0.73 U	0.74 U	0.73 U	0.76 U	0.73 U	---	---	---	---
4-Chlorophenyl Phenyl Ether	--	1 U	0.96 U	0.96 U	1 U	0.96 U	0.96 U	0.96 U	0.98 U	0.96 U	1 U	0.96 U	---	---	---	---
4-Nitroaniline	3.8	0.5 U	0.48 U	0.48 U	0.5 U	0.48 U	0.48 U	0.48 U	0.49 U	0.48 U	0.5 UJ	0.48 U	---	---	---	---
4-Nitrophenol	50	4.9 U	4.7 U	4.7 U	4.8 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.8 U	4.7 U	---	---	---	---
Acenaphthene	53	0.92 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.9 U	0.88 UJ	0.92 U	0.88 U	---	---	---	---
Acenaphthylene	--	0.68 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.66 U	0.65 U	0.68 U	0.65 U	---	---	---	---
Acetophenone	190	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U	---	---	---	---
Anthracene	180	0.6 U	0.57 U	0.57 U	0.59 U	0.57 U	0.57 U	0.57 U	0.58 U	0.57 U	0.59 U	0.57 U	---	---	---	---
Atrazine	0.3	0.81 U	0.77 U	0.77 U	0.8 U	0.77 U	0.77 U	0.77 U	0.78 U	0.77 U	0.8 U	0.77 U	---	---	---	---
Benzaldehyde	19	0.9 U	0.86 U	0.86 U	0.9 U	0.86 U	0.86 U	0.86 U	0.88 U	0.86 U	0.9 U	0.86 UJ	---	---	---	---
Benzo(A)Anthracene	0.03	0.58 U	0.55 U	0.55 U	0.57 U	0.55 U	0.55 U	0.55 U	0.56 U	0.55 U	0.57 U	0.55 U	---	---	---	---
Benzo(A)Pyrene	0.025	0.17 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	---	---	---	---
Benzo(B)Fluoranthene	0.25	0.46 U	0.44 U	0.44 U	0.46 U	0.44 U	0.44 U	0.44 U	0.45 U	0.44 U	0.46 U	0.44 U	---	---	---	---
Benzo(G,H,I)Perylene	--	0.78 U	0.75 U	0.75 U	0.78 U	0.75 U	0.75 U	0.75 U	0.77 U	0.75 U	0.78 U	0.75 U	---	---	---	---
Benzo(K)Fluoranthene	2.5	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	---	---	---	---
Benzyl Butyl Phthalate	1	0.63 U	0.6 U	0.6 U	0.63 U	0.6 U	0.6 U	0.6 U	0.61 U	0.6 U	0.63 U	0.6 U	---	---	---	---
Biphenyl (Diphenyl)	0.083	0.66 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.63 U	0.64 U	0.63 U	0.66 U	0.63 U	---	---	---	---
Bis(2-Chloroethoxy) Methane	5.9	0.72 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.7 U	0.69 U	0.72 U	0.69 U	---	---	---	---
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	0.13 U	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.13 U	0.12 U	---	---	---	---
Bis(2-Chloroisopropyl) Ether	71	0.97 U	0.93 U	0.93 U	0.97 U	0.93 U	0.93 U	0.93 U	0.95 U	0.93 U	0.97 U	0.93 U	---	---	---	---
Bis(2-Ethylhexyl) Phthalate	5.6	0.75 U	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.72 U	0.73 U	0.72 U	0.75 U	0.72 U	---	---	---	---
Caprolactam	990	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	---	---	---	---
Carbazole	--	0.89 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.87 U	0.85 U	0.89 U	0.85 U	---	---	---	---
Chrysene	25	0.7 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.68 U	0.67 U	0.7 U	0.67 U	---	---	---	---
Dibenz(A,H)Anthracene	0.025	0.094 U	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.092 U	0.09 U	0.094 U	0.09 U	---	---	---	---
Dibenzofuran	0.79	0.89 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.87 U	0.85 U	0.89 U	0.85 U	---	---	---	---
Diethyl Phthalate	600	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	---	---	---	---
Dimethyl Phthalate	2000	1 U	0.98 U	0.98 U	1 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U	1 U	0.98 U	---	---	---	---
Di-N-Butyl Phthalate	20	0.86 U	0.82 U	0.82 U	0.85 U	0.82 U	0.82 U	0.82 U	0.84 U	0.82 U	0.85 U	0.82 U	---	---	---	---
Di-N-Octylphthalate	20	0.72 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.7 U	0.69 U	0.72 U	0.69 U	---	---	---	---
Fluoranthene	20	0.75 U	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.72 U	0.73 U	0.72 U	0.75 U	0.72 U	---	---	---	---
Fluorene	29	0.84 U	0.8 U	0.8 U	0.83 U	0.8 U	0.8 U	0.8 U	0.82 U	0.8 U	0.83 U	0.8 U	---	---	---	---
Hexachlorobenzene	0.0098	0.49 U	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U	0.48 U	0.47 U	0.49 U	0.47 U	---	---	---	---
Hexachlorobutadiene	0.14	0.79 U	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.78 U	0.76 U	0.79 U	0.76 U	---	---	---	---

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Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-053	CFMW-053	CFMW-053	CFMW-054	CFMW-054	CFMW-054	CFMW-054	CFMW-027	CFMW-027	CFMW-027	CFMW-027	CFMW-012A	CFMW-012A-DUP	CFMW-012A	CFMW-012A
Sample Name		CFMW-053-GW	CFMW-053-GW	CFMW-053-GW	CFMW-054-GW	CFMW-054-GW	CFMW-054-GW	CFMW-054-GW	CFMW-027-GW	CFMW-027-GW	CFMW-027-GW	CFMW-027-GW	CFMW-012a-GW	CFMW-DUP2-GW	CFMW-012a-GW	CFMW-012a-GW
Chemical Name		9/14/2016	12/12/2016	6/28/2017	9/14/2016	12/12/2016	3/22/2017	6/21/2017	9/13/2016	12/14/2016	3/27/2017	6/26/2017	9/15/2016	9/15/2016	12/13/2016	3/20/2017
Hexachlorocyclopentadiene	0.041	0.64 U	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.61 U	0.62 U	0.61 U	0.64 U	0.61 UJ	---	---	---	---
Hexachloroethane	0.33	0.094 U	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.092 U	0.09 U	0.094 U	0.09 U	---	---	---	---
Indeno(1,2,3-C,D)Pyrene	0.25	0.22 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	---	---	---	---
Isophorone	78	0.7 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.68 U	0.67 U	0.7 U	0.67 U	---	---	---	---
Naphthalene	0.17	0.84 U	0.8 U	0.8 U	0.83 U	0.8 U	0.8 U	0.8 U	0.82 U	0.8 U	0.83 U	0.8 U	---	---	---	---
Nitrobenzene	0.14	0.51 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.5 U	0.49 U	0.51 U	0.49 U	---	---	---	---
N-Nitrosodi-N-Propylamine	0.011	0.87 UJ	0.83 U	0.83 U	0.86 UJ	0.83 U	0.83 U	0.83 U	0.85 U	0.83 U	0.86 U	0.83 U	---	---	---	---
N-Nitrosodiphenylamine	12	0.77 U	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.74 U	0.76 U	0.74 UJ	0.77 U	0.74 U	---	---	---	---
Pentachlorophenol	0.041	2.3 UR	2.2 U	2.2 U	2.3 UR	2.2 U	2.2 U	2.2 U	2.2 UR	2.2 UJ	2.3 U	2.2 U	---	---	---	---
Phenanthrene	--	0.68 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.66 U	0.65 U	0.68 U	0.65 U	---	---	---	---
Phenol	580	0.43 U	0.41 U	0.41 U	0.43 U	0.41 U	0.41 U	0.41 U	0.42 U	0.41 U	0.43 U	0.41 U	---	---	---	---
Pyrene	12	0.87 U	0.83 U	0.83 U	0.86 U	0.83 U	0.83 U	0.83 U	[illegible]	0.83 U	0.86 UJ	0.83 U	---	---	---	---
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 UJ	---	---	---	---
1,1,2,2-Tetrachloroethane	0.076	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---
1,1,2-Trichloroethane	0.041	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	---	---	---	---
1,1-Dichloroethane	2.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---
1,1-Dichloroethene	7	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---
1,2,3-Trichlorobenzene	0.7	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	---	---	---	---
1,2,4-Trichlorobenzene	0.4	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	---	---	---	---
1,2-Dibromo-3-Chloropropane	0.00033	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	---	---	---	---
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---
1,2-Dichlorobenzene	30	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---
1,2-Dichloroethane	0.17	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---	---
1,2-Dichloropropane	0.14	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---
1,3-Dichlorobenzene	600	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---
1,4-Dichlorobenzene	0.48	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---
2-Hexanone	3.8	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	---	---	---	---
Acetone	1400	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	---	---	---	---
Benzene	0.46	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	---	---	---	---
Bromochloromethane	8.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---
Bromodichloromethane	0.13	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---	---
Bromoform	3.3	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---
Bromomethane	0.75	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 UJ	---	---	---	---
Carbon Disulfide	81	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---
Carbon Tetrachloride	0.46	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---
Chlorobenzene	7.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---
Chloroethane	2100	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	---	---	---	---
Chloroform	0.22	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---
Chloromethane	19	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---
Cis-1,2-Dichloroethylene	3.6	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---	---
Cis-1,3-Dichloropropene	4	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	---	---	---	---
Cyclohexane	1300	0.26 U	0.26 U	0.26 UJ	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---	---
Dibromochloromethane	0.87	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---
Dichlorodifluoromethane	20	0.14 U	0.14 U	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 UJ	0.14 U	0.14 U	0.14 UJ	---	---	---	---
Ethylbenzene	1.5	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---
Isopropylbenzene (Cumene)	45	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---
M,P-Xylene	--	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	---	---	---	---
Methyl Acetate	2000	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 UJ	0.58 U	0.58 UJ	0.58 U	0.58 U	---	---	---	---
Methyl Ethyl Ketone (2-Butanone)	560	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	---	---	---	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	---	---	---	---
Methylcyclohexane	--	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---
Methylene Chloride	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	---	---	---	---
O-Xylene (1,2-Dimethylbenzene)	19	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---
Styrene	100	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	---	---	---	---
Tert-Butyl Methyl Ether	14	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	---	---	---	---

Preliminary Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 1 MAIN PLANT AREA	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 2 NORTH PERCOLATION	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-053	CFMW-053	CFMW-053	CFMW-054	CFMW-054	CFMW-054	CFMW-054	CFMW-027	CFMW-027	CFMW-027	CFMW-027	CFMW-012A	CFMW-012A-DUP	CFMW-012A	CFMW-012A
Sample Name		CFMW-053-GW	CFMW-053-GW	CFMW-053-GW	CFMW-054-GW	CFMW-054-GW	CFMW-054-GW	CFMW-054-GW	CFMW-027-GW	CFMW-027-GW	CFMW-027-GW	CFMW-027-GW	CFMW-012a-GW	CFMW-DUP2-GW	CFMW-012a-GW	CFMW-012a-GW
Chemical Name		9/14/2016	12/12/2016	6/28/2017	9/14/2016	12/12/2016	3/22/2017	6/21/2017	9/13/2016	12/14/2016	3/27/2017	6/26/2017	9/15/2016	9/15/2016	12/13/2016	3/20/2017
Tetrachloroethylene (PCE)	4.1	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.21 J	0.12 U	0.12 U	0.12 U	---	---	---	---
Toluene	110	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---	---
Trans-1,2-Dichloroethene	36	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---
Trans-1,3-Dichloropropene	2	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---
Trichloroethylene (TCE)	0.28	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---
Trichlorofluoromethane	520	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---	---
Vinyl Chloride	0.019	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	---	---	---	---

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-012A	CFMW-019A	CFMW-019A	CFMW-019A	CFMW-019A-DUP	CFMW-019A	CFMW-002	CFMW-002	CFMW-002	CFMW-007	CFMW-007	CFMW-007	CFMW-007	CFMW-008	CFMW-008
Sample Name		CFMW-012a-GW	CFMW-019a-GW	CFMW-019a-GW	CFMW-019a-GW	CFMW-DUP9-GW	CFMW-019a-GW	CFMW-002-GW	CFMW-002-GW	CFMW-002-GW	CFMW-007-GW	CFMW-007-GW	CFMW-007-GW	CFMW-007-GW	CFMW-008-GW	CFMW-008-GW
Chemical Name		6/20/2017	9/20/2016	12/14/2016	3/27/2017	3/27/2017	6/26/2017	9/12/2016	3/24/2017	6/27/2017	9/21/2016	12/12/2016	3/28/2017	6/19/2017	9/21/2016	12/16/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	90.2	--	--	--	--	145	--	--	5150 J+	--	--	--	126	--	--
Fluoride	80	139	361	182 J-	214 J+	201 J+	179 J+	18900	8900	4930	77 J	123	101	152	777	456 J
Cyanide (Dissolved)	0.15	2 U	--	--	--	--	2.8 J	--	--	883	--	--	--	2 U	--	--
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	--	--	--	47.9	--	--	--	1.5 U	--	--
Cyanide	0.15	2 U	2 U	2 U	2 U	2 U	2 U	2060 J	1370	985	2.1 J	2 U	4.7 J	2 U	2 U	2 U
Cyanide (Free)	--	--	--	--	--	--	--	--	306	119	--	--	1.5 U	1.5 U	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	82.3	29.5 J	20.6 J	18.2 U	22.5 J	254	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	8.3	2.2	1.2 J	1.2 J	1.3 J	0.96 J	1.1 J	0.81 J	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	79.3	56.9	56.6	42.5	42.6	46.8	243	318	184	163	184	169 J	170	140	516
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	51300	15100	40100	30100	30300	31800	31800	37200	26400	50200	56600	54900 J	51800	6370	38100
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.9 J	1.4 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	6.1	8.6	2 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	1.4 U	1.4 U	2.6 J	1.4 U	1.4 U	1.4 U	4.2	3.5 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 J	1.4 U
Iron (Dissolved)	1400	42.4 U	42.4 U	42.4 U	61.8 J	65.1 J	80.5 J	871	910	409	42.4 U	104 J	99.1 J	87.9 J	42.4 U	99600
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.53 J	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	13000	3700	14900	11400	11600	12100	10900	13800	9180	12800	14100	14200 J	12500	4320	16300
Manganese (Dissolved)	43	18.7	9.4	88.6	221	225	254	26.8	2.5 U	2.5 U	11.4	80.9	74.7	156	11.1	741
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.7 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.8 J
Potassium (Dissolved)	--	725	8880	1520	2770	2820	2960	1020	1060	705	579	668	643	632	1190	2220
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.84 J	0.82 J	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	5960	50900	10000	22200	22600	18200	173000	191000	77700	3050	5970	3890	3910	138000	86000
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	11.5 J	20.4
Aluminum	2000	292 J+	--	--	--	--	664	--	--	86.4	--	--	--	21.3 J	--	--
Antimony	0.78	0.62 U	--	--	--	--	1 J	--	--	0.62 U	--	--	--	0.62 U	--	--
Arsenic	0.052	0.64 U	--	--	--	--	1.8 J	--	--	0.84 J	--	--	--	0.64 U	--	--
Barium	380	85.7	--	--	--	--	54.5	--	--	199	--	--	--	218	--	--
Beryllium	2.5	0.24 U	--	--	--	--	0.24 U	--	--	0.24 U	--	--	--	0.24 U	--	--
Cadmium	0.92	0.71 U	--	--	--	--	0.71 U	--	--	0.71 U	--	--	--	0.71 U	--	--
Calcium	--	51600	--	--	--	--	34000	--	--	27800	--	--	--	52500	--	--
Chromium, Total	100	1.3 U	--	--	--	--	1.3 U	--	--	1.3 U	--	--	--	1.3 U	--	--
Cobalt	0.6	1.3 U	--	--	--	--	1.3 U	--	--	2.4 J	--	--	--	1.3 U	--	--
Copper	80	1.4 J	--	--	--	--	1.5 J	--	--	1.8 J	--	--	--	1.4 U	--	--
Iron	1400	358	--	--	--	--	960	--	--	617	--	--	--	12600	--	--
Lead	15	0.38 U	--	--	--	--	0.78 J	--	--	0.38 U	--	--	--	0.38 U	--	--
Magnesium	--	14500	--	--	--	--	12400	--	--	10700	--	--	--	15700	--	--
Manganese	43	28.9	--	--	--	--	286	--	--	3.6 J	--	--	--	249	--	--
Mercury	0.063	0.17 U	--	--	--	--	0.17 U	--	--	0.17 U	--	--	--	0.17 U	--	--
Nickel	39	1.4 U	--	--	--	--	1.4 U	--	--	1.4 U	--	--	--	1.4 U	--	--
Potassium	--	802	--	--	--	--	3170	--	--	793	--	--	--	661	--	--
Selenium	10	0.73 U	--	--	--	--	0.73 U	--	--	0.73 U	--	--	--	0.73 U	--	--
Silver	9.4	1.3 U	--	--	--	--	1.3 U	--	--	1.3 U	--	--	--	1.3 U	--	--
Sodium	--	6620 J+	--	--	--	--	19100	--	--	97300	--	--	--	4560	--	--
Thallium	0.02	0.26 U	--	--	--	--	0.26 U	--	--	0.26 U	--	--	--	0.26 U	--	--
Vanadium	9	1.9 U	--	--	--	--	1.9 U	--	--	1.9 U	--	--	--	1.9 U	--	--
Zinc	600	7 U	--	--	--	--	7.9 J	--	--	7 U	--	--	--	7 U	--	--

Preliminary - Under EPA 3rd MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-012A	CFMW-019A	CFMW-019A	CFMW-019A	CFMW-019A-DUP	CFMW-019A	CFMW-002	CFMW-002	CFMW-002	CFMW-007	CFMW-007	CFMW-007	CFMW-007	CFMW-008	CFMW-008
Sample Name		CFMW-012a-GW	CFMW-019a-GW	CFMW-019a-GW	CFMW-019a-GW	CFMW-DUP9-GW	CFMW-019a-GW	CFMW-002-GW	CFMW-002-GW	CFMW-002-GW	CFMW-007-GW	CFMW-007-GW	CFMW-007-GW	CFMW-007-GW	CFMW-008-GW	CFMW-008-GW
Chemical Name		6/20/2017	9/20/2016	12/14/2016	3/27/2017	3/27/2017	6/26/2017	9/12/2016	3/24/2017	6/27/2017	9/21/2016	12/12/2016	3/28/2017	6/19/2017	9/21/2016	12/16/2016
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	---	---	---	---	---	---	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.45 U	0.43 U	---	---
1,4-Dioxane (P-Dioxane)	0.46	---	---	---	---	---	---	3.1 U	3.1 U	3.3 U	3.1 UJ	3.1 U	3.2 U	3.1 U	---	---
2,3,4,6-Tetrachlorophenol	24	---	---	---	---	---	---	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.72 U	0.69 U	---	---
2,4,5-Trichlorophenol	120	---	---	---	---	---	---	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.51 U	0.49 U	---	---
2,4,6-Trichlorophenol	1.2	---	---	---	---	---	---	0.53 U	0.53 U	0.55 U	0.53 U	0.53 U	0.55 U	0.53 U	---	---
2,4-Dichlorophenol	4.6	---	---	---	---	---	---	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.66 U	0.63 U	---	---
2,4-Dimethylphenol	36	---	---	---	---	---	---	0.91 U	0.91 U	0.95 U	0.91 U	0.91 UJ	0.95 U	0.91 U	---	---
2,4-Dinitrophenol	3.9	---	---	---	---	---	---	2.4 U	2.4 U	2.5 U	2.4 U	2.4 U	2.5 UJ	2.4 UJ	---	---
2,4-Dinitrotoluene	0.24	---	---	---	---	---	---	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1 U	---	---
2,6-Dinitrotoluene	0.049	---	---	---	---	---	---	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.92 U	0.88 U	---	---
2-Chloronaphthalene	75	---	---	---	---	---	---	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.64 U	0.61 U	---	---
2-Chlorophenol	9.1	---	---	---	---	---	---	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.77 U	0.74 U	---	---
2-Methylnaphthalene	3.6	---	---	---	---	---	---	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.92 U	0.88 U	---	---
2-Methylphenol (O-Cresol)	93	---	---	---	---	---	---	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	---	---
2-Nitroaniline	19	---	---	---	---	---	---	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.68 U	0.65 U	---	---
2-Nitrophenol	--	---	---	---	---	---	---	0.59 U	0.59 U	0.62 U	0.59 U	0.59 U	0.61 U	0.59 U	---	---
3- And 4- Methylphenol (Total)	--	---	---	---	---	---	---	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.92 U	0.88 U	---	---
3,3'-Dichlorobenzidine	0.13	---	---	---	---	---	---	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1 U	---	---
3-Nitroaniline	--	---	---	---	---	---	---	0.82 U	0.82 U	0.86 U	0.82 U	0.82 U	0.85 U	0.82 U	---	---
4,6-Dinitro-2-Methylphenol	0.15	---	---	---	---	---	---	2 U	2 U	2.1 U	2 U	2 U	2.1 U	2 UJ	---	---
4-Bromophenyl Phenyl Ether	--	---	---	---	---	---	---	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1 U	---	---
4-Chloro-3-Methylphenol	140	---	---	---	---	---	---	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.79 U	0.76 U	---	---
4-Chloroaniline	0.37	---	---	---	---	---	---	0.73 U	0.73 U	0.76 U	0.73 U	0.73 U	0.76 U	0.73 U	---	---
4-Chlorophenyl Phenyl Ether	--	---	---	---	---	---	---	0.96 U	0.96 U	1 U	0.96 U	0.96 U	1 U	0.96 U	---	---
4-Nitroaniline	3.8	---	---	---	---	---	---	0.48 U	0.48 U	0.5 U	0.48 U	0.48 U	0.5 UJ	0.48 U	---	---
4-Nitrophenol	50	---	---	---	---	---	---	4.7 U	4.7 U	4.9 U	4.7 U	4.7 UJ	4.8 U	4.7 U	---	---
Acenaphthene	53	---	---	---	---	---	---	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.92 U	0.88 U	---	---
Acenaphthylene	--	---	---	---	---	---	---	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.68 U	0.65 U	---	---
Acetophenone	190	---	---	---	---	---	---	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1 U	---	---
Anthracene	180	---	---	---	---	---	---	0.57 U	0.57 U	0.6 U	0.57 U	0.57 U	0.59 U	0.57 U	---	---
Atrazine	0.3	---	---	---	---	---	---	0.77 U	0.77 U	0.81 U	0.77 U	0.77 U	0.8 U	0.77 U	---	---
Benzaldehyde	19	---	---	---	---	---	---	0.86 U	0.86 U	0.9 U	0.86 U	0.86 U	0.9 U	0.86 U	---	---
Benzo(A)Anthracene	0.03	---	---	---	---	---	---	0.55 U	0.55 U	0.58 U	0.55 U	0.55 U	0.57 U	0.55 U	---	---
Benzo(A)Pyrene	0.025	---	---	---	---	---	---	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.17 U	0.16 U	---	---
Benzo(B)Fluoranthene	0.25	---	---	---	---	---	---	0.44 U	0.44 U	0.46 U	0.44 U	0.44 U	0.46 U	0.44 U	---	---
Benzo(G,H,I)Perylene	--	---	---	---	---	---	---	0.75 U	0.75 U	0.78 U	0.75 U	0.75 U	0.78 U	0.75 U	---	---
Benzo(K)Fluoranthene	2.5	---	---	---	---	---	---	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	---	---
Benzyl Butyl Phthalate	1	---	---	---	---	---	---	0.6 U	0.6 U	0.63 U	0.6 U	0.6 UJ	0.63 UJ	0.6 U	---	---
Biphenyl (Diphenyl)	0.083	---	---	---	---	---	---	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.66 U	0.63 U	---	---
Bis(2-Chloroethoxy) Methane	5.9	---	---	---	---	---	---	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.72 U	0.69 U	---	---
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	---	---	---	---	---	---	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	0.13 U	0.12 U	---	---
Bis(2-Chloroisopropyl) Ether	71	---	---	---	---	---	---	0.93 U	0.93 U	0.97 U	0.93 U	0.93 U	0.97 U	0.93 U	---	---
Bis(2-Ethylhexyl) Phthalate	5.6	---	---	---	---	---	---	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.75 U	0.72 U	---	---
Caprolactam	990	---	---	---	---	---	---	1.1 U	1.1 UJ	1.1 U	1.1 UJ	1.1 UJ	1.1 U	1.1 U	---	---
Carbazole	--	---	---	---	---	---	---	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.89 U	0.85 U	---	---
Chrysene	25	---	---	---	---	---	---	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.7 U	0.67 U	---	---
Dibenz(A,H)Anthracene	0.025	---	---	---	---	---	---	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.094 U	0.09 U	---	---
Dibenzofuran	0.79	---	---	---	---	---	---	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.89 U	0.85 U	---	---
Diethyl Phthalate	600	---	---	---	---	---	---	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	---	---
Dimethyl Phthalate	2000	---	---	---	---	---	---	0.98 U	0.98 U	1 U	0.98 U	0.98 U	1 UJ	0.98 U	---	---
Di-N-Butyl Phthalate	20	---	---	---	---	---	---	0.82 U	0.82 UJ	0.86 U	0.82 U	0.82 U	0.85 U	0.82 U	---	---
Di-N-Octylphthalate	20	---	---	---	---	---	---	0.69 U	0.69 U	0.72 U	0.69 U	0.69 UJ	0.72 U	0.69 U	---	---
Fluoranthene	20	---	---	---	---	---	---	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.75 U	0.72 U	---	---
Fluorene	29	---	---	---	---	---	---	0.8 U	0.8 U	0.84 U	0.8 U	0.8 U	0.83 U	0.8 U	---	---
Hexachlorobenzene	0.0098	---	---	---	---	---	---	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U	0.49 U	0.47 U	---	---
Hexachlorobutadiene	0.14	---	---	---	---	---	---	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.79 U	0.76 U	---	---

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-012A	CFMW-019A	CFMW-019A	CFMW-019A	CFMW-019A-DUP	CFMW-019A	CFMW-002	CFMW-002	CFMW-002	CFMW-007	CFMW-007	CFMW-007	CFMW-007	CFMW-008	CFMW-008
Sample Name		CFMW-012a-GW	CFMW-019a-GW	CFMW-019a-GW	CFMW-019a-GW	CFMW-DUP9-GW	CFMW-019a-GW	CFMW-002-GW	CFMW-002-GW	CFMW-002-GW	CFMW-007-GW	CFMW-007-GW	CFMW-007-GW	CFMW-007-GW	CFMW-008-GW	CFMW-008-GW
Chemical Name		6/20/2017	9/20/2016	12/14/2016	3/27/2017	3/27/2017	6/26/2017	9/12/2016	3/24/2017	6/27/2017	9/21/2016	12/12/2016	3/28/2017	6/19/2017	9/21/2016	12/16/2016
Hexachlorocyclopentadiene	0.041	---	---	---	---	---	---	0.61 U	0.61 UJ	0.64 U	0.61 U	0.61 U	0.64 U	0.61 U	---	---
Hexachloroethane	0.33	---	---	---	---	---	---	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.094 U	0.09 U	---	---
Indeno(1,2,3-C,D)Pyrene	0.25	---	---	---	---	---	---	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.22 U	0.21 U	---	---
Isophorone	78	---	---	---	---	---	---	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.7 U	0.67 U	---	---
Naphthalene	0.17	---	---	---	---	---	---	0.8 U	0.8 U	0.84 U	0.8 U	0.8 U	0.83 U	0.8 U	---	---
Nitrobenzene	0.14	---	---	---	---	---	---	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.51 U	0.49 U	---	---
N-Nitrosodi-N-Propylamine	0.011	---	---	---	---	---	---	0.83 U	0.83 U	0.86 U	0.83 U	0.83 U	0.86 U	0.83 U	---	---
N-Nitrosodiphenylamine	12	---	---	---	---	---	---	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.77 U	0.74 U	---	---
Pentachlorophenol	0.041	---	---	---	---	---	---	2.2 U	2.2 U	2.3 U	2.2 U	2.2 UJ	2.3 U	2.2 U	---	---
Phenanthrene	--	---	---	---	---	---	---	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.68 U	0.65 U	---	---
Phenol	580	---	---	---	---	---	---	0.41 U	0.41 U	0.43 U	0.41 U	0.41 U	0.43 U	0.41 U	---	---
Pyrene	12	---	---	---	---	---	---	0.83 U	[illegible]	0.87 U	0.83 U	0.83 U	0.86 UJ	0.83 U	---	---
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	---	---	---	---	---	---	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	---	---
1,1,2,2-Tetrachloroethane	0.076	---	---	---	---	---	---	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	---	---	---	---	---	---	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---
1,1,2-Trichloroethane	0.041	---	---	---	---	---	---	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	---	---
1,1-Dichloroethane	2.8	---	---	---	---	---	---	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---
1,1-Dichloroethene	7	---	---	---	---	---	---	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---
1,2,3-Trichlorobenzene	0.7	---	---	---	---	---	---	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	---	---
1,2,4-Trichlorobenzene	0.4	---	---	---	---	---	---	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	---	---
1,2-Dibromo-3-Chloropropane	0.00033	---	---	---	---	---	---	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	0.23 UJ	---	---
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	---	---	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---
1,2-Dichlorobenzene	30	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
1,2-Dichloroethane	0.17	---	---	---	---	---	---	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	---	---
1,2-Dichloropropane	0.14	---	---	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
1,3-Dichlorobenzene	600	---	---	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---
1,4-Dichlorobenzene	0.48	---	---	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---
2-Hexanone	3.8	---	---	---	---	---	---	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	---	---
Acetone	1400	---	---	---	---	---	---	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	---	---
Benzene	0.46	---	---	---	---	---	---	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	---	---
Bromochloromethane	8.3	---	---	---	---	---	---	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---
Bromodichloromethane	0.13	---	---	---	---	---	---	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U	---	---
Bromoform	3.3	---	---	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 UJ	---	---
Bromomethane	0.75	---	---	---	---	---	---	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
Carbon Disulfide	81	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	---	---
Carbon Tetrachloride	0.46	---	---	---	---	---	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---
Chlorobenzene	7.8	---	---	---	---	---	---	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---
Chloroethane	2100	---	---	---	---	---	---	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 UJ	---	---
Chloroform	0.22	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Chloromethane	19	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Cis-1,2-Dichloroethylene	3.6	---	---	---	---	---	---	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---
Cis-1,3-Dichloropropene	4	---	---	---	---	---	---	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	---	---
Cyclohexane	1300	---	---	---	---	---	---	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---
Dibromochloromethane	0.87	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	---	---
Dichlorodifluoromethane	20	---	---	---	---	---	---	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 UJ	---	---
Ethylbenzene	1.5	---	---	---	---	---	---	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---
Isopropylbenzene (Cumene)	45	---	---	---	---	---	---	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---
M,P-Xylene	--	---	---	---	---	---	---	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	---	---
Methyl Acetate	2000	---	---	---	---	---	---	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	---	---
Methyl Ethyl Ketone (2-Butanone)	560	---	---	---	---	---	---	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	---	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	---	---	---	---	---	---	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	---	---
Methylcyclohexane	--	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Methylene Chloride	5	---	---	---	---	---	---	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	---	---
O-Xylene (1,2-Dimethylbenzene)	19	---	---	---	---	---	---	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---
Styrene	100	---	---	---	---	---	---	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	---	---
Tert-Butyl Methyl Ether	14	---	---	---	---	---	---	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	---	---

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Below Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit
Sample Water Bearing Zone																
Sample Location ID	**CFAC Site-Specific Human Health Groundwater (µg/l)**	**CFMW-012A**	**CFMW-019A**	**CFMW-019A**	**CFMW-019A**	**CFMW-019A-DUP**	**CFMW-019A**	**CFMW-002**	**CFMW-002**	**CFMW-002**	**CFMW-007**	**CFMW-007**	**CFMW-007**	**CFMW-007**	**CFMW-008**	**CFMW-008**
Sample Name		**CFMW-012a-GW**	**CFMW-019a-GW**	**CFMW-019a-GW**	**CFMW-019a-GW**	**CFMW-DUP9-GW**	**CFMW-019a-GW**	**CFMW-002-GW**	**CFMW-002-GW**	**CFMW-002-GW**	**CFMW-007-GW**	**CFMW-007-GW**	**CFMW-007-GW**	**CFMW-007-GW**	**CFMW-008-GW**	**CFMW-008-GW**
Chemical Name		**6/20/2017**	**9/20/2016**	**12/14/2016**	**3/27/2017**	**3/27/2017**	**6/26/2017**	**9/12/2016**	**3/24/2017**	**6/27/2017**	**9/21/2016**	**12/12/2016**	**3/28/2017**	**6/19/2017**	**9/21/2016**	**12/16/2016**
Tetrachloroethylene (PCE)	4.1	---	---	---	---	---	---	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	---	---
Toluene	110	---	---	---	---	---	---	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---
Trans-1,2-Dichloroethene	36	---	---	---	---	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
Trans-1,3-Dichloropropene	2	---	---	---	---	---	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---
Trichloroethylene (TCE)	0.28	---	---	---	---	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Trichlorofluoromethane	520	---	---	---	---	---	---	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	---	---
Vinyl Chloride	0.019	---	---	---	---	---	---	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	---	---

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-008	CFMW-008	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-010	CFMW-010	CFMW-010	CFMW-010	CFMW-012	CFMW-012	CFMW-012	CFMW-012	CFMW-014
Sample Name		CFMW-008-GW	CFMW-008-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-010-GW	CFMW-010-GW	CFMW-010-GW	CFMW-010-GW	CFMW-012-GW	CFMW-012-GW	CFMW-012-GW	CFMW-012-GW	CFMW-014-GW
Chemical Name		3/28/2017	6/20/2017	9/15/2016	12/16/2016	3/28/2017	6/28/2017	9/12/2016	12/15/2016	3/24/2017	6/27/2017	9/12/2016	12/14/2016	3/22/2017	6/23/2017	9/12/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	431	--	--	--	277 J+	--	--	--	6980 J+	--	--	--	31900	--
Fluoride	80	427	527	180	179 J	160	304 J-	30900	3190	17200	6810	12400	5750 J	12600 J+	30600	8300
Cyanide (Dissolved)	0.15	--	2 U	--	--	--	2 U	--	--	--	1120	--	--	--	5860	--
Cyanide (Free) (Dissolved)	--	--	1.5 U	--	--	--	1.5 UJ	--	--	--	56.8	--	--	--	40.6	--
Cyanide	0.15	2.2 J	2 U	2.2 J	2 U	2.8 J	2 U	7320 J	2120	1020	1190	2280 J	972	2340	5780	2750 J
Cyanide (Free)	--	--	1.5 U	--	--	1.5 U	1.5 UJ	--	--	33.1	117	--	--	48	35.2	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	18.2 U	107	97.6	135	132	1850	18.2 U	18.2 U	18.2 U	25.7 J	18.2 U	32.4 J	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.68 J	0.62 U	0.62 U	0.91 J	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	5.2	6.8	3.9	2.5	15.5	10.7	2.9	92.6	0.64 U
Barium (Dissolved)	380	434 J	434	701	970	949 J	888	239	107	139	126	79.6	133	306	129	336
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	28800 J	24400	388000	431000	420000 J	416000	35500	14800	23100	26200	8660	11700	31000	7270	44900
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	3.6 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	2.5 J	2.9 J	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	23.7	6.9	4.1	2.2 J	7.9	2.4 J	4.9	23.2	5.3
Copper (Dissolved)	80	1.4 U	1.4 U	3.7 J	3 J	3.5 J	5.3	16.8	10	7.2	3.5 J	12.6	4.6	6.6	17.6	5.7
Iron (Dissolved)	1400	35600 J	26500	42.4 U	42.4 U	42.4 UJ	42.4 U	4710	844	769	506	717	427	964	2420	927
Lead (Dissolved)	15	0.38 U	0.38 U	0.82 J	0.65 J	0.62 J	1.8	2.8	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	16200 J	15000	63.6 U	63.6 U	63.6 UJ	63.6 U	16500	9810	9070	10400	4130	6070	17100	6990	16800
Manganese (Dissolved)	43	261	166	2.5 U	2.5 U	2.5 U	2.5 U	110	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.9 J	1.4 U	1.4 U	1.4 U	1.4 U	5	1.4 U	1.4 U	1.4 U	1.5 J	1.4 U	1.4 U	4.8	1.4 U
Potassium (Dissolved)	--	2210	2170	18000	23200	19900	19000	1460	890	810	815	817	937	1600	3190	1120
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	3.3 J	1.4 J	1.1 J	0.73 J	4.4 J	1.4 J	1.6 J	8.5 J	1.7 J
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	89800	95800	49600	66400	53200	49600	445000	231000	198000	95400	226000	234000	232000	707000	168000
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	19.8	15.4	13.5	397	1.9 U
Zinc (Dissolved)	600	228	1220	12.3 J	23.6	9.9 J	15.8 J	7.5 J	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	819	--	--	--	181	--	--	--	218	--	--	--	18.2 U	--
Antimony	0.78	--	1.2 J	--	--	--	1.3 J	--	--	--	0.62 U	--	--	--	0.86 J	--
Arsenic	0.052	--	1.9 J	--	--	--	0.64 U	--	--	--	2.9	--	--	--	80.2	--
Barium	380	--	505	--	--	--	953	--	--	--	141	--	--	--	145	--
Beryllium	2.5	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--
Cadmium	0.92	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--
Calcium	--	--	31600	--	--	--	407000	--	--	--	28800	--	--	--	7480	--
Chromium, Total	100	--	1.4 J	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	3.5 J	--
Cobalt	0.6	--	1.8 J	--	--	--	1.3 U	--	--	--	3 J	--	--	--	28.4	--
Copper	80	--	5.8	--	--	--	6.8	--	--	--	4.7	--	--	--	22.9	--
Iron	1400	--	72900	--	--	--	203	--	--	--	902	--	--	--	2750	--
Lead	15	--	14	--	--	--	1.8	--	--	--	0.38 U	--	--	--	0.38 U	--
Magnesium	--	--	17600	--	--	--	65.6 J	--	--	--	12300	--	--	--	7710	--
Manganese	43	--	515	--	--	--	2.5 U	--	--	--	10.3	--	--	--	2.5 J	--
Mercury	0.063	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--
Nickel	39	--	7.7	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	6	--
Potassium	--	--	2560	--	--	--	19100	--	--	--	929	--	--	--	3410	--
Selenium	10	--	0.73 U	--	--	--	0.73 U	--	--	--	0.74 J	--	--	--	7.5 J	--
Silver	9.4	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--
Sodium	--	--	113000	--	--	--	63500	--	--	--	122000	--	--	--	834000	--
Thallium	0.02	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--
Vanadium	9	--	1.9 U	--	--	--	1.9 U	--	--	--	1.9 U	--	--	--	457	--
Zinc	600	--	3990	--	--	--	24.5	--	--	--	7 U	--	--	--	7 U	--

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-008	CFMW-008	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-010	CFMW-010	CFMW-010	CFMW-010	CFMW-012	CFMW-012	CFMW-012	CFMW-012	CFMW-014
Sample Name		CFMW-008-GW	CFMW-008-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-010-GW	CFMW-010-GW	CFMW-010-GW	CFMW-010-GW	CFMW-012-GW	CFMW-012-GW	CFMW-012-GW	CFMW-012-GW	CFMW-014-GW
Chemical Name		3/28/2017	6/20/2017	9/15/2016	12/16/2016	3/28/2017	6/28/2017	9/12/2016	12/15/2016	3/24/2017	6/27/2017	9/12/2016	12/14/2016	3/22/2017	6/23/2017	9/12/2016
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	---	---	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.43 UJ	0.43 U	0.45 U	0.43 U	0.43 U	0.43 U	0.43 U	0.47 U
1,4-Dioxane (P-Dioxane)	0.46	---	---	3.1 U	3.1 U	3.2 U	3.1 U	3.1 U	3.1 U	3.1 U	3.2 U	3.1 U	3.1 UJ	3.1 U	3.1 U	3.4 U
2,3,4,6-Tetrachlorophenol	24	---	---	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.69 U	0.75 U
2,4,5-Trichlorophenol	120	---	---	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.49 U	0.53 U
2,4,6-Trichlorophenol	1.2	---	---	0.53 U	0.53 U	0.55 U	0.53 U	0.53 U	0.53 U	0.53 U	0.55 U	0.53 U	0.53 U	0.53 U	0.53 U	0.58 U
2,4-Dichlorophenol	4.6	---	---	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.63 U	0.63 U	0.68 U
2,4-Dimethylphenol	36	---	---	0.91 U	0.91 U	0.95 U	0.91 U	0.91 U	0.91 U	0.91 U	0.95 U	0.91 U	0.91 U	0.91 U	0.91 U	0.99 U
2,4-Dinitrophenol	3.9	---	---	2.4 U	2.4 U	2.5 UJ	2.4 U	2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.6 U
2,4-Dinitrotoluene	0.24	---	---	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U
2,6-Dinitrotoluene	0.049	---	---	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.88 U	0.96 U
2-Chloronaphthalene	75	---	---	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.61 U	0.61 U	0.66 U
2-Chlorophenol	9.1	---	---	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.74 U	0.74 U	0.8 U
2-Methylnaphthalene	3.6	---	---	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.88 U	0.96 U
2-Methylphenol (O-Cresol)	93	---	---	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.4 U
2-Nitroaniline	19	---	---	0.65 UJ	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.65 U	0.71 U
2-Nitrophenol	--	---	---	0.59 U	0.59 U	0.61 U	0.59 U	0.59 U	0.59 U	0.59 U	0.61 U	0.59 U	0.59 U	0.59 U	0.59 U	0.64 U
3- And 4- Methylphenol (Total)	--	---	---	0.88 UJ	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.88 U	0.96 U
3,3'-Dichlorobenzidine	0.13	---	---	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U
3-Nitroaniline	--	---	---	0.82 U	0.82 U	0.85 U	0.82 U	0.82 U	0.82 U	0.82 U	0.85 U	0.82 U	0.82 U	0.82 U	0.82 U	0.89 U
4,6-Dinitro-2-Methylphenol	0.15	---	---	2 U	2 U	2.1 U	2 U	2 U	2 U	2 U	2.1 U	2 U	2 U	2 U	2 U	2.2 U
4-Bromophenyl Phenyl Ether	--	---	---	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U
4-Chloro-3-Methylphenol	140	---	---	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.76 U	0.83 U
4-Chloroaniline	0.37	---	---	0.73 U	0.73 U	0.76 U	0.73 U	0.73 U	0.73 U	0.73 U	0.76 U	0.73 U	0.73 U	0.73 U	0.73 U	0.79 U
4-Chlorophenyl Phenyl Ether	--	---	---	0.96 U	0.96 U	1 U	0.96 U	0.96 U	0.96 U	0.96 U	1 U	0.96 U	0.96 U	0.96 U	0.96 U	1 U
4-Nitroaniline	3.8	---	---	0.48 U	0.48 U	0.5 UJ	0.48 U	0.48 U	0.48 U	0.48 U	0.5 U	0.48 U	0.48 U	0.48 U	0.48 U	0.52 U
4-Nitrophenol	50	---	---	4.7 U	4.7 U	4.8 U	4.7 U	4.7 U	4.7 U	4.7 U	4.8 U	4.7 U	4.7 U	4.7 U	4.7 U	5.1 U
Acenaphthene	53	---	---	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 UJ	0.88 U	0.92 U	0.88 U	0.88 UJ	0.88 U	0.88 U	0.96 U
Acenaphthylene	--	---	---	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.65 U	0.71 U
Acetophenone	190	---	---	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U
Anthracene	180	---	---	0.57 U	0.57 U	0.59 U	0.57 U	0.57 U	0.57 U	0.57 U	0.59 U	0.57 U	0.57 U	0.57 U	0.57 U	0.62 U
Atrazine	0.3	---	---	0.77 U	0.77 U	0.8 U	0.77 U	0.77 U	0.77 U	0.77 U	0.8 U	0.77 U	0.77 U	0.77 U	0.77 U	0.84 U
Benzaldehyde	19	---	---	0.86 U	0.86 U	0.9 U	0.86 U	0.86 U	0.86 U	0.86 U	0.9 U	0.86 U	0.86 U	0.86 U	0.86 UJ	0.93 U
Benzo(A)Anthracene	0.03	---	---	0.55 U	0.55 U	0.57 U	0.55 U	0.55 U	0.55 U	0.55 U	0.57 U	0.55 U	0.55 U	0.55 U	0.55 U	0.6 U
Benzo(A)Pyrene	0.025	---	---	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U
Benzo(B)Fluoranthene	0.25	---	---	0.44 U	0.44 U	0.46 U	0.44 U	0.44 U	0.44 U	0.44 U	0.46 U	0.44 U	0.44 U	0.44 U	0.44 U	0.48 U
Benzo(G,H,I)Perylene	--	---	---	0.75 U	0.75 U	0.78 U	0.75 U	0.75 U	0.75 U	0.75 U	0.78 U	0.75 U	0.75 U	0.75 U	0.75 U	0.82 U
Benzo(K)Fluoranthene	2.5	---	---	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.2 U
Benzyl Butyl Phthalate	1	---	---	0.6 U	0.6 U	0.63 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.63 U	0.6 U	0.6 U	0.6 U	0.6 U	0.65 U
Biphenyl (Diphenyl)	0.083	---	---	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.63 UJ	0.63 U	0.66 U	0.63 U	0.63 U	0.63 U	0.63 U	0.68 U
Bis(2-Chloroethoxy) Methane	5.9	---	---	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.69 U	0.75 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	---	---	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.13 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.13 U
Bis(2-Chloroisopropyl) Ether	71	---	---	0.93 U	0.93 U	0.97 U	0.93 U	0.93 U	0.93 U	0.93 U	0.97 U	0.93 U	0.93 U	0.93 U	0.93 U	1 U
Bis(2-Ethylhexyl) Phthalate	5.6	---	---	1.1 J	2.4	1.6 J	1.2 J	0.72 U	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.72 U	0.72 U	0.78 U
Caprolactam	990	---	---	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U
Carbazole	--	---	---	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.85 U	0.92 U
Chrysene	25	---	---	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.67 U	0.73 U
Dibenz(A,H)Anthracene	0.025	---	---	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.09 U	0.098 U
Dibenzofuran	0.79	---	---	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.85 U	0.92 U
Diethyl Phthalate	600	---	---	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U
Dimethyl Phthalate	2000	---	---	0.98 U	0.98 U	1 UJ	0.98 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U	0.98 U	0.98 U	0.98 U	1.1 U
Di-N-Butyl Phthalate	20	---	---	0.82 U	0.82 U	0.85 U	0.82 U	0.82 U	0.82 U	0.82 UJ	0.85 U	0.82 U	0.82 U	0.82 U	0.82 U	0.89 U
Di-N-Octylphthalate	20	---	---	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.69 U	0.75 U
Fluoranthene	20	---	---	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.72 U	0.72 U	0.78 U
Fluorene	29	---	---	0.8 U	0.8 U	0.83 U	0.8 U	0.8 U	0.8 U	0.8 U	0.83 U	0.8 U	0.8 U	0.8 U	0.8 U	0.87 U
Hexachlorobenzene	0.0098	---	---	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U	0.47 U	0.51 U
Hexachlorobutadiene	0.14	---	---	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.76 U	0.83 U

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit	Exp Area 3 CENTRAL LANDFILLS AREA Upper Hydrogeologic Unit
Sample Water Bearing Zone																
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-008	CFMW-008	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-010	CFMW-010	CFMW-010	CFMW-010	CFMW-012	CFMW-012	CFMW-012	CFMW-012	CFMW-014
Sample Name		CFMW-008-GW	CFMW-008-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-010-GW	CFMW-010-GW	CFMW-010-GW	CFMW-010-GW	CFMW-012-GW	CFMW-012-GW	CFMW-012-GW	CFMW-012-GW	CFMW-014-GW
Chemical Name		3/28/2017	6/20/2017	9/15/2016	12/16/2016	3/28/2017	6/28/2017	9/12/2016	12/15/2016	3/24/2017	6/27/2017	9/12/2016	12/14/2016	3/22/2017	6/23/2017	9/12/2016
Hexachlorocyclopentadiene	0.041	---	---	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.61 U	0.61 UJ	0.64 U	0.61 U	0.61 U	0.61 U	0.61 UJ	0.66 U
Hexachloroethane	0.33	---	---	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.09 U	0.098 U
Indeno(1,2,3-C,D)Pyrene	0.25	---	---	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.23 U
Isophorone	78	---	---	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.67 U	0.73 U
Naphthalene	0.17	---	---	0.8 U	0.8 U	0.83 U	0.8 U	0.8 U	0.8 U	0.8 U	0.83 U	0.8 U	0.8 U	0.8 U	0.8 U	0.87 U
Nitrobenzene	0.14	---	---	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.49 U	0.53 U
N-Nitrosodi-N-Propylamine	0.011	---	---	0.83 UJ	0.83 U	0.86 U	0.83 U	0.83 U	0.83 U	0.83 U	0.86 U	0.83 U	0.83 U	0.83 U	0.83 U	0.9 U
N-Nitrosodiphenylamine	12	---	---	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.74 U	0.74 U	0.77 U	0.74 U	0.74 UJ	0.74 U	0.74 U	0.8 U
Pentachlorophenol	0.041	---	---	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U	2.2 UJ	2.2 U	2.3 U	2.2 U	2.2 UJ	2.2 U	2.2 U	2.4 U
Phenanthrene	--	---	---	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.65 U	0.71 U
Phenol	580	---	---	0.41 U	0.41 U	0.43 U	0.41 U	0.41 U	0.41 U	0.41 U	0.43 U	0.41 U	0.41 U	0.41 U	0.41 U	0.45 U
Pyrene	12	---	---	0.83 U	0.83 U	0.86 UJ	0.83 U	0.83 U		0.83 U	0.86 U	0.83 U	0.83 U	0.83 U	0.83 U	0.9 U
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	---	---	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
1,1,2,2-Tetrachloroethane	0.076	---	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 UJ	0.19 U	0.19 U	0.19 UJ	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	---	---	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.041	---	---	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethane	2.8	---	---	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethene	7	---	---	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,2,3-Trichlorobenzene	0.7	---	---	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,2,4-Trichlorobenzene	0.4	---	---	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	---	---	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 UJ	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	---	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-Dichlorobenzene	30	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,2-Dichloroethane	0.17	---	---	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U
1,2-Dichloropropane	0.14	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	600	---	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	0.48	---	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Hexanone	3.8	---	---	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
Acetone	1400	---	---	8.3	3.2 J	7.6	13	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 UJ	3.6 J	1.1 U	1.1 U
Benzene	0.46	---	---	0.09 U	0.15 J	0.16 J	0.17 J	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Bromochloromethane	8.3	---	---	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromodichloromethane	0.13	---	---	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Bromoform	3.3	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Bromomethane	0.75	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 UJ	0.18 U
Carbon Disulfide	81	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U
Carbon Tetrachloride	0.46	---	---	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Chlorobenzene	7.8	---	---	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chloroethane	2100	---	---	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Chloroform	0.22	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloromethane	19	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U
Cis-1,2-Dichloroethylene	3.6	---	---	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Cis-1,3-Dichloropropene	4	---	---	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Cyclohexane	1300	---	---	0.26 U	0.26 U	0.26 U	0.26 UJ	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Dibromochloromethane	0.87	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Dichlorodifluoromethane	20	---	---	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 U	0.14 U	0.14 UJ	0.14 UJ
Ethylbenzene	1.5	---	---	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Isopropylbenzene (Cumene)	45	---	---	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
M,P-Xylene	--	---	---	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Methyl Acetate	2000	---	---	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 UJ	0.58 U	0.58 U	0.58 U	0.58 UJ	0.58 U	0.58 U	0.58 U
Methyl Ethyl Ketone (2-Butanone)	560	---	---	2.2 U	2.2 U	2.3 J	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	---	---	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
Methylcyclohexane	--	---	---	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Methylene Chloride	5	---	---	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
O-Xylene (1,2-Dimethylbenzene)	19	---	---	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Styrene	100	---	---	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Tert-Butyl Methyl Ether	14	---	---	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U

Preliminary Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-008	CFMW-008	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-008A	CFMW-010	CFMW-010	CFMW-010	CFMW-010	CFMW-012	CFMW-012	CFMW-012	CFMW-012	CFMW-014
Sample Name		CFMW-008-GW	CFMW-008-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-008a-GW	CFMW-010-GW	CFMW-010-GW	CFMW-010-GW	CFMW-010-GW	CFMW-012-GW	CFMW-012-GW	CFMW-012-GW	CFMW-012-GW	CFMW-014-GW
Chemical Name		3/28/2017	6/20/2017	9/15/2016	12/16/2016	3/28/2017	6/28/2017	9/12/2016	12/15/2016	3/24/2017	6/27/2017	9/12/2016	12/14/2016	3/22/2017	6/23/2017	9/12/2016
Tetrachloroethylene (PCE)	4.1	---	---	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.16 J	0.12 U	0.12 U
Toluene	110	---	---	0.25 U	0.42 J	0.32 J	0.27 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trans-1,2-Dichloroethene	36	---	---	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Trans-1,3-Dichloropropene	2	---	---	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Trichloroethylene (TCE)	0.28	---	---	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichlorofluoromethane	520	---	---	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U
Vinyl Chloride	0.019	---	---	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

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Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-014	CFMW-014	CFMW-014	CFMW-015	CFMW-015	CFMW-015	CFMW-015	CFMW-016	CFMW-016-DUP	CFMW-016	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-017
Sample Name		CFMW-014-GW	CFMW-014-GW	CFMW-014-GW	CFMW-015-GW	CFMW-015-GW	CFMW-015-GW	CFMW-015-GW	CFMW-016-GW	CFMW-DUP10-GW	CFMW-016-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-017-GW
Chemical Name		12/15/2016	3/29/2017	6/27/2017	9/12/2016	12/15/2016	3/29/2017	6/27/2017	3/28/2017	3/28/2017	6/29/2017	9/21/2016	12/14/2016	3/27/2017	6/26/2017	3/28/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	4110 J+	--	--	--	55300 J+	--	--	352 J+	--	--	--	275	--
Fluoride	80	17300 J-	13000	3960	38400	16800 J-	4740	52900	428	438	338	304	293 J-	358 J+	293 J+	13400
Cyanide (Dissolved)	0.15	--	--	720	--	--	--	7780	--	--	2 U	--	--	--	2 U	--
Cyanide (Free) (Dissolved)	--	--	--	27.4	--	--	--	36.9	--	--	1.5 UJ	--	--	--	1.5 U	--
Cyanide	0.15	3360	3320	720	6240 J	3100	6600	8120	2.3 J	3.3 J	2 U	2.8 J	2 J	2.1 J	2.1 J	1880
Cyanide (Free)	--	--	87.4	111	--	--	23.9	97.3	--	--	1.5 UJ	--	--	1.5 U	1.5 U	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	64.8	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.69 J	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	2.6	0.62 U
Arsenic (Dissolved)	0.052	0.82 J	0.72 J	2.1	47.7	50.8	38.1	92.1	0.64 U	0.64 U	0.64 U	1.3 J	1.3 J	0.64 U	0.64 U	5.6
Barium (Dissolved)	380	354	417	158	62	34	72.6	67	220 J	220 J	199	99.5	143	263	97.1	46.8 J
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	42000	60200	25900	2710	1410	4210	3550	46700 J	46800 J	45800	38100	31400	56800	37900	26400 J
Chromium, Total (Dissolved)	100	1.3 J	1.6 J	1.3 U	2 J	1.3 U	2.2 J	2 J	1.3 U	1.3 U	1.3 U	1.8 J	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	8.2	6.5	1.3 J	27.8	17.2	20.8	37.5	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.6 J
Copper (Dissolved)	80	10.5	3.5 J	1.7 J	46.8	29.2	42.4	50.9	1.4 U	1.4 U	1.4 U	3.6 J	1.4 U	1.4 U	1.4 U	3.5 J
Iron (Dissolved)	1400	1200	1420	320	2550	1330	2640	3320	42.4 UJ	42.4 UJ	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	784 J
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	1.3	0.38 U
Magnesium (Dissolved)	--	16100	22100	9070	4010	1640	5540	6110	11500 J	11600 J	11300	4060	9330	15000	7100	8990 J
Manganese (Dissolved)	43	2.5 U	2.5 U	2.5 U	4.1 J	3.3 J	3.9 J	4.3 J	2.5 U	2.5 U	4 J	2.5 U	6.1 J	2.5 U	2.5 U	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	4.2	1.4 U	7.7	4.8	4.9	9	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	1160	1140	769	2400	1520	2560	2860	646	648	534	2780	1360	892	1130	865
Selenium (Dissolved)	10	1.4 J	1.6 J	0.73 U	13.5	9.6 J	8.9 J	17.1	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	239000	191000	64700	620000	365000	601000	662000	14300	13300	3250	18600	13100	9300	7690	135000
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	10.2	50.4	108	75.7	378	1.9 U	1.9 U	1.9 U	1.9 J	1.9 U	1.9 U	1.9 U	29.5
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	--	47	--	--	--	48.7	--	--	67	--	--	--	41.7	--
Antimony	0.78	--	--	0.62 U	--	--	--	0.82 J	--	--	0.62 U	--	--	--	4.4	--
Arsenic	0.052	--	--	2.2	--	--	--	77.7	--	--	0.64 U	--	--	--	0.64 U	--
Barium	380	--	--	169	--	--	--	76.5	--	--	213	--	--	--	141	--
Beryllium	2.5	--	--	0.24 U	--	--	--	0.24 U	--	--	0.24 U	--	--	--	0.24 U	--
Cadmium	0.92	--	--	0.71 U	--	--	--	0.71 U	--	--	0.71 U	--	--	--	0.71 U	--
Calcium	--	--	--	26500	--	--	--	3730	--	--	48400	--	--	--	62800	--
Chromium, Total	100	--	--	1.3 U	--	--	--	2.9 J	--	--	1.3 U	--	--	--	1.3 U	--
Cobalt	0.6	--	--	1.6 J	--	--	--	39.5	--	--	1.3 U	--	--	--	1.3 U	--
Copper	80	--	--	1.5 J	--	--	--	59.5	--	--	1.4 U	--	--	--	1.4 U	--
Iron	1400	--	--	441	--	--	--	3180	--	--	78.9 J	--	--	--	42.4 U	--
Lead	15	--	--	0.38 U	--	--	--	0.38 U	--	--	0.38 U	--	--	--	0.38 U	--
Magnesium	--	--	--	10200	--	--	--	6400	--	--	12300	--	--	--	8920	--
Manganese	43	--	--	2.5 U	--	--	--	9.6	--	--	4.9 J	--	--	--	2.5 U	--
Mercury	0.063	--	--	0.17 U	--	--	--	0.17 U	--	--	0.17 U	--	--	--	0.17 U	--
Nickel	39	--	--	1.4 U	--	--	--	10.2	--	--	1.4 U	--	--	--	1.4 U	--
Potassium	--	--	--	805	--	--	--	2760	--	--	584	--	--	--	1080	--
Selenium	10	--	--	0.73 U	--	--	--	13	--	--	0.73 U	--	--	--	0.73 U	--
Silver	9.4	--	--	1.3 U	--	--	--	1.3 U	--	--	1.3 U	--	--	--	1.3 U	--
Sodium	--	--	--	79100	--	--	--	703000	--	--	3580	--	--	--	29200	--
Thallium	0.02	--	--	0.26 U	--	--	--	0.26 U	--	--	0.26 U	--	--	--	0.26 U	--
Vanadium	9	--	--	11.7	--	--	--	378	--	--	1.9 U	--	--	--	1.9 U	--
Zinc	600	--	--	7 U	--	--	--	7 U	--	--	7 U	--	--	--	7 U	--

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Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-014	CFMW-014	CFMW-014	CFMW-015	CFMW-015	CFMW-015	CFMW-015	CFMW-016	CFMW-016-DUP	CFMW-016	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-017
Sample Name		CFMW-014-GW	CFMW-014-GW	CFMW-014-GW	CFMW-015-GW	CFMW-015-GW	CFMW-015-GW	CFMW-015-GW	CFMW-016-GW	CFMW-DUP10-GW	CFMW-016-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-017-GW
Chemical Name		12/15/2016	3/29/2017	6/27/2017	9/12/2016	12/15/2016	3/29/2017	6/27/2017	3/28/2017	3/28/2017	6/29/2017	9/21/2016	12/14/2016	3/27/2017	6/26/2017	3/28/2017
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	0.43 UJ	0.43 U	0.43 U	0.43 U	0.43 UJ	0.43 U	0.45 U	0.45 U	0.45 U	0.43 U	---	---	---	---	0.45 U
1,4-Dioxane (P-Dioxane)	0.46	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.2 U	3.2 U	3.2 U	3.1 U	---	---	---	---	3.2 U
2,3,4,6-Tetrachlorophenol	24	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.72 U	0.72 U	0.69 U	---	---	---	---	0.72 U
2,4,5-Trichlorophenol	120	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.51 U	0.51 U	0.51 U	0.49 U	---	---	---	---	0.51 U
2,4,6-Trichlorophenol	1.2	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.55 U	0.55 U	0.55 U	0.53 U	---	---	---	---	0.55 U
2,4-Dichlorophenol	4.6	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.66 U	0.66 U	0.66 U	0.63 U	---	---	---	---	0.66 U
2,4-Dimethylphenol	36	0.91 U	0.91 U	0.91 U	0.91 U	0.91 UJ	0.91 U	0.95 U	0.95 U	0.95 U	0.91 U	---	---	---	---	0.95 U
2,4-Dinitrophenol	3.9	2.4 U	2.4 UJ	2.4 U	2.4 U	2.4 U	2.4 U	2.5 U	2.5 UJ	2.5 UJ	2.4 U	---	---	---	---	2.5 UJ
2,4-Dinitrotoluene	0.24	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1 U	---	---	---	---	1.1 U
2,6-Dinitrotoluene	0.049	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.92 U	0.92 U	0.88 U	---	---	---	---	0.92 U
2-Chloronaphthalene	75	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.64 U	0.64 U	0.64 U	0.61 U	---	---	---	---	0.64 U
2-Chlorophenol	9.1	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.77 U	0.77 U	0.77 U	0.74 U	---	---	---	---	0.77 U
2-Methylnaphthalene	3.6	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.92 U	0.92 U	0.92 U	0.88 U	---	---	---	---	0.92 U
2-Methylphenol (O-Cresol)	93	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	---	---	---	---	1.3 U
2-Nitroaniline	19	0.65 U	0.65 U	0.65 U	0.65 U	0.65 UJ	0.65 U	0.68 U	0.68 U	0.68 U	0.65 U	---	---	---	---	0.68 U
2-Nitrophenol	--	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.61 U	0.61 U	0.61 U	0.59 U	---	---	---	---	0.61 U
3- And 4- Methylphenol (Total)	--	0.88 U	0.88 U	0.88 U	0.88 UJ	0.88 U	0.88 U	0.92 U	0.92 U	0.92 U	0.88 U	---	---	---	---	0.92 U
3,3'-Dichlorobenzidine	0.13	1 U	1 U	1 U	1 U	1 UR	1 U	1.1 U	1.1 U	1.1 U	1 U	---	---	---	---	1.1 U
3-Nitroaniline	--	0.82 U	0.82 U	0.82 U	0.82 U	0.82 UR	0.82 U	0.85 U	0.85 U	0.85 U	0.82 U	---	---	---	---	0.85 U
4,6-Dinitro-2-Methylphenol	0.15	2 U	2 U	2 U	2 U	2 U	2 U	2.1 U	2.1 U	2.1 U	2 U	---	---	---	---	2.1 U
4-Bromophenyl Phenyl Ether	--	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1 U	---	---	---	---	1.1 U
4-Chloro-3-Methylphenol	140	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.79 U	0.79 U	0.79 U	0.76 U	---	---	---	---	0.79 U
4-Chloroaniline	0.37	0.73 U	0.73 U	0.73 U	0.73 U	0.73 UJ	0.73 U	0.76 U	0.76 U	0.76 U	0.73 U	---	---	---	---	0.76 U
4-Chlorophenyl Phenyl Ether	--	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	1 U	1 U	1 U	0.96 U	---	---	---	---	1 U
4-Nitroaniline	3.8	0.48 U	0.48 U	0.48 U	0.48 U	0.48 UR	0.48 U	0.5 U	0.5 UJ	0.5 UJ	0.48 U	---	---	---	---	0.5 UJ
4-Nitrophenol	50	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.8 U	4.8 U	4.8 U	4.7 U	---	---	---	---	4.8 U
Acenaphthene	53	0.88 UJ	0.88 U	0.88 U	0.88 U	0.88 UJ	0.88 U	0.92 U	0.92 U	0.92 U	0.88 U	---	---	---	---	0.92 U
Acenaphthylene	--	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.68 U	0.68 U	0.65 U	---	---	---	---	0.68 U
Acetophenone	190	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1 U	---	---	---	---	1.1 U
Anthracene	180	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.59 U	0.59 U	0.59 U	0.57 U	---	---	---	---	0.59 U
Atrazine	0.3	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.8 U	0.8 U	0.8 U	0.77 U	---	---	---	---	0.8 U
Benzaldehyde	19	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.9 U	0.9 U	0.9 U	0.86 U	---	---	---	---	0.9 U
Benzo(A)Anthracene	0.03	0.55 U	0.55 UJ	0.55 U	0.55 U	0.55 U	0.55 U	0.57 U	0.57 U	0.57 U	0.55 U	---	---	---	---	0.57 U
Benzo(A)Pyrene	0.025	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.17 U	0.17 U	0.16 U	---	---	---	---	0.17 U
Benzo(B)Fluoranthene	0.25	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.46 U	0.46 U	0.46 U	0.44 U	---	---	---	---	0.46 U
Benzo(G,H,I)Perylene	--	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.78 U	0.78 U	0.78 U	0.75 U	---	---	---	---	0.78 U
Benzo(K)Fluoranthene	2.5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U	0.19 U	0.19 U	0.18 U	---	---	---	---	0.19 U
Benzyl Butyl Phthalate	1	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.63 U	0.63 UJ	0.63 UJ	0.6 U	---	---	---	---	0.63 UJ
Biphenyl (Diphenyl)	0.083	0.63 UJ	0.63 U	0.63 U	0.63 U	0.63 UJ	0.63 U	0.66 U	0.66 U	0.66 U	0.63 U	---	---	---	---	0.66 U
Bis(2-Chloroethoxy) Methane	5.9	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.72 U	0.72 U	0.72 U	0.69 U	---	---	---	---	0.72 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.13 U	0.13 U	0.13 U	0.12 U	---	---	---	---	0.13 U
Bis(2-Chloroisopropyl) Ether	71	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.97 U	0.97 U	0.97 U	0.93 U	---	---	---	---	0.97 U
Bis(2-Ethylhexyl) Phthalate	5.6	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.75 U	0.75 U	0.75 U	0.72 U	---	---	---	---	0.75 U
Caprolactam	990	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	---	---	---	---	1.1 U
Carbazole	--	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.89 U	0.89 U	0.89 U	0.85 U	---	---	---	---	0.89 U
Chrysene	25	0.67 U	0.67 UJ	0.67 U	0.67 U	0.67 U	0.67 U	0.7 U	0.7 U	0.7 U	0.67 U	---	---	---	---	0.7 U
Dibenz(A,H)Anthracene	0.025	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.094 U	0.094 U	0.094 U	0.09 U	---	---	---	---	0.094 U
Dibenzofuran	0.79	0.85 U	0.85 UJ	0.85 U	0.85 U	0.85 U	0.85 U	0.89 U	0.89 U	0.89 U	0.85 U	---	---	---	---	0.89 U
Diethyl Phthalate	600	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	---	---	---	---	1 UJ
Dimethyl Phthalate	2000	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U	1 UJ	1 UJ	0.98 U	---	---	---	---	1 UJ
Di-N-Butyl Phthalate	20	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.85 U	0.85 U	0.85 U	0.82 U	---	---	---	---	0.85 U
Di-N-Octylphthalate	20	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 UJ	0.72 U	0.72 U	0.72 U	0.69 U	---	---	---	---	0.72 U
Fluoranthene	20	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.75 U	0.75 U	0.75 U	0.72 U	---	---	---	---	0.75 U
Fluorene	29	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.83 U	0.83 U	0.83 U	0.8 U	---	---	---	---	0.83 U
Hexachlorobenzene	0.0098	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.49 U	0.49 U	0.49 U	0.47 U	---	---	---	---	0.49 U
Hexachlorobutadiene	0.14	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.79 U	0.79 U	0.79 U	0.76 U	---	---	---	---	0.79 U

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-014	CFMW-014	CFMW-014	CFMW-015	CFMW-015	CFMW-015	CFMW-015	CFMW-016	CFMW-016-DUP	CFMW-016	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-017
Sample Name		CFMW-014-GW	CFMW-014-GW	CFMW-014-GW	CFMW-015-GW	CFMW-015-GW	CFMW-015-GW	CFMW-015-GW	CFMW-016-GW	CFMW-DUP10-GW	CFMW-016-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-017-GW
Chemical Name		12/15/2016	3/29/2017	6/27/2017	9/12/2016	12/15/2016	3/29/2017	6/27/2017	3/28/2017	3/28/2017	6/29/2017	9/21/2016	12/14/2016	3/27/2017	6/26/2017	3/28/2017
Hexachlorocyclopentadiene	0.041	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.64 U	0.64 U	0.64 U	0.61 UJ	---	---	---	---	0.64 U
Hexachloroethane	0.33	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.094 U	0.094 U	0.094 U	0.09 U	---	---	---	---	0.094 U
Indeno(1,2,3-C,D)Pyrene	0.25	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	0.22 U	0.21 U	---	---	---	---	0.22 U
Isophorone	78	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.7 U	0.7 U	0.7 U	0.67 U	---	---	---	---	0.7 U
Naphthalene	0.17	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.83 U	0.83 U	0.83 U	0.8 U	---	---	---	---	0.83 U
Nitrobenzene	0.14	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.51 U	0.51 U	0.51 U	0.49 U	---	---	---	---	0.51 U
N-Nitrosodi-N-Propylamine	0.011	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.86 U	0.86 U	0.86 U	0.83 U	---	---	---	---	0.86 U
N-Nitrosodiphenylamine	12	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.77 U	0.77 U	0.77 U	0.74 U	---	---	---	---	0.77 U
Pentachlorophenol	0.041	2.2 UJ	2.2 U	2.2 U	2.2 U	2.2 UJ	2.2 U	2.3 U	2.3 U	2.3 U	2.2 U	---	---	---	---	2.3 U
Phenanthrene	--	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.68 U	0.68 U	0.68 U	0.65 U	---	---	---	---	0.68 U
Phenol	580	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.43 U	0.43 U	0.43 U	0.41 U	---	---	---	---	0.43 U
Pyrene	12	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 UJ	0.86 U	[illegible]	0.86 UJ	0.83 U	---	---	---	---	0.86 UJ
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	---	---	---	---	0.28 U
1,1,2,2-Tetrachloroethane	0.076	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---	0.34 U
1,1,2-Trichloroethane	0.041	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	---	---	---	---	0.08 U
1,1-Dichloroethane	2.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---	0.24 U
1,1-Dichloroethene	7	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---	0.34 U
1,2,3-Trichlorobenzene	0.7	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	---	---	---	---	0.35 U
1,2,4-Trichlorobenzene	0.4	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	---	---	---	---	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 U	0.23 UJ	---	---	---	---	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	0.19 U
1,2-Dichlorobenzene	30	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U
1,2-Dichloroethane	0.17	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---	---	0.25 U
1,2-Dichloropropane	0.14	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	0.18 U
1,3-Dichlorobenzene	600	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	0.33 U
1,4-Dichlorobenzene	0.48	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	0.33 U
2-Hexanone	3.8	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	---	---	---	---	0.72 U
Acetone	1400	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	---	---	---	---	1.1 U
Benzene	0.46	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	---	---	---	---	0.09 U
Bromochloromethane	8.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---	0.3 U
Bromodichloromethane	0.13	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---	---	0.15 U
Bromoform	3.3	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	---	---	---	---	0.18 U
Bromomethane	0.75	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	0.18 U
Carbon Disulfide	81	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U
Carbon Tetrachloride	0.46	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	0.33 U
Chlorobenzene	7.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---	0.24 U
Chloroethane	2100	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	---	---	---	---	0.37 U
Chloroform	0.22	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U
Chloromethane	19	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U
Cis-1,2-Dichloroethylene	3.6	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---	---	0.26 U
Cis-1,3-Dichloropropene	4	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 UJ	---	---	---	---	0.16 U
Cyclohexane	1300	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---	---	0.26 U
Dibromochloromethane	0.87	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U
Dichlorodifluoromethane	20	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	---	---	---	---	0.14 U
Ethylbenzene	1.5	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---	0.3 U
Isopropylbenzene (Cumene)	45	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---	0.32 U
M,P-Xylene	--	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	---	---	---	---	0.28 U
Methyl Acetate	2000	0.58 UJ	0.58 U	0.58 U	0.58 U	0.58 UJ	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	---	---	---	---	0.58 U
Methyl Ethyl Ketone (2-Butanone)	560	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	---	---	---	---	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	---	---	---	---	0.63 U
Methylcyclohexane	--	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	0.22 U
Methylene Chloride	5	0.21 U	0.21 U	0.21 U	0.21 U	1.8	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	---	---	---	---	0.21 U
O-Xylene (1,2-Dimethylbenzene)	19	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---	0.32 U
Styrene	100	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	---	---	---	---	0.17 U
Tert-Butyl Methyl Ether	14	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	---	---	---	---	0.13 U

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-014	CFMW-014	CFMW-014	CFMW-015	CFMW-015	CFMW-015	CFMW-015	CFMW-016	CFMW-016-DUP	CFMW-016	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-016A	CFMW-017
Sample Name		CFMW-014-GW	CFMW-014-GW	CFMW-014-GW	CFMW-015-GW	CFMW-015-GW	CFMW-015-GW	CFMW-015-GW	CFMW-016-GW	CFMW-DUP10-GW	CFMW-016-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-016a-GW	CFMW-017-GW
Chemical Name		12/15/2016	3/29/2017	6/27/2017	9/12/2016	12/15/2016	3/29/2017	6/27/2017	3/28/2017	3/28/2017	6/29/2017	9/21/2016	12/14/2016	3/27/2017	6/26/2017	3/28/2017
Tetrachloroethylene (PCE)	4.1	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	---	---	---	---	0.12 U
Toluene	110	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---	---	0.25 U
Trans-1,2-Dichloroethene	36	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	0.18 U
Trans-1,3-Dichloropropene	2	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 UJ	---	---	---	---	0.19 U
Trichloroethylene (TCE)	0.28	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22	0.22 U	---	---	---	---	0.22 U
Trichlorofluoromethane	520	0.15 UJ	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---	---	0.15 U
Vinyl Chloride	0.019	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	---	---	---	---	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-017	CFMW-018	CFMW-018	CFMW-019	CFMW-019	CFMW-019	CFMW-019	CFMW-020	CFMW-020	CFMW-020	CFMW-020	CFMW-021	CFMW-021	CFMW-021	CFMW-021
Sample Name		CFMW-017-GW	CFMW-018-GW	CFMW-018-GW	CFMW-019-GW	CFMW-019-GW	CFMW-019-GW	CFMW-019-GW	CFMW-020-GW	CFMW-020-GW	CFMW-020-GW	CFMW-020-GW	CFMW-021-GW	CFMW-021-GW	CFMW-021-GW	CFMW-021-GW
Chemical Name		6/26/2017	3/28/2017	6/20/2017	9/12/2016	12/15/2016	3/29/2017	6/29/2017	9/20/2016	12/13/2016	3/21/2017	6/26/2017	9/12/2016	12/14/2016	3/29/2017	6/26/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	1220	--	475	--	--	--	3390 J+	--	--	--	517	--	--	--	1810
Fluoride	80	1160 J+	569	451	2860	2890	2950	3720	281	301	516	489 J+	1950	3120 J-	4500	1930 J+
Cyanide (Dissolved)	0.15	93.6	--	74.9 J-	--	--	--	1250	--	--	--	2 U	--	--	--	302
Cyanide (Free) (Dissolved)	--	1.5 U	--	3.7 J	--	--	--	44.5 J-	--	--	--	1.5 U	--	--	--	7.5
Cyanide	0.15	103	12.2	78	961 J	791	1770	1230	2.9 J	--	2 U	2 J	400 J	1560	1020	321
Cyanide (Free)	--	1.5 U	--	3.3 J	--	--	44.1	67.8 J-	--	--	1.5 U	1.5 U	--	--	23	18.9
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.67 J	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	2.1	0.64 U	0.64 U	0.64 U	0.64 U	0.81 J	0.78 J	0.64 U
Barium (Dissolved)	380	88.9	123 J	155	104	113	140	122	74.2	266	256	199	193	189	220	109
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	47800	49400 J	60900	55100	54600	71900	58200	64400	65300	62600	51400	62300	45700	55700	38900
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	3.3 J	5.1	6.9	5.1	1.3 U	1.3 U	1.3 U	1.3 U	1.5 J	7.2	4.7	1.5 J
Copper (Dissolved)	80	1.4 U	1.4 U	1.4 U	1.4 U	1.6 J	1.8 J	2.4 J	1.4 U	1.4 U	1.4 U	1.4 U	4.2	2.9 J	3 J	1.4 U
Iron (Dissolved)	1400	42.4 U	42.4 UJ	42.4 U	1160	260	656	596	42.4 U	42.4 U	42.4 U	42.4 U	85.9 J	660	371	135
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	10900	12900 J	14600	17200	17800	25000	19000	13900	14700	15300	11700	18800	14000	18900	12500
Manganese (Dissolved)	43	2.5 U	5.1 J	9.5	35.8	61.2	3.9 J	2.5 U	37.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	6.8	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	475	509	583	1520	1840	1820	1720	774	676	622	599	1000	1070	1360	881
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.84 J	0.77 J	1.4 J	1.2 J	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	1.6 J	1.1 J	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	8460	7640	4420	104000	120000	149000	138000	4810	6680	12000	3680	54300	142000	178000	46100
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	5.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	27.8	9.3 J	7 J	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	18.2 U	--	348	--	--	--	18.2 U	--	--	--	18.2 U	--	--	--	18.2 U
Antimony	0.78	0.62 U	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U
Arsenic	0.052	1.1 J	--	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U
Barium	380	87.9	--	168	--	--	--	131	--	--	--	193	--	--	--	110
Beryllium	2.5	0.24 U	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U
Cadmium	0.92	0.71 U	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U
Calcium	--	46900	--	61500	--	--	--	59200	--	--	--	50500	--	--	--	38300
Chromium, Total	100	1.3 U	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U
Cobalt	0.6	1.3 U	--	1.3 U	--	--	--	5.6	--	--	--	1.3 U	--	--	--	1.7 J
Copper	80	1.4 U	--	2.1 J	--	--	--	1.6 J	--	--	--	1.4 U	--	--	--	1.4 U
Iron	1400	670	--	462	--	--	--	2370	--	--	--	1150	--	--	--	210
Lead	15	0.38 U	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U
Magnesium	--	10600	--	17500	--	--	--	19900	--	--	--	11400	--	--	--	12000
Manganese	43	23.2	--	13	--	--	--	35.1	--	--	--	12.9	--	--	--	2.5 U
Mercury	0.063	0.17 U	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U
Nickel	39	1.4 U	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U
Potassium	--	476	--	692	--	--	--	1720	--	--	--	594	--	--	--	883
Selenium	10	0.73 U	--	0.73 U	--	--	--	0.99 J	--	--	--	0.73 U	--	--	--	0.73 U
Silver	9.4	1.3 U	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U
Sodium	--	8960	--	5130	--	--	--	145000	--	--	--	3510	--	--	--	47200
Thallium	0.02	0.26 U	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U
Vanadium	9	9.2	--	1.9 U	--	--	--	1.9 U	--	--	--	1.9 U	--	--	--	1.9 U
Zinc	600	7 U	--	7 U	--	--	--	24.9	--	--	--	18.4	--	--	--	7 U

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Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-017	CFMW-018	CFMW-018	CFMW-019	CFMW-019	CFMW-019	CFMW-019	CFMW-020	CFMW-020	CFMW-020	CFMW-020	CFMW-021	CFMW-021	CFMW-021	CFMW-021
Sample Name		CFMW-017-GW	CFMW-018-GW	CFMW-018-GW	CFMW-019-GW	CFMW-019-GW	CFMW-019-GW	CFMW-019-GW	CFMW-020-GW	CFMW-020-GW	CFMW-020-GW	CFMW-020-GW	CFMW-021-GW	CFMW-021-GW	CFMW-021-GW	CFMW-021-GW
Chemical Name		6/26/2017	3/28/2017	6/20/2017	9/12/2016	12/15/2016	3/29/2017	6/29/2017	9/20/2016	12/13/2016	3/21/2017	6/26/2017	9/12/2016	12/14/2016	3/29/2017	6/26/2017
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	0.43 U	0.45 U	0.43 U	0.43 U	0.44 UJ	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.44 U	0.43 U
1,4-Dioxane (P-Dioxane)	0.46	3.1 U	3.2 U	3.1 U	3.1 U	3.2 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 UJ	3.2 U	3.1 U
2,3,4,6-Tetrachlorophenol	24	0.69 U	0.72 U	0.69 U	0.69 U	0.71 U	0.7 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.7 U	0.69 U
2,4,5-Trichlorophenol	120	0.49 U	0.51 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.5 U	0.49 U
2,4,6-Trichlorophenol	1.2	0.53 U	0.55 U	0.53 U	0.53 U	0.55 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.54 U	0.53 U
2,4-Dichlorophenol	4.6	0.63 U	0.66 U	0.63 U	0.63 U	0.65 U	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.64 U	0.63 U
2,4-Dimethylphenol	36	0.91 U	0.95 U	0.91 U	0.91 U	0.94 U	0.92 U	0.91 U	0.91 U	0.91 UJ	0.91 U	0.91 U	0.91 U	0.91 U	0.92 U	0.91 U
2,4-Dinitrophenol	3.9	2.4 U	2.5 UJ	2.4 UJ	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
2,4-Dinitrotoluene	0.24	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U
2,6-Dinitrotoluene	0.049	0.88 U	0.92 U	0.88 U	0.88 U	0.91 U	0.89 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.89 U	0.88 U
2-Chloronaphthalene	75	0.61 U	0.64 U	0.61 U	0.61 U	0.63 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.62 U	0.61 U
2-Chlorophenol	9.1	0.74 U	0.77 U	0.74 U	0.74 U	0.76 U	0.75 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.75 U	0.74 U
2-Methylnaphthalene	3.6	0.88 U	0.92 U	0.88 U	0.88 U	0.91 U	0.89 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.89 U	0.88 U
2-Methylphenol (O-Cresol)	93	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2-Nitroaniline	19	0.65 U	0.68 U	0.65 U	0.65 U	0.67 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.66 U	0.65 UJ
2-Nitrophenol	--	0.59 U	0.61 U	0.59 U	0.59 U	0.61 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.6 U	0.59 U
3- And 4- Methylphenol (Total)	--	0.88 U	0.92 U	0.88 U	0.88 U	0.91 U	0.89 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 UJ	0.88 U	0.89 U	0.88 U
3,3'-Dichlorobenzidine	0.13	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U
3-Nitroaniline	--	0.82 U	0.85 U	0.82 U	0.82 U	0.85 U	0.83 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.83 U	0.82 U
4,6-Dinitro-2-Methylphenol	0.15	2 U	2.1 U	2 U	2 U	2.1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4-Bromophenyl Phenyl Ether	--	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-Methylphenol	140	0.76 U	0.79 U	0.76 U	0.76 U	0.79 U	0.77 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.77 U	0.76 U
4-Chloroaniline	0.37	0.73 U	0.76 U	0.73 U	0.73 U	0.75 U	0.74 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.74 U	0.73 U
4-Chlorophenyl Phenyl Ether	--	0.96 U	1 U	0.96 U	0.96 U	0.99 U	0.97 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.98 U	0.96 U
4-Nitroaniline	3.8	0.48 U	0.5 UJ	0.48 UJ	0.48 U	0.5 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.49 U	0.48 UJ
4-Nitrophenol	50	4.7 U	4.8 U	4.7 U	4.7 U	4.8 U	4.7 U	4.7 U	4.7 U	4.7 UJ	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 UJ
Acenaphthene	53	0.88 U	0.92 U	0.88 U	0.88 U	0.91 UJ	0.89 U	0.88 U	0.88 U	0.88 UJ	0.88 U	0.88 U	0.88 U	0.88 UJ	0.89 U	0.88 UJ
Acenaphthylene	--	0.65 U	0.68 U	0.65 U	0.65 U	0.67 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.66 U	0.65 U
Acetophenone	190	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U
Anthracene	180	0.57 U	0.59 U	0.57 U	0.57 U	0.59 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.58 U	0.57 U
Atrazine	0.3	0.77 U	0.8 U	0.77 U	0.77 U	0.8 U	0.78 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.78 U	0.77 U
Benzaldehyde	19	0.86 UJ	0.9 U	0.86 U	0.86 U	0.89 U	0.87 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 UJ	0.86 U	0.86 U	0.87 U	0.86 U
Benzo(A)Anthracene	0.03	0.55 U	0.57 U	0.55 U	0.55 U	0.57 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.56 U	0.55 U
Benzo(A)Pyrene	0.025	0.16 U	0.17 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Benzo(B)Fluoranthene	0.25	0.44 U	0.46 U	0.44 U	0.44 U	0.45 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.45 U	0.44 U
Benzo(G,H,I)Perylene	--	0.75 U	0.78 U	0.75 U	0.75 U	0.77 U	0.76 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.76 U	0.75 U
Benzo(K)Fluoranthene	2.5	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Benzyl Butyl Phthalate	1	0.6 U	0.63 UJ	0.6 U	0.6 U	0.62 U	0.6 U	0.6 U	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.61 U	0.6 U
Biphenyl (Diphenyl)	0.083	0.63 U	0.66 U	0.63 U	0.63 U	0.65 UJ	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.64 U	0.63 U
Bis(2-Chloroethoxy) Methane	5.9	0.69 U	0.72 U	0.69 U	0.69 U	0.71 U	0.7 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.7 U	0.69 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	0.12 U	0.13 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U
Bis(2-Chloroisopropyl) Ether	71	0.93 U	0.97 U	0.93 U	0.93 U	0.96 U	0.94 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.95 U	0.93 UJ
Bis(2-Ethylhexyl) Phthalate	5.6	0.72 U	0.75 U	0.72 U	0.72 U	0.74 U	0.73 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.73 U	0.72 U
Caprolactam	990	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Carbazole	--	0.85 U	0.89 U	0.85 U	0.85 U	0.88 U	0.86 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.86 U	0.85 U
Chrysene	25	0.67 U	0.7 U	0.67 U	0.67 U	0.69 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.68 U	0.67 U
Dibenz(A,H)Anthracene	0.025	0.09 U	0.094 U	0.09 U	0.09 U	0.093 U	0.091 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.091 U	0.09 U
Dibenzofuran	0.79	0.85 U	0.89 U	0.85 U	0.85 U	0.88 U	0.86 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.86 U	0.85 U
Diethyl Phthalate	600	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
Dimethyl Phthalate	2000	0.98 U	1 UJ	0.98 U	0.98 U	1 U	0.99 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U
Di-N-Butyl Phthalate	20	0.82 U	0.85 U	0.82 U	0.82 U	0.85 U	0.83 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.83 U	0.82 U
Di-N-Octylphthalate	20	0.69 U	0.72 U	0.69 U	0.69 U	0.71 U	0.7 UJ	0.69 U	0.69 U	0.69 UJ	0.69 U	0.69 U	0.69 U	0.69 U	0.7 UJ	0.69 U
Fluoranthene	20	0.72 U	0.75 U	0.72 U	0.72 U	0.74 U	0.73 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.73 U	0.72 U
Fluorene	29	0.8 U	0.83 U	0.8 U	0.8 U	0.83 U	0.81 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.81 U	0.8 U
Hexachlorobenzene	0.0098	0.47 U	0.49 U	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.48 U	0.47 U
Hexachlorobutadiene	0.14	0.76 U	0.79 U	0.76 U	0.76 U	0.79 U	0.77 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.77 U	0.76 U

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-017	CFMW-018	CFMW-018	CFMW-019	CFMW-019	CFMW-019	CFMW-019	CFMW-020	CFMW-020	CFMW-020	CFMW-020	CFMW-021	CFMW-021	CFMW-021	CFMW-021
Sample Name		CFMW-017-GW	CFMW-018-GW	CFMW-018-GW	CFMW-019-GW	CFMW-019-GW	CFMW-019-GW	CFMW-019-GW	CFMW-020-GW	CFMW-020-GW	CFMW-020-GW	CFMW-020-GW	CFMW-021-GW	CFMW-021-GW	CFMW-021-GW	CFMW-021-GW
Chemical Name		6/26/2017	3/28/2017	6/20/2017	9/12/2016	12/15/2016	3/29/2017	6/29/2017	9/20/2016	12/13/2016	3/21/2017	6/26/2017	9/12/2016	12/14/2016	3/29/2017	6/26/2017
Hexachlorocyclopentadiene	0.041	0.61 UJ	0.64 U	0.61 U	0.61 U	0.63 U	0.61 U	0.61 UJ	0.61 U	0.61 U	0.61 U	0.61 UJ	0.61 U	0.61 U	0.62 U	0.61 U
Hexachloroethane	0.33	0.09 U	0.094 U	0.09 U	0.09 U	0.093 U	0.091 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.091 U	0.09 U
Indeno(1,2,3-C,D)Pyrene	0.25	0.21 U	0.22 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Isophorone	78	0.67 U	0.7 U	0.67 U	0.67 U	0.69 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.68 U	0.67 U
Naphthalene	0.17	0.8 U	0.83 U	0.8 U	0.8 U	0.83 U	0.81 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.81 U	0.8 U
Nitrobenzene	0.14	0.49 U	0.51 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.5 U	0.49 U
N-Nitrosodi-N-Propylamine	0.011	0.83 U	0.86 U	0.83 U	0.83 U	0.86 U	0.84 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.84 U	0.83 U
N-Nitrosodiphenylamine	12	0.74 U	0.77 U	0.74 U	0.74 U	0.76 U	0.75 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 UJ	0.75 U	0.74 U
Pentachlorophenol	0.041	2.2 U	2.3 U	2.2 U	2.2 U	2.3 UJ	2.2 U	2.2 U	2.2 U	2.2 UJ	2.2 U	2.2 U	2.2 U	2.2 UJ	2.2 U	2.2 U
Phenanthrene	--	0.65 U	0.68 U	0.65 U	0.65 U	0.67 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.66 U	0.65 U
Phenol	580	0.41 U	0.43 U	0.41 U	0.41 U	0.42 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.42 U	0.41 U
Pyrene	12	0.83 U	0.86 UJ	0.83 U	0.83 U	0.86 U	0.84 UJ	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.84 UJ	0.83 U
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	0.28 UJ	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 UJ	0.28 U	0.28 U	0.28 U	0.28 UJ
1,1,2,2-Tetrachloroethane	0.076	0.19 U	0.19 U	0.19 U	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.041	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethane	2.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethene	7	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,2,3-Trichlorobenzene	0.7	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,2,4-Trichlorobenzene	0.4	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 UJ	0.23 U	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-Dichlorobenzene	30	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,2-Dichloroethane	0.17	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloropropane	0.14	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	600	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	0.48	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Hexanone	3.8	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
Acetone	1400	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U
Benzene	0.46	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Bromochloromethane	8.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromodichloromethane	0.13	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Bromoform	3.3	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Bromomethane	0.75	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 UJ
Carbon Disulfide	81	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Carbon Tetrachloride	0.46	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Chlorobenzene	7.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chloroethane	2100	0.37 U	0.37 U	0.37 UJ	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Chloroform	0.22	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloromethane	19	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Cis-1,2-Dichloroethylene	3.6	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Cis-1,3-Dichloropropene	4	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 UJ	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Cyclohexane	1300	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Dibromochloromethane	0.87	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Dichlorodifluoromethane	20	0.14 UJ	0.14 U	0.14 UJ	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 UJ	0.14 UJ	0.14 U	0.14 U	0.14 UJ
Ethylbenzene	1.5	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Isopropylbenzene (Cumene)	45	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
M,P-Xylene	--	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Methyl Acetate	2000	0.58 U	0.58 U	0.58 U	0.58 U	0.58 UJ	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 UJ	0.58 U	0.58 U
Methyl Ethyl Ketone (2-Butanone)	560	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
Methylcyclohexane	--	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Methylene Chloride	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
O-Xylene (1,2-Dimethylbenzene)	19	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Styrene	100	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Tert-Butyl Methyl Ether	14	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U

Preliminary Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-017	CFMW-018	CFMW-018	CFMW-019	CFMW-019	CFMW-019	CFMW-019	CFMW-020	CFMW-020	CFMW-020	CFMW-020	CFMW-021	CFMW-021	CFMW-021	CFMW-021
Sample Name		CFMW-017-GW	CFMW-018-GW	CFMW-018-GW	CFMW-019-GW	CFMW-019-GW	CFMW-019-GW	CFMW-019-GW	CFMW-020-GW	CFMW-020-GW	CFMW-020-GW	CFMW-020-GW	CFMW-021-GW	CFMW-021-GW	CFMW-021-GW	CFMW-021-GW
Chemical Name		6/26/2017	3/28/2017	6/20/2017	9/12/2016	12/15/2016	3/29/2017	6/29/2017	9/20/2016	12/13/2016	3/21/2017	6/26/2017	9/12/2016	12/14/2016	3/29/2017	6/26/2017
Tetrachloroethylene (PCE)	4.1	0.12 U	0.12 U	0.12 U	0.56 J+	0.29 J	0.5 J	0.54 J	0.12 U	0.12 U	0.12 U	0.12 U	0.18 J	0.12 U	0.69 J	0.12 U
Toluene	110	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trans-1,2-Dichloroethene	36	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Trans-1,3-Dichloropropene	2	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Trichloroethylene (TCE)	0.28	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichlorofluoromethane	520	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U
Vinyl Chloride	0.019	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-022	CFMW-022	CFMW-022	CFMW-022	CFMW-023	CFMW-023	CFMW-023	CFMW-023	CFMW-029	CFMW-029-DUP	CFMW-029	CFMW-029	CFMW-029	CFMW-003A	CFMW-003A
Sample Name		CFMW-022-GW	CFMW-022-GW	CFMW-022-GW	CFMW-022-GW	CFMW-023-GW	CFMW-023-GW	CFMW-023-GW	CFMW-023-GW	CFMW-029-GW	CFMW-DUP1-GW	CFMW-029-GW	CFMW-029-GW	CFMW-029-GW	CFMW-003a-GW	CFMW-003a-GW
Chemical Name		9/13/2016	12/9/2016	3/28/2017	6/26/2017	9/21/2016	12/19/2016	3/21/2017	6/27/2017	9/13/2016	9/13/2016	12/14/2016	3/24/2017	6/26/2017	9/20/2016	12/12/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	--	607	--	--	--	708 J+	--	--	--	--	2570	--	--
Fluoride	80	432	558 J-	971	573 J+	395	452	647	736	3370 J+	3370 J+	4180 J	1810 J+	2570 J+	312	337
Cyanide (Dissolved)	0.15	--	--	--	11.8	--	--	--	5.7 J	--	--	--	--	116	--	--
Cyanide (Free) (Dissolved)	--	--	--	--	1.5 U	--	--	--	1.5 U	--	--	--	--	5.4	--	--
Cyanide	0.15	155	279	141	13.3	2.7 J	2 U	7.6 J	5.9 J	366	357	186	258	128	2.1 J	2 U
Cyanide (Free)	--	--	--	3.4 J	1.5 U	--	--	1.5 U	1.5 U	--	--	--	8	19.7	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	9.1 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	33.8 J	18.2 U
Antimony (Dissolved)	0.78	0.31 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 J	0.62 U
Arsenic (Dissolved)	0.052	0.32 U	0.64 U	0.64 U	0.64 U	0.64 J	0.71 J	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	5.2	3.5
Barium (Dissolved)	380	102	233	232 J	170	235	212	182	170	233	225	220	251	141	53.3	39.9
Beryllium (Dissolved)	3	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.36 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	27700	59800	55100 J	47500	60700	61100	58700	53500	52700	51100	52800	58400	34300	31000	28500
Chromium, Total (Dissolved)	100	0.66 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 J	7.3	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	0.65 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	1.6 J	1.4 J	3.6 J	1.4 U	4.3	1.4 U	1.4 U	1.4 U	4.5 J	1.4 UJ	1.4 U	1.7 J	1.4 U	1.4 U	1.4 U
Iron (Dissolved)	1400	36.1 J	119 J	51.8 J	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	172	164	115 J	125	48.8 J	42.4 U	42.4 U
Lead (Dissolved)	15	0.19 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	6720	14400	15100 J	11500	17700	17700	16900	14200	18700	17800	17700	18900	11200	5380	4870
Manganese (Dissolved)	43	1.2 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	56.2	52.6
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	0.68 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	318	685	761	546	600	532	495	475	898	864	923	1050	691	3270	4960
Selenium (Dissolved)	10	0.37 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	0.64 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	5090	15600	23600	5310	4100	2870	69 U	2980	35400	34200	21500	36400	35300	17500	19500
Thallium (Dissolved)	0.02	0.13 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	0.95 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 J	1.9 U
Zinc (Dissolved)	600	3.5 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	--	--	18.2 U	--	--	--	18.2 U	--	--	--	--	25.5 J	--	--
Antimony	0.78	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	--	0.62 U	--	--
Arsenic	0.052	--	--	--	0.64 U	--	--	--	0.72 J	--	--	--	--	0.66 J	--	--
Barium	380	--	--	--	171	--	--	--	186	--	--	--	--	147	--	--
Beryllium	2.5	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	--	0.24 U	--	--
Cadmium	0.92	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	--	0.71 U	--	--
Calcium	--	--	--	--	48900	--	--	--	56000	--	--	--	--	34500	--	--
Chromium, Total	100	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	--	1.3 U	--	--
Cobalt	0.6	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	--	1.3 U	--	--
Copper	80	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	--	1.4 U	--	--
Iron	1400	--	--	--	42.4 U	--	--	--	311	--	--	--	--	104 J	--	--
Lead	15	--	--	--	0.38 U	--	--	--	0.38 U	--	--	--	--	0.38 U	--	--
Magnesium	--	--	--	--	11700	--	--	--	15900	--	--	--	--	11500	--	--
Manganese	43	--	--	--	2.5 U	--	--	--	4.8 J	--	--	--	--	2.5 U	--	--
Mercury	0.063	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	--	0.17 U	--	--
Nickel	39	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	--	1.4 U	--	--
Potassium	--	--	--	--	554	--	--	--	514	--	--	--	--	692	--	--
Selenium	10	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--	--	0.73 U	--	--
Silver	9.4	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	--	1.3 U	--	--
Sodium	--	--	--	--	5180	--	--	--	3560 J+	--	--	--	--	38900	--	--
Thallium	0.02	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	--	0.26 U	--	--
Vanadium	9	--	--	--	1.9 U	--	--	--	1.9 U	--	--	--	--	1.9 U	--	--
Zinc	600	--	--	--	7 U	--	--	--	10.2 J	--	--	--	--	7 U	--	--

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Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-022	CFMW-022	CFMW-022	CFMW-022	CFMW-023	CFMW-023	CFMW-023	CFMW-023	CFMW-029	CFMW-029-DUP	CFMW-029	CFMW-029	CFMW-029	CFMW-003A	CFMW-003A
Sample Name		CFMW-022-GW	CFMW-022-GW	CFMW-022-GW	CFMW-022-GW	CFMW-023-GW	CFMW-023-GW	CFMW-023-GW	CFMW-023-GW	CFMW-029-GW	CFMW-DUP1-GW	CFMW-029-GW	CFMW-029-GW	CFMW-029-GW	CFMW-003a-GW	CFMW-003a-GW
Chemical Name		9/13/2016	12/9/2016	3/28/2017	6/26/2017	9/21/2016	12/19/2016	3/21/2017	6/27/2017	9/13/2016	9/13/2016	12/14/2016	3/24/2017	6/26/2017	9/20/2016	12/12/2016
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	0.43 U	0.43 U	0.46 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.45 U	0.45 U	0.43 U	0.43 U	0.43 U	---	---
1,4-Dioxane (P-Dioxane)	0.46	3.1 U	3.1 U	3.3 U	3.1 U	3.1 UJ	3.3 U	3.1 U	3.1 U	3.2 U	3.2 U	3.1 UJ	3.1 U	3.1 U	---	---
2,3,4,6-Tetrachlorophenol	24	0.69 U	0.69 U	0.73 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.72 U	0.72 U	0.69 U	0.69 U	0.69 U	---	---
2,4,5-Trichlorophenol	120	0.49 U	0.49 U	0.52 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.51 U	0.51 U	0.49 U	0.49 U	0.49 U	---	---
2,4,6-Trichlorophenol	1.2	0.53 U	0.53 U	0.56 U	0.53 U	0.53 U	0.56 U	0.53 U	0.53 U	0.55 U	0.55 U	0.53 U	0.53 U	0.53 U	---	---
2,4-Dichlorophenol	4.6	0.63 U	0.63 U	0.67 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.66 U	0.66 U	0.63 U	0.63 U	0.63 U	---	---
2,4-Dimethylphenol	36	0.91 U	0.91 U	0.96 U	0.91 U	0.91 U	0.96 U	0.91 U	0.91 U	0.95 U	0.95 U	0.91 U	0.91 U	0.91 U	---	---
2,4-Dinitrophenol	3.9	2.4 UJ	2.4 U	2.5 UJ	2.4 U	2.4 U	2.5 U	2.4 U	2.4 U	2.5 UJ	2.5 UJ	2.4 U	2.4 U	2.4 U	---	---
2,4-Dinitrotoluene	0.24	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1.1 U	1 U	1 U	1 U	---	---
2,6-Dinitrotoluene	0.049	0.88 U	0.88 U	0.93 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.92 U	0.92 U	0.88 U	0.88 U	0.88 U	---	---
2-Chloronaphthalene	75	0.61 U	0.61 U	0.65 U	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.64 U	0.64 U	0.61 U	0.61 U	0.61 U	---	---
2-Chlorophenol	9.1	0.74 U	0.74 U	0.78 U	0.74 U	0.74 U	0.78 U	0.74 U	0.74 U	0.77 U	0.77 U	0.74 U	0.74 U	0.74 U	---	---
2-Methylnaphthalene	3.6	0.88 U	0.88 U	0.93 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.92 U	0.92 U	0.88 U	0.88 U	0.88 U	---	---
2-Methylphenol (O-Cresol)	93	1.3 U	1.3 U	1.4 U	1.3 U	1.3 U	1.4 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	---	---
2-Nitroaniline	19	0.65 U	0.65 U	0.69 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.68 U	0.68 U	0.65 U	0.65 U	0.65 U	---	---
2-Nitrophenol	--	0.59 U	0.59 U	0.63 U	0.59 U	0.59 U	0.62 U	0.59 U	0.59 U	0.61 U	0.61 U	0.59 U	0.59 U	0.59 U	---	---
3- And 4- Methylphenol (Total)	--	0.88 U	0.88 U	0.93 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.92 U	0.92 U	0.88 U	0.88 U	0.88 U	---	---
3,3'-Dichlorobenzidine	0.13	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1.1 U	1 U	1 U	1 U	---	---
3-Nitroaniline	--	0.82 U	0.82 U	0.87 U	0.82 U	0.82 U	0.86 U	0.82 U	0.82 U	0.85 U	0.85 U	0.82 U	0.82 U	0.82 U	---	---
4,6-Dinitro-2-Methylphenol	0.15	2 U	2 U	2.1 U	2 U	2.2 J	2.1 U	2 U	2 U	2.1 U	2.1 U	2 U	2 U	2 U	---	---
4-Bromophenyl Phenyl Ether	--	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1.1 U	1 U	1 U	1 U	---	---
4-Chloro-3-Methylphenol	140	0.76 U	0.76 U	0.81 U	0.76 U	0.76 U	0.8 U	0.76 U	0.76 U	0.79 U	0.79 U	0.76 U	0.76 U	0.76 U	---	---
4-Chloroaniline	0.37	0.73 U	0.73 U	0.77 U	0.73 U	0.73 U	0.77 U	0.73 U	0.73 U	0.76 U	0.76 U	0.73 U	0.73 U	0.73 U	---	---
4-Chlorophenyl Phenyl Ether	--	0.96 U	0.96 U	1 U	0.96 U	0.96 U	1 U	0.96 U	0.96 U	1 U	1 U	0.96 U	0.96 U	0.96 U	---	---
4-Nitroaniline	3.8	0.48 U	0.48 U	0.51 UJ	0.48 U	0.48 U	0.5 U	0.48 U	0.48 U	0.5 U	0.5 U	0.48 U	0.48 U	0.48 U	---	---
4-Nitrophenol	50	4.7 U	4.7 U	4.9 U	4.7 U	4.7 U	4.9 U	4.7 U	4.7 U	4.8 U	4.8 U	4.7 U	4.7 U	4.7 U	---	---
Acenaphthene	53	0.88 U	0.88 U	0.93 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.92 U	0.92 U	0.88 UJ	0.88 U	0.88 U	---	---
Acenaphthylene	--	0.65 U	0.65 U	0.69 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.68 U	0.68 U	0.65 U	0.65 U	0.65 U	---	---
Acetophenone	190	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1 U	1 U	1.1 U	1.1 U	1 U	1 U	1 U	---	---
Anthracene	180	0.57 U	0.57 U	0.6 U	0.57 U	0.57 U	0.6 U	0.57 U	0.57 U	0.59 U	0.59 U	0.57 U	0.57 U	0.57 U	---	---
Atrazine	0.3	0.77 U	0.77 U	0.82 U	0.77 U	0.77 U	0.81 U	0.77 U	0.77 U	0.8 U	0.8 U	0.77 U	0.77 U	0.77 U	---	---
Benzaldehyde	19	0.86 U	0.86 U	0.91 U	0.86 UJ	0.86 U	0.9 U	0.86 U	0.86 U	0.9 U	0.9 U	0.86 U	0.86 U	0.86 UJ	---	---
Benzo(A)Anthracene	0.03	0.55 U	0.55 U	0.58 U	0.55 U	0.55 U	0.58 U	0.55 U	0.55 U	0.57 U	0.57 U	0.55 U	0.55 U	0.55 U	---	---
Benzo(A)Pyrene	0.025	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.17 U	0.17 U	0.16 U	0.16 U	0.16 U	---	---
Benzo(B)Fluoranthene	0.25	0.44 U	0.44 U	0.47 U	0.44 U	0.44 U	0.46 U	0.44 U	0.44 U	0.46 U	0.46 U	0.44 U	0.44 U	0.44 U	---	---
Benzo(G,H,I)Perylene	--	0.75 U	0.75 U	0.79 U	0.75 U	0.75 U	0.79 U	0.75 U	0.75 U	0.78 U	0.78 U	0.75 U	0.75 U	0.75 U	---	---
Benzo(K)Fluoranthene	2.5	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.18 U	---	---
Benzyl Butyl Phthalate	1	0.6 U	0.6 U	0.64 UJ	0.6 U	0.6 U	0.63 U	0.6 U	0.6 U	0.63 U	0.63 U	0.6 U	0.6 U	0.6 U	---	---
Biphenyl (Diphenyl)	0.083	0.63 U	0.63 U	0.67 U	0.63 U	0.63 U	0.66 UJ	0.63 U	0.63 U	0.66 U	0.66 U	0.63 U	0.63 U	0.63 U	---	---
Bis(2-Chloroethoxy) Methane	5.9	0.69 U	0.69 U	0.73 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.72 U	0.72 U	0.69 U	0.69 U	0.69 U	---	---
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	0.12 U	0.12 UJ	0.13 U	0.12 U	0.12 U	0.13 UJ	0.12 U	0.12 U	0.13 U	0.13 U	0.12 UJ	0.12 U	0.12 U	---	---
Bis(2-Chloroisopropyl) Ether	71	0.93 U	0.93 U	0.99 U	0.93 U	0.93 U	0.98 U	0.93 U	0.93 U	0.97 U	0.97 U	0.93 U	0.93 U	0.93 U	---	---
Bis(2-Ethylhexyl) Phthalate	5.6	0.72 U	1.2 J	0.76 U	0.72 U	0.72 U	0.76 U	0.72 U	0.72 U	0.75 U	0.75 U	0.72 U	0.72 U	0.72 U	---	---
Caprolactam	990	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	---	---
Carbazole	--	0.85 U	0.85 U	0.9 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.89 U	0.89 U	0.85 U	0.85 U	0.85 U	---	---
Chrysene	25	0.67 U	0.67 U	0.71 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.7 U	0.7 U	0.67 U	0.67 U	0.67 U	---	---
Dibenz(A,H)Anthracene	0.025	0.09 U	0.09 U	0.095 U	0.09 U	0.09 U	0.095 U	0.09 U	0.09 U	0.094 U	0.094 U	0.09 U	0.09 U	0.09 U	---	---
Dibenzofuran	0.79	0.85 U	0.85 U	0.9 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.89 U	0.89 U	0.85 U	0.85 U	0.85 U	---	---
Diethyl Phthalate	600	1 U	1 U	1.1 UJ	1 U	1 U	1.1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	---	---
Dimethyl Phthalate	2000	0.98 U	0.98 U	1 UJ	0.98 U	0.98 U	1 UJ	0.98 U	0.98 U	1 U	1 U	0.98 U	0.98 U	0.98 U	---	---
Di-N-Butyl Phthalate	20	0.82 U	1.2 J	0.87 U	0.82 U	0.82 U	0.86 U	0.82 U	0.82 U	0.85 U	0.85 U	0.82 U	0.82 UJ	0.82 U	---	---
Di-N-Octylphthalate	20	0.69 U	0.69 U	0.73 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.72 U	0.72 U	0.69 U	0.69 U	0.69 U	---	---
Fluoranthene	20	0.72 U	0.72 U	0.76 U	0.72 U	0.72 U	0.76 U	0.72 U	0.72 U	0.75 U	0.75 U	0.72 U	0.72 U	0.72 U	---	---
Fluorene	29	0.8 U	0.8 U	0.85 U	0.8 U	0.8 U	0.84 U	0.8 U	0.8 U	0.83 U	0.83 U	0.8 U	0.8 U	0.8 U	---	---
Hexachlorobenzene	0.0098	0.47 U	0.47 U	0.5 U	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U	0.49 U	0.49 U	0.47 U	0.47 U	0.47 U	---	---
Hexachlorobutadiene	0.14	0.76 U	0.76 U	0.81 U	0.76 U	0.76 U	0.8 U	0.76 U	0.76 U	0.79 U	0.79 U	0.76 U	0.76 U	0.76 U	---	---

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-022	CFMW-022	CFMW-022	CFMW-022	CFMW-023	CFMW-023	CFMW-023	CFMW-023	CFMW-029	CFMW-029-DUP	CFMW-029	CFMW-029	CFMW-029	CFMW-003A	CFMW-003A
Sample Name		CFMW-022-GW	CFMW-022-GW	CFMW-022-GW	CFMW-022-GW	CFMW-023-GW	CFMW-023-GW	CFMW-023-GW	CFMW-023-GW	CFMW-029-GW	CFMW-DUP1-GW	CFMW-029-GW	CFMW-029-GW	CFMW-029-GW	CFMW-003a-GW	CFMW-003a-GW
Chemical Name		9/13/2016	12/9/2016	3/28/2017	6/26/2017	9/21/2016	12/19/2016	3/21/2017	6/27/2017	9/13/2016	9/13/2016	12/14/2016	3/24/2017	6/26/2017	9/20/2016	12/12/2016
Hexachlorocyclopentadiene	0.041	0.61 U	0.61 U	0.65 U	0.61 UJ	0.61 U	0.64 U	0.61 U	0.61 U	0.64 U	0.64 U	0.61 U	0.61 UJ	0.61 UJ	---	---
Hexachloroethane	0.33	0.09 U	0.09 U	0.095 U	0.09 U	0.09 U	0.095 U	0.09 U	0.09 U	0.094 U	0.094 U	0.09 U	0.09 U	0.09 U	---	---
Indeno(1,2,3-C,D)Pyrene	0.25	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.22 U	0.22 U	0.21 U	0.21 U	0.21 U	---	---
Isophorone	78	0.67 U	0.67 U	0.71 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.7 U	0.7 U	0.67 U	0.67 U	0.67 U	---	---
Naphthalene	0.17	0.8 U	0.8 U	0.85 U	0.8 U	0.8 U	0.84 U	0.8 U	0.8 U	0.83 U	0.83 U	0.8 U	0.8 U	0.8 U	---	---
Nitrobenzene	0.14	0.49 U	0.49 U	0.52 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.51 U	0.51 U	0.49 U	0.49 U	0.49 U	---	---
N-Nitrosodi-N-Propylamine	0.011	0.83 U	0.83 U	0.88 U	0.83 U	0.83 U	0.87 U	0.83 U	0.83 U	0.86 U	0.86 U	0.83 U	0.83 U	0.83 U	---	---
N-Nitrosodiphenylamine	12	0.74 U	0.74 U	0.78 U	0.74 U	0.74 U	0.78 U	0.74 U	0.74 U	0.77 U	0.77 U	0.74 UJ	0.74 U	0.74 U	---	---
Pentachlorophenol	0.041	2.2 UR	2.2 UJ	2.3 U	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U	---	2.3 UR	2.2 UJ	2.2 U	2.2 U	---	---
Phenanthrene	--	0.65 U	0.65 U	0.69 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.68 U	0.68 U	0.65 U	0.65 U	0.65 U	---	---
Phenol	580	0.41 U	0.41 U	0.43 U	0.41 U	0.41 U	0.43 U	0.41 U	0.41 U	0.43 U	0.43 U	0.41 U	0.41 U	0.41 U	---	---
Pyrene	12	0.83 U	0.83 U	0.88 UJ	0.83 U	0.83 U	0.87 U	0.83 U	0.83 U	0.86 U	0.86 U	0.83 U	0.83 U	0.83 U	---	---
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 UJ	---	---
1,1,2,2-Tetrachloroethane	0.076	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 UJ	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---
1,1,2-Trichloroethane	0.041	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	---	---
1,1-Dichloroethane	2.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---
1,1-Dichloroethene	7	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	---	---
1,2,3-Trichlorobenzene	0.7	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	---	---
1,2,4-Trichlorobenzene	0.4	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	---	---
1,2-Dibromo-3-Chloropropane	0.00033	0.23 U	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U	0.23 U	---	---
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---
1,2-Dichlorobenzene	30	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
1,2-Dichloroethane	0.17	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---
1,2-Dichloropropane	0.14	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
1,3-Dichlorobenzene	600	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---
1,4-Dichlorobenzene	0.48	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---
2-Hexanone	3.8	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	---	---
Acetone	1400	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U	---	---
Benzene	0.46	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	---	---
Bromochloromethane	8.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---
Bromodichloromethane	0.13	0.15 U	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	---	---
Bromoform	3.3	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
Bromomethane	0.75	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U	0.18 U	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 UJ	---	---
Carbon Disulfide	81	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Carbon Tetrachloride	0.46	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	---	---
Chlorobenzene	7.8	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	---	---
Chloroethane	2100	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	---	---
Chloroform	0.22	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Chloromethane	19	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Cis-1,2-Dichloroethylene	3.6	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---
Cis-1,3-Dichloropropene	4	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	---	---
Cyclohexane	1300	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	---	---
Dibromochloromethane	0.87	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Dichlorodifluoromethane	20	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 UJ	0.14 U	0.14 UJ	0.14 UJ	0.14 U	0.14 U	0.14 UJ	---	---
Ethylbenzene	1.5	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	---	---
Isopropylbenzene (Cumene)	45	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---
M,P-Xylene	--	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	---	---
Methyl Acetate	2000	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 UJ	0.58 U	0.58 U	---	---
Methyl Ethyl Ketone (2-Butanone)	560	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	---	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	---	---
Methylcyclohexane	--	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Methylene Chloride	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	---	---
O-Xylene (1,2-Dimethylbenzene)	19	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	---	---
Styrene	100	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	---	---
Tert-Butyl Methyl Ether	14	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	---	---

Preliminary Under EPA and MDEQ Review

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-022	CFMW-022	CFMW-022	CFMW-022	CFMW-023	CFMW-023	CFMW-023	CFMW-023	CFMW-029	CFMW-029-DUP	CFMW-029	CFMW-029	CFMW-029	CFMW-003A	CFMW-003A
Sample Name		CFMW-022-GW	CFMW-022-GW	CFMW-022-GW	CFMW-022-GW	CFMW-023-GW	CFMW-023-GW	CFMW-023-GW	CFMW-023-GW	CFMW-029-GW	CFMW-DUP1-GW	CFMW-029-GW	CFMW-029-GW	CFMW-029-GW	CFMW-003a-GW	CFMW-003a-GW
Chemical Name		9/13/2016	12/9/2016	3/28/2017	6/26/2017	9/21/2016	12/19/2016	3/21/2017	6/27/2017	9/13/2016	9/13/2016	12/14/2016	3/24/2017	6/26/2017	9/20/2016	12/12/2016
Tetrachloroethylene (PCE)	4.1	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	---	---
Toluene	110	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	---	---
Trans-1,2-Dichloroethene	36	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	---	---
Trans-1,3-Dichloropropene	2	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	---	---
Trichloroethylene (TCE)	0.28	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22	0.22 U	0.22 U	0.22 U	0.22 U	---	---
Trichlorofluoromethane	520	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U	---	---
Vinyl Chloride	0.019	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	---	---

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-003A	CFMW-003A	CFMW-003	CFMW-003	CFMW-003	CFMW-003	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-001	CFMW-001	CFMW-001	CFMW-001	CFMW-011
Sample Name		CFMW-003a-GW	CFMW-003a-GW	CFMW-003-GW	CFMW-003-GW	CFMW-003-GW	CFMW-003-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-001-GW	CFMW-001-GW	CFMW-001-GW	CFMW-001-GW	CFMW-011-GW
Chemical Name		3/20/2017	6/19/2017	9/14/2016	12/9/2016	3/22/2017	6/27/2017	9/20/2016	12/14/2016	3/21/2017	6/29/2017	9/20/2016	12/12/2016	3/20/2017	6/19/2017	9/13/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	274	--	--	--	60 U	--	--	--	170 J+	--	--	--	120	--
Fluoride	80	373	276	15 U	536 J-	60 U	60 U	200	194 J-	246	197	91.7	132	184	159	207
Cyanide (Dissolved)	0.15	--	2 U	--	--	--	12	--	--	--	2 U	--	--	--	2 U	--
Cyanide (Free) (Dissolved)	--	--	1.5 U	--	--	--	1.5 U	--	--	--	--	--	--	--	1.5 U	--
Cyanide	0.15	2 U	2 U	15.4	19.1	14	13.2	2 U	2 U	--	2 U	2.4 J	2 U	2 U	2 U	80.7
Cyanide (Free)	--	1.5 U	1.5 U	--	--	1.5 U	1.5 U	--	--	--	--	--	--	1.5 U	1.5 U	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	24.4 J	18.2 U	18.2 U	23.9 J	18.2 U	27.2 J	60.9	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	39.8 J	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	2.8	2.8	0.64 U	0.64 U	0.67 J	0.65 J	3.3	1.7 J	1.4 J	1.3 J	0.64 U	1.2 J	0.86 J	0.84 J	0.64 U
Barium (Dissolved)	380	41.2	45.5	28.6	24.3	20.8	20.1	42.7	48.8	52.8	57.9	228	76.6	71.1	75	186
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	31700	36900	178000	184000	165000	194000	24600	21700	37000	39100	60300	54900	53500	57600	47600
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	1.4 U	1.4 U	4.8	1.8 J	1.5 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	3.2 J	1.8 J	1.4 U	1.4 U	3.2 J
Iron (Dissolved)	1400	42.4 U	51.6 J	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	86.9 J	42.4 U	42.4 U	42.4 U	42.4 U	277	42.4 U
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 J	0.38 U
Magnesium (Dissolved)	--	5980	7140	45800	49800	48300	44800	9010	8910	14300	14400	14100	13100	13200	12500	14100
Manganese (Dissolved)	43	183	308	306	209	142	129	13.7	30.7	154	93.6	2.5 U	15.7	24.8	15.8	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	3 J	3.1 J	2.8 J	2.6 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	3100	2120	2100	2040	1920	1970	2070	3120	1430	1380	740	737	676	632	657
Selenium (Dissolved)	10	1.2 J	1.1 J	7.5 J	8.9 J	8.9 J	9.1 J	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	14500	12900	322000	360000	320000	295000	19900	24100	10900	8640	8360	4380	4200	4180	9950
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	2.8 J	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	1570	--	--	--	279	--	--	--	2030 J+	--	--	--	1020	--
Antimony	0.78	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--
Arsenic	0.052	--	3.6	--	--	--	1.6 J	--	--	--	2.1	--	--	--	1.9 J	--
Barium	380	--	63.8	--	--	--	26	--	--	--	83	--	--	--	94.1	--
Beryllium	2.5	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--
Cadmium	0.92	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--
Calcium	--	--	36900	--	--	--	201000	--	--	--	43700	--	--	--	59400	--
Chromium, Total	100	--	2.3 J	--	--	--	1.3 U	--	--	--	2.6 J	--	--	--	1.3 U	--
Cobalt	0.6	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--
Copper	80	--	3.4 J	--	--	--	1.9 J	--	--	--	4	--	--	--	1.8 J	--
Iron	1400	--	2110	--	--	--	469	--	--	--	2280	--	--	--	1100	--
Lead	15	--	1.2	--	--	--	0.38 U	--	--	--	1.4	--	--	--	0.85 J	--
Magnesium	--	--	8510	--	--	--	56500	--	--	--	17000	--	--	--	16600	--
Manganese	43	--	366	--	--	--	155	--	--	--	167	--	--	--	22.5	--
Mercury	0.063	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--
Nickel	39	--	1.8 J	--	--	--	3.3 J	--	--	--	1.9 J	--	--	--	1.4 U	--
Potassium	--	--	2320	--	--	--	2210	--	--	--	1850	--	--	--	826	--
Selenium	10	--	0.73 U	--	--	--	8.6 J	--	--	--	0.73 U	--	--	--	0.73 U	--
Silver	9.4	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--
Sodium	--	--	14200	--	--	--	372000	--	--	--	9740	--	--	--	4810	--
Thallium	0.02	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--
Vanadium	9	--	1.9 U	--	--	--	1.9 U	--	--	--	2 J	--	--	--	1.9 U	--
Zinc	600	--	14.2 J	--	--	--	7 U	--	--	--	8.3 J	--	--	--	7.7 J	--

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-003A	CFMW-003A	CFMW-003	CFMW-003	CFMW-003	CFMW-003	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-001	CFMW-001	CFMW-001	CFMW-001	CFMW-011
Sample Name		CFMW-003a-GW	CFMW-003a-GW	CFMW-003-GW	CFMW-003-GW	CFMW-003-GW	CFMW-003-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-001-GW	CFMW-001-GW	CFMW-001-GW	CFMW-001-GW	CFMW-011-GW
Chemical Name		3/20/2017	6/19/2017	9/14/2016	12/9/2016	3/22/2017	6/27/2017	9/20/2016	12/14/2016	3/21/2017	6/29/2017	9/20/2016	12/12/2016	3/20/2017	6/19/2017	9/13/2016
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	---	---	0.45 U	0.43 U	0.43 U	0.44 U	---	---	---	---	---	---	---	---	0.45 U
1,4-Dioxane (P-Dioxane)	0.46	---	---	3.3 U	3.1 U	3.1 U	3.2 U	---	---	---	---	---	---	---	---	3.2 U
2,3,4,6-Tetrachlorophenol	24	---	---	0.72 U	0.69 U	0.69 U	0.7 U	---	---	---	---	---	---	---	---	0.72 U
2,4,5-Trichlorophenol	120	---	---	0.51 U	0.49 U	0.49 U	0.5 U	---	---	---	---	---	---	---	---	0.51 U
2,4,6-Trichlorophenol	1.2	---	---	0.55 U	0.53 U	0.53 U	0.54 U	---	---	---	---	---	---	---	---	0.55 U
2,4-Dichlorophenol	4.6	---	---	0.66 U	0.63 U	0.63 U	0.64 U	---	---	---	---	---	---	---	---	0.66 U
2,4-Dimethylphenol	36	---	---	0.95 U	0.91 U	0.91 U	0.93 U	---	---	---	---	---	---	---	---	0.95 U
2,4-Dinitrophenol	3.9	---	---	2.5 UJ	2.4 U	2.4 U	2.4 U	---	---	---	---	---	---	---	---	2.5 UJ
2,4-Dinitrotoluene	0.24	---	---	1.1 U	1 U	1 U	1.1 U	---	---	---	---	---	---	---	---	1.1 U
2,6-Dinitrotoluene	0.049	---	---	0.92 U	0.88 U	0.88 U	0.9 U	---	---	---	---	---	---	---	---	0.92 U
2-Chloronaphthalene	75	---	---	0.64 U	0.61 U	0.61 U	0.62 U	---	---	---	---	---	---	---	---	0.64 U
2-Chlorophenol	9.1	---	---	0.77 U	0.74 U	0.74 U	0.75 U	---	---	---	---	---	---	---	---	0.77 U
2-Methylnaphthalene	3.6	---	---	0.92 U	0.88 U	0.88 U	0.9 U	---	---	---	---	---	---	---	---	0.92 U
2-Methylphenol (O-Cresol)	93	---	---	1.3 U	1.3 U	1.3 U	1.3 U	---	---	---	---	---	---	---	---	1.3 U
2-Nitroaniline	19	---	---	0.68 UJ	0.65 U	0.65 U	0.66 U	---	---	---	---	---	---	---	---	0.68 U
2-Nitrophenol	--	---	---	0.62 U	0.59 U	0.59 U	0.6 U	---	---	---	---	---	---	---	---	0.61 U
3- And 4- Methylphenol (Total)	--	---	---	0.92 UJ	0.88 U	0.88 U	0.9 U	---	---	---	---	---	---	---	---	0.92 U
3,3'-Dichlorobenzidine	0.13	---	---	1.1 U	1 U	1 U	1.1 U	---	---	---	---	---	---	---	---	1.1 U
3-Nitroaniline	--	---	---	0.86 U	0.82 U	0.82 U	0.84 U	---	---	---	---	---	---	---	---	0.85 U
4,6-Dinitro-2-Methylphenol	0.15	---	---	2.1 U	2 U	2 U	2.1 U	---	---	---	---	---	---	---	---	2.1 U
4-Bromophenyl Phenyl Ether	--	---	---	1.1 U	1 U	1 U	1 U	---	---	---	---	---	---	---	---	1.1 U
4-Chloro-3-Methylphenol	140	---	---	0.79 U	0.76 U	0.76 U	0.77 U	---	---	---	---	---	---	---	---	0.79 U
4-Chloroaniline	0.37	---	---	0.76 U	0.73 U	0.73 U	0.74 U	---	---	---	---	---	---	---	---	0.76 U
4-Chlorophenyl Phenyl Ether	--	---	---	1 U	0.96 U	0.96 U	0.98 U	---	---	---	---	---	---	---	---	1 U
4-Nitroaniline	3.8	---	---	0.5 U	0.48 U	0.48 U	0.49 U	---	---	---	---	---	---	---	---	0.5 U
4-Nitrophenol	50	---	---	4.9 U	4.7 U	4.7 U	4.7 U	---	---	---	---	---	---	---	---	4.8 U
Acenaphthene	53	---	---	0.92 U	0.88 U	0.88 U	0.9 U	---	---	---	---	---	---	---	---	0.92 U
Acenaphthylene	--	---	---	0.68 U	0.65 U	0.65 U	0.66 U	---	---	---	---	---	---	---	---	0.68 U
Acetophenone	190	---	---	1.1 U	1 U	1 U	1.1 U	---	---	---	---	---	---	---	---	1.1 U
Anthracene	180	---	---	0.6 U	0.57 U	0.57 U	0.58 U	---	---	---	---	---	---	---	---	0.59 U
Atrazine	0.3	---	---	0.81 U	0.77 U	0.77 U	0.79 U	---	---	---	---	---	---	---	---	0.8 U
Benzaldehyde	19	---	---	0.9 U	0.86 U	0.86 U	0.88 U	---	---	---	---	---	---	---	---	0.9 U
Benzo(A)Anthracene	0.03	---	---	0.58 U	0.55 U	0.55 U	0.56 U	---	---	---	---	---	---	---	---	0.57 U
Benzo(A)Pyrene	0.025	---	---	0.17 U	0.16 U	0.16 U	0.16 U	---	---	---	---	---	---	---	---	0.17 U
Benzo(B)Fluoranthene	0.25	---	---	0.46 U	0.44 U	0.44 U	0.45 U	---	---	---	---	---	---	---	---	0.46 U
Benzo(G,H,I)Perylene	--	---	---	0.78 U	0.75 U	0.75 U	0.77 U	---	---	---	---	---	---	---	---	0.78 U
Benzo(K)Fluoranthene	2.5	---	---	0.19 U	0.18 U	0.18 U	0.18 U	---	---	---	---	---	---	---	---	0.19 U
Benzyl Butyl Phthalate	1	---	---	0.63 U	0.6 U	0.6 U	0.61 U	---	---	---	---	---	---	---	---	0.63 U
Biphenyl (Diphenyl)	0.083	---	---	0.66 U	0.63 U	0.63 U	0.64 U	---	---	---	---	---	---	---	---	0.66 U
Bis(2-Chloroethoxy) Methane	5.9	---	---	0.72 U	0.69 U	0.69 U	0.7 U	---	---	---	---	---	---	---	---	0.72 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	---	---	0.13 U	0.12 UJ	0.12 U	0.12 U	---	---	---	---	---	---	---	---	0.13 U
Bis(2-Chloroisopropyl) Ether	71	---	---	0.97 U	0.93 U	0.93 U	0.95 U	---	---	---	---	---	---	---	---	0.97 U
Bis(2-Ethylhexyl) Phthalate	5.6	---	---	0.75 U	0.72 U	0.72 U	0.73 U	---	---	---	---	---	---	---	---	0.75 U
Caprolactam	990	---	---	1.1 U	1.1 U	1.1 UJ	1.1 U	---	---	---	---	---	---	---	---	1.1 U
Carbazole	--	---	---	0.89 U	0.85 U	0.85 U	0.87 U	---	---	---	---	---	---	---	---	0.89 U
Chrysene	25	---	---	0.7 U	0.67 U	0.67 U	0.68 U	---	---	---	---	---	---	---	---	0.7 U
Dibenz(A,H)Anthracene	0.025	---	---	0.094 U	0.09 U	0.09 U	0.092 U	---	---	---	---	---	---	---	---	0.094 U
Dibenzofuran	0.79	---	---	0.89 U	0.85 U	0.85 U	0.87 U	---	---	---	---	---	---	---	---	0.89 U
Diethyl Phthalate	600	---	---	1 U	1 U	1 U	1 U	---	---	---	---	---	---	---	---	1 U
Dimethyl Phthalate	2000	---	---	1 U	0.98 U	0.98 U	1 U	---	---	---	---	---	---	---	---	1 U
Di-N-Butyl Phthalate	20	---	---	0.86 U	0.82 U	0.82 U	0.84 U	---	---	---	---	---	---	---	---	0.85 U
Di-N-Octylphthalate	20	---	---	0.72 U	0.69 U	0.69 U	0.7 U	---	---	---	---	---	---	---	---	0.72 U
Fluoranthene	20	---	---	0.75 U	0.72 U	0.72 U	0.73 U	---	---	---	---	---	---	---	---	0.75 U
Fluorene	29	---	---	0.84 U	0.8 U	0.8 U	0.82 U	---	---	---	---	---	---	---	---	0.83 U
Hexachlorobenzene	0.0098	---	---	0.49 U	0.47 U	0.47 U	0.48 U	---	---	---	---	---	---	---	---	0.49 U
Hexachlorobutadiene	0.14	---	---	0.79 U	0.76 U	0.76 U	0.78 U	---	---	---	---	---	---	---	---	0.79 U

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-003A	CFMW-003A	CFMW-003	CFMW-003	CFMW-003	CFMW-003	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-001	CFMW-001	CFMW-001	CFMW-001	CFMW-011
Sample Name		CFMW-003a-GW	CFMW-003a-GW	CFMW-003-GW	CFMW-003-GW	CFMW-003-GW	CFMW-003-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-001-GW	CFMW-001-GW	CFMW-001-GW	CFMW-001-GW	CFMW-011-GW
Chemical Name		3/20/2017	6/19/2017	9/14/2016	12/9/2016	3/22/2017	6/27/2017	9/20/2016	12/14/2016	3/21/2017	6/29/2017	9/20/2016	12/12/2016	3/20/2017	6/19/2017	9/13/2016
Hexachlorocyclopentadiene	0.041	...	...	0.64 U	0.61 U	0.61 U	0.62 U	...	...	...	...	...	...	...	...	0.64 U
Hexachloroethane	0.33	...	...	0.094 U	0.09 U	0.09 U	0.092 U	...	...	...	...	...	...	...	...	0.094 U
Indeno(1,2,3-C,D)Pyrene	0.25	...	...	0.22 U	0.21 U	0.21 U	0.21 U	...	...	...	...	...	...	...	...	0.22 U
Isophorone	78	...	...	0.7 U	0.67 U	0.67 U	0.68 U	...	...	...	...	...	...	...	...	0.7 U
Naphthalene	0.17	...	...	0.84 U	0.8 U	0.8 U	0.82 U	...	...	...	...	...	...	...	...	0.83 U
Nitrobenzene	0.14	...	...	0.51 U	0.49 U	0.49 U	0.5 U	...	...	...	...	...	...	...	...	0.51 U
N-Nitrosodi-N-Propylamine	0.011	...	...	0.87 UJ	0.83 U	0.83 U	0.85 U	...	...	...	...	...	...	...	...	0.86 U
N-Nitrosodiphenylamine	12	...	...	0.77 U	0.74 U	0.74 U	0.76 U	...	...	...	...	...	...	...	...	0.77 U
Pentachlorophenol	0.041	...	...	2.3 UR	2.2 UJ	2.2 U	2.2 U	...	...	...	...	...	...	...	...	2.3 UR
Phenanthrene	--	...	...	0.68 U	0.65 U	0.65 U	0.66 U	...	...	...	...	...	...	...	...	0.68 U
Phenol	580	...	...	0.43 U	0.41 U	0.41 U	0.42 U	...	...	...	...	...	...	...	...	0.43 U
Pyrene	12	...	...	0.87 U	0.83 U	0.83 U	0.85 U	...	...	...	...	...	...	...	...	0.86 U
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	...	...	3.8	3.2	3.7	3.3	...	...	...	...	...	...	...	...	0.28 U
1,1,2,2-Tetrachloroethane	0.076	...	...	0.19 U	0.19 U	0.19 U	0.19 U	...	...	...	...	...	...	...	...	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	...	...	0.34 U	0.34 U	0.34 U	0.34 U	...	...	...	...	...	...	...	...	0.34 U
1,1,2-Trichloroethane	0.041	...	...	0.08 U	0.08 U	0.08 U	0.08 U	...	...	...	...	...	...	...	...	0.08 U
1,1-Dichloroethane	2.8	...	...	0.71 J	0.95 J	0.88 J	0.8 J	...	...	...	...	...	...	...	...	0.24 U
1,1-Dichloroethene	7	...	...	0.34 U	0.34 U	0.34 U	0.34 U	...	...	...	...	...	...	...	...	0.34 U
1,2,3-Trichlorobenzene	0.7	...	...	0.35 U	0.35 U	0.35 U	0.35 U	...	...	...	...	...	...	...	...	0.35 U
1,2,4-Trichlorobenzene	0.4	...	...	0.27 U	0.27 U	0.27 U	0.27 U	...	...	...	...	...	...	...	...	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	...	...	0.23 U	0.23 U	0.23 U	0.23 U	...	...	...	...	...	...	...	...	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	...	...	0.19 U	0.19 U	0.19 U	0.19 U	...	...	...	...	...	...	...	...	0.19 U
1,2-Dichlorobenzene	30	...	...	0.22 U	0.22 U	0.22 U	0.22 U	...	...	...	...	...	...	...	...	0.22 U
1,2-Dichloroethane	0.17	...	...	0.25 U	0.25 U	0.25 U	0.25 U	...	...	...	...	...	...	...	...	0.25 U
1,2-Dichloropropane	0.14	...	...	0.18 U	0.18 U	0.18 U	0.18 U	...	...	...	...	...	...	...	...	0.18 U
1,3-Dichlorobenzene	600	...	...	0.33 U	0.33 U	0.33 U	0.33 U	...	...	...	...	...	...	...	...	0.33 U
1,4-Dichlorobenzene	0.48	...	...	0.33 U	0.33 U	0.33 U	0.33 U	...	...	...	...	...	...	...	...	0.33 U
2-Hexanone	3.8	...	...	0.72 U	0.72 U	0.72 U	0.72 U	...	...	...	...	...	...	...	...	0.72 U
Acetone	1400	...	...	1.1 U	1.1 U	1.1 U	1.1 U	...	...	...	...	...	...	...	...	1.1 U
Benzene	0.46	...	...	0.09 U	0.09 U	0.09 U	0.09 U	...	...	...	...	...	...	...	...	0.09 U
Bromochloromethane	8.3	...	...	0.3 U	0.3 U	0.3 U	0.3 U	...	...	...	...	...	...	...	...	0.3 U
Bromodichloromethane	0.13	...	...	0.15 U	0.15 U	0.15 U	0.15 U	...	...	...	...	...	...	...	...	0.15 U
Bromoform	3.3	...	...	0.18 U	0.18 U	0.18 U	0.18 U	...	...	...	...	...	...	...	...	0.18 U
Bromomethane	0.75	...	...	0.18 U	0.18 U	0.18 U	0.18 U	...	...	...	...	...	...	...	...	0.18 UJ
Carbon Disulfide	81	...	...	0.22 U	0.22 U	0.22 U	0.22 U	...	...	...	...	...	...	...	...	0.22 U
Carbon Tetrachloride	0.46	...	...	0.33 U	0.33 U	0.33 U	0.33 U	...	...	...	...	...	...	...	...	0.33 U
Chlorobenzene	7.8	...	...	0.24 U	0.24 U	0.24 U	0.24 U	...	...	...	...	...	...	...	...	0.24 U
Chloroethane	2100	...	...	0.37 U	0.37 U	0.37 U	0.37 U	...	...	...	...	...	...	...	...	0.37 U
Chloroform	0.22	...	...	0.22 U	0.22 U	0.22 U	0.22 U	...	...	...	...	...	...	...	...	0.22 U
Chloromethane	19	...	...	0.22 U	0.22 U	0.22 U	0.22 U	...	...	...	...	...	...	...	...	0.22 U
Cis-1,2-Dichloroethylene	3.6	...	...	0.26 U	0.26 U	0.26 U	0.26 U	...	...	...	...	...	...	...	...	0.26 U
Cis-1,3-Dichloropropene	4	...	...	0.16 U	0.16 U	0.16 U	0.16 U	...	...	...	...	...	...	...	...	0.16 U
Cyclohexane	1300	...	...	0.26 U	0.26 U	0.26 U	0.26 U	...	...	...	...	...	...	...	...	0.26 U
Dibromochloromethane	0.87	...	...	0.22 U	0.22 U	0.22 U	0.22 U	...	...	...	...	...	...	...	...	0.22 U
Dichlorodifluoromethane	20	...	...	0.14 U	0.14 U	0.14 U	0.14 U	...	...	...	...	...	...	...	...	0.14 UJ
Ethylbenzene	1.5	...	...	0.3 U	0.3 U	0.3 U	0.3 U	...	...	...	...	...	...	...	...	0.3 U
Isopropylbenzene (Cumene)	45	...	...	0.32 U	0.32 U	0.32 U	0.32 U	...	...	...	...	...	...	...	...	0.32 U
M,P-Xylene	--	...	...	0.28 U	0.28 U	0.28 U	0.28 U	...	...	...	...	...	...	...	...	0.28 U
Methyl Acetate	2000	...	...	0.58 U	0.58 U	0.58 U	0.58 U	...	...	...	...	...	...	...	...	0.58 U
Methyl Ethyl Ketone (2-Butanone)	560	...	...	2.2 U	2.2 U	2.2 U	2.2 U	...	...	...	...	...	...	...	...	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	...	...	0.63 U	0.63 U	0.63 U	0.63 U	...	...	...	...	...	...	...	...	0.63 U
Methylcyclohexane	--	...	...	0.22 U	0.22 U	0.22 U	0.22 U	...	...	...	...	...	...	...	...	0.22 U
Methylene Chloride	5	...	...	0.21 U	0.21 U	0.21 U	0.21 U	...	...	...	...	...	...	...	...	0.21 U
O-Xylene (1,2-Dimethylbenzene)	19	...	...	0.32 U	0.32 U	0.32 U	0.32 U	...	...	...	...	...	...	...	...	0.32 U
Styrene	100	...	...	0.17 U	0.17 U	0.17 U	0.17 U	...	...	...	...	...	...	...	...	0.17 U
Tert-Butyl Methyl Ether	14	...	...	0.13 U	0.13 U	0.13 U	0.13 U	...	...	...	...	...	...	...	...	0.13 U

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 4 INDUSTRIAL LANDFILL AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-003A	CFMW-003A	CFMW-003	CFMW-003	CFMW-003	CFMW-003	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-011A	CFMW-001	CFMW-001	CFMW-001	CFMW-001	CFMW-011
Sample Name		CFMW-003a-GW	CFMW-003a-GW	CFMW-003-GW	CFMW-003-GW	CFMW-003-GW	CFMW-003-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-011a-GW	CFMW-001-GW	CFMW-001-GW	CFMW-001-GW	CFMW-001-GW	CFMW-011-GW
Chemical Name		3/20/2017	6/19/2017	9/14/2016	12/9/2016	3/22/2017	6/27/2017	9/20/2016	12/14/2016	3/21/2017	6/29/2017	9/20/2016	12/12/2016	3/20/2017	6/19/2017	9/13/2016
Tetrachloroethylene (PCE)	4.1	---	---	0.38 J	0.26 J	0.41 J	0.44 J	---	---	---	---	---	---	---	---	0.12 U
Toluene	110	---	---	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---	---	---	---	---	---	0.25 U
Trans-1,2-Dichloroethene	36	---	---	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	---	---	---	---	0.18 U
Trans-1,3-Dichloropropene	2	---	---	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	---	---	---	---	0.19 U
Trichloroethylene (TCE)	0.28	---	---	0.76 J	0.62 J	0.58 J	0.72 J	---	---	---	---	---	---	---	---	0.22 U
Trichlorofluoromethane	520	---	---	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---	---	---	---	---	---	0.15 U
Vinyl Chloride	0.019	---	---	0.06 U	0.06 U	0.06 U	0.06 U	---	---	---	---	---	---	---	---	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-011	CFMW-011	CFMW-011	CFMW-011-DUP	CFMW-056	CFMW-056-DUP	CFMW-056	CFMW-056	CFMW-056	CFMW-056A	CFMW-056A	CFMW-056A-DUP	CFMW-056A	CFMW-056A	CFMW-057
Sample Name		CFMW-011-GW	CFMW-011-GW	CFMW-011-GW	CFMW-DUP15-GW	CFMW-056-GW	CFMW-DUP3-GW	CFMW-056-GW	CFMW-056-GW	CFMW-056-GW	CFMW-056a-GW	CFMW-056a-GW	CFMW-DUP4-GW	CFMW-056a-GW	CFMW-056a-GW	CFMW-057-GW
Chemical Name		12/8/2016	3/27/2017	6/28/2017	6/28/2017	9/20/2016	9/20/2016	12/13/2016	3/22/2017	6/22/2017	9/20/2016	12/6/2016	12/6/2016	3/30/2017	6/22/2017	9/19/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	298 J+	296 J+	--	--	--	--	180	--	--	--	--	649	--
Fluoride	80	241 J	298 J+	297 J-	289 J-	138	131	107	242	194	405	400 J-	394 J-	258	569	66.6 J
Cyanide (Dissolved)	0.15	--	--	125	126	--	--	--	--	2 U	--	--	--	--	2 U	--
Cyanide (Free) (Dissolved)	--	--	--	3.3 J-	3.1 J-	--	--	--	--	--	--	--	--	--	1.5 U	--
Cyanide	0.15	132	235	125	123	2 U	2 U	2 U	2 U	--	2 U	3.3 J	2 UJ	2 U	2 U	2 U
Cyanide (Free)	--	--	7.4	6.6 J	9.8 J	--	--	--	--	--	--	--	--	1.5 U	1.5 U	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	43	21.4 J	24.6 J	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.87 J	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	2.2	2.2	2.3	0.79 J	0.99 J	0.64 U
Barium (Dissolved)	380	209	238	181	186	144	142	5.8	137	135	73.3	111	116	214	170	46.3
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	52400	62300	44000	43600	48700	49700	4800	47800	47000	18600	26400	27000	38400	29000	20500
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4	1.4 U	1.4 U	3 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Iron (Dissolved)	1400	42.4 U	119 J	45.9 J	47.3 J	516	514	42.4 U	1680	857	42.4 U	42.4 U	42.4 U	120	42.4 U	2290
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.42 J	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	16000	18000	11900	11900	18700	19000	7440	18200	17900	7470	10400 J	10800 J	15700	12700	15600
Manganese (Dissolved)	43	2.5 U	2.5 U	2.5 U	2.5 U	36.7	37.4	15.6	32.5	24.8	73.3	241	248	424	327	65.6
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	709	798	663	663	1570	1590	1590	1530	1530	10800	6160	6500	2670	7310	1730
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	2 J	1.2 J	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 UJ	1.3 U	1.3 U
Sodium (Dissolved)	--	11200	13300	15300	15000	4100	4280	4590	3980	4270	26700	18300	18200	9290	17100	3700
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	5.4	3.4 J	3.6 J	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7.1 J	7 U	176	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	--	18.2 U	18.2 U	--	--	--	--	18.2 U	--	--	--	--	1430	--
Antimony	0.78	--	--	0.62 U	0.62 U	--	--	--	--	0.62 U	--	--	--	--	0.62 U	--
Arsenic	0.052	--	--	0.64 U	0.64 U	--	--	--	--	0.74 J	--	--	--	--	1.9 J	--
Barium	380	--	--	199	197	--	--	--	--	144	--	--	--	--	186	--
Beryllium	2.5	--	--	0.24 U	0.24 U	--	--	--	--	0.24 U	--	--	--	--	0.24 U	--
Cadmium	0.92	--	--	0.71 U	0.71 U	--	--	--	--	0.71 U	--	--	--	--	0.71 U	--
Calcium	--	--	--	46500	46300	--	--	--	--	48800	--	--	--	--	29100	--
Chromium, Total	100	--	--	1.3 U	1.3 U	--	--	--	--	1.3 U	--	--	--	--	2.9 J	--
Cobalt	0.6	--	--	1.3 U	1.3 U	--	--	--	--	1.3 U	--	--	--	--	1.3 U	--
Copper	80	--	--	1.4 U	1.4 U	--	--	--	--	2.6 J	--	--	--	--	3.8 J	--
Iron	1400	--	--	62 J	62.9 J	--	--	--	--	7280	--	--	--	--	2110	--
Lead	15	--	--	0.38 U	0.38 U	--	--	--	--	0.69 J	--	--	--	--	1.1 J	--
Magnesium	--	--	--	14100	14100	--	--	--	--	19500	--	--	--	--	14100	--
Manganese	43	--	--	2.5 U	2.5 U	--	--	--	--	60.5	--	--	--	--	391	--
Mercury	0.063	--	--	0.17 U	0.17 U	--	--	--	--	0.17 U	--	--	--	--	0.17 U	--
Nickel	39	--	--	1.4 U	1.4 U	--	--	--	--	2.7 J	--	--	--	--	1.5 J	--
Potassium	--	--	--	733	737	--	--	--	--	1570	--	--	--	--	7650	--
Selenium	10	--	--	0.73 U	0.73 U	--	--	--	--	0.73 U	--	--	--	--	0.73 U	--
Silver	9.4	--	--	1.3 U	1.3 U	--	--	--	--	1.3 U	--	--	--	--	1.3 U	--
Sodium	--	--	--	18100	18200	--	--	--	--	4250	--	--	--	--	17800	--
Thallium	0.02	--	--	0.26 U	0.26 U	--	--	--	--	0.26 U	--	--	--	--	0.26 U	--
Vanadium	9	--	--	1.9 U	1.9 U	--	--	--	--	1.9 U	--	--	--	--	1.9 J	--
Zinc	600	--	--	7 U	7 U	--	--	--	--	907	--	--	--	--	11.6 J	--

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-011	CFMW-011	CFMW-011	CFMW-011-DUP	CFMW-056	CFMW-056-DUP	CFMW-056	CFMW-056	CFMW-056	CFMW-056A	CFMW-056A	CFMW-056A-DUP	CFMW-056A	CFMW-056A	CFMW-057
Sample Name		CFMW-011-GW	CFMW-011-GW	CFMW-011-GW	CFMW-DUP15-GW	CFMW-056-GW	CFMW-DUP3-GW	CFMW-056-GW	CFMW-056-GW	CFMW-056-GW	CFMW-056a-GW	CFMW-056a-GW	CFMW-DUP4-GW	CFMW-056a-GW	CFMW-056a-GW	CFMW-057-GW
Chemical Name		12/8/2016	3/27/2017	6/28/2017	6/28/2017	9/20/2016	9/20/2016	12/13/2016	3/22/2017	6/22/2017	9/20/2016	12/6/2016	12/6/2016	3/30/2017	6/22/2017	9/19/2016
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	0.43 U	0.45 U	0.43 U	0.43 U	---	---	---	---	---	---	---	---	---	---	---
1,4-Dioxane (P-Dioxane)	0.46	3.1 U	3.2 U	3.1 U	3.1 U	---	---	---	---	---	---	---	---	---	---	---
2,3,4,6-Tetrachlorophenol	24	0.69 U	0.72 U	0.69 U	0.69 U	---	---	---	---	---	---	---	---	---	---	---
2,4,5-Trichlorophenol	120	0.49 U	0.51 U	0.49 U	0.49 U	---	---	---	---	---	---	---	---	---	---	---
2,4,6-Trichlorophenol	1.2	0.53 U	0.55 U	0.53 U	0.53 U	---	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenol	4.6	0.63 U	0.66 U	0.63 U	0.63 U	---	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	36	0.91 U	0.95 U	0.91 U	0.91 U	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrophenol	3.9	2.4 U	2.5 U	2.4 U	2.4 U	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrotoluene	0.24	1 U	1.1 U	1 U	1 U	---	---	---	---	---	---	---	---	---	---	---
2,6-Dinitrotoluene	0.049	0.88 U	0.92 U	0.88 U	0.88 U	---	---	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	75	0.61 U	0.64 U	0.61 U	0.61 U	---	---	---	---	---	---	---	---	---	---	---
2-Chlorophenol	9.1	0.74 U	0.77 U	0.74 U	0.74 U	---	---	---	---	---	---	---	---	---	---	---
2-Methylnaphthalene	3.6	0.88 U	0.92 U	0.88 U	0.88 U	---	---	---	---	---	---	---	---	---	---	---
2-Methylphenol (O-Cresol)	93	1.3 U	1.3 U	1.3 U	1.3 U	---	---	---	---	---	---	---	---	---	---	---
2-Nitroaniline	19	0.65 U	0.68 U	0.65 U	0.65 U	---	---	---	---	---	---	---	---	---	---	---
2-Nitrophenol	--	0.59 U	0.61 U	0.59 U	0.59 U	---	---	---	---	---	---	---	---	---	---	---
3- And 4- Methylphenol (Total)	--	0.88 U	0.92 U	0.88 U	0.88 U	---	---	---	---	---	---	---	---	---	---	---
3,3'-Dichlorobenzidine	0.13	1 U	1.1 U	1 U	1 U	---	---	---	---	---	---	---	---	---	---	---
3-Nitroaniline	--	0.82 U	0.85 U	0.82 U	0.82 U	---	---	---	---	---	---	---	---	---	---	---
4,6-Dinitro-2-Methylphenol	0.15	2 U	2.1 U	2 U	2 U	---	---	---	---	---	---	---	---	---	---	---
4-Bromophenyl Phenyl Ether	--	1 U	1.1 U	1 U	1 U	---	---	---	---	---	---	---	---	---	---	---
4-Chloro-3-Methylphenol	140	0.76 U	0.79 U	0.76 U	0.76 U	---	---	---	---	---	---	---	---	---	---	---
4-Chloroaniline	0.37	0.73 U	0.76 U	0.73 U	0.73 U	---	---	---	---	---	---	---	---	---	---	---
4-Chlorophenyl Phenyl Ether	--	0.96 U	1 U	0.96 U	0.96 U	---	---	---	---	---	---	---	---	---	---	---
4-Nitroaniline	3.8	0.48 U	0.5 UJ	0.48 U	0.48 U	---	---	---	---	---	---	---	---	---	---	---
4-Nitrophenol	50	4.7 U	4.8 U	4.7 U	4.7 U	---	---	---	---	---	---	---	---	---	---	---
Acenaphthene	53	0.88 U	0.92 U	0.88 U	0.88 U	---	---	---	---	---	---	---	---	---	---	---
Acenaphthylene	--	0.65 U	0.68 U	0.65 U	0.65 U	---	---	---	---	---	---	---	---	---	---	---
Acetophenone	190	1 U	1.1 U	1 U	1 U	---	---	---	---	---	---	---	---	---	---	---
Anthracene	180	0.57 U	0.59 U	0.57 U	0.57 U	---	---	---	---	---	---	---	---	---	---	---
Atrazine	0.3	0.77 U	0.8 U	0.77 U	0.77 U	---	---	---	---	---	---	---	---	---	---	---
Benzaldehyde	19	0.86 U	0.9 U	0.86 U	0.86 U	---	---	---	---	---	---	---	---	---	---	---
Benzo(A)Anthracene	0.03	0.55 U	0.57 U	0.55 U	0.55 U	---	---	---	---	---	---	---	---	---	---	---
Benzo(A)Pyrene	0.025	0.16 U	0.17 U	0.16 U	0.16 U	---	---	---	---	---	---	---	---	---	---	---
Benzo(B)Fluoranthene	0.25	0.44 U	0.46 U	0.44 U	0.44 U	---	---	---	---	---	---	---	---	---	---	---
Benzo(G,H,I)Perylene	--	0.75 U	0.78 U	0.75 U	0.75 U	---	---	---	---	---	---	---	---	---	---	---
Benzo(K)Fluoranthene	2.5	0.18 U	0.19 U	0.18 U	0.18 U	---	---	---	---	---	---	---	---	---	---	---
Benzyl Butyl Phthalate	1	0.6 U	0.63 U	0.6 U	0.6 U	---	---	---	---	---	---	---	---	---	---	---
Biphenyl (Diphenyl)	0.083	0.63 U	0.66 U	0.63 U	0.63 U	---	---	---	---	---	---	---	---	---	---	---
Bis(2-Chloroethoxy) Methane	5.9	0.69 U	0.72 U	0.69 U	0.69 U	---	---	---	---	---	---	---	---	---	---	---
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	0.12 UJ	0.13 U	0.12 U	0.12 U	---	---	---	---	---	---	---	---	---	---	---
Bis(2-Chloroisopropyl) Ether	71	0.93 U	0.97 U	0.93 U	0.93 U	---	---	---	---	---	---	---	---	---	---	---
Bis(2-Ethylhexyl) Phthalate	5.6	0.72 U	0.75 U	0.72 U	0.72 U	---	---	---	---	---	---	---	---	---	---	---
Caprolactam	990	1.1 U	1.1 U	1.1 U	1.1 U	---	---	---	---	---	---	---	---	---	---	---
Carbazole	--	0.85 U	0.89 U	0.85 U	0.85 U	---	---	---	---	---	---	---	---	---	---	---
Chrysene	25	0.67 U	0.7 U	0.67 U	0.67 U	---	---	---	---	---	---	---	---	---	---	---
Dibenz(A,H)Anthracene	0.025	0.09 U	0.094 U	0.09 U	0.09 U	---	---	---	---	---	---	---	---	---	---	---
Dibenzofuran	0.79	0.85 U	0.89 U	0.85 U	0.85 U	---	---	---	---	---	---	---	---	---	---	---
Diethyl Phthalate	600	1 U	1 U	1 U	1 U	---	---	---	---	---	---	---	---	---	---	---
Dimethyl Phthalate	2000	0.98 U	1 U	0.98 U	0.98 U	---	---	---	---	---	---	---	---	---	---	---
Di-N-Butyl Phthalate	20	0.82 U	0.85 U	0.82 U	0.82 U	---	---	---	---	---	---	---	---	---	---	---
Di-N-Octylphthalate	20	0.69 U	0.72 U	0.69 U	0.69 U	---	---	---	---	---	---	---	---	---	---	---
Fluoranthene	20	0.72 U	0.75 U	0.72 U	0.72 U	---	---	---	---	---	---	---	---	---	---	---
Fluorene	29	0.8 U	0.83 U	0.8 U	0.8 U	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobenzene	0.0098	0.47 U	0.49 U	0.47 U	0.47 U	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobutadiene	0.14	0.76 U	0.79 U	0.76 U	0.76 U	---	---	---	---	---	---	---	---	---	---	---

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-011	CFMW-011	CFMW-011	CFMW-011-DUP	CFMW-056	CFMW-056-DUP	CFMW-056	CFMW-056	CFMW-056	CFMW-056A	CFMW-056A	CFMW-056A-DUP	CFMW-056A	CFMW-056A	CFMW-057
Sample Name		CFMW-011-GW	CFMW-011-GW	CFMW-011-GW	CFMW-DUP15-GW	CFMW-056-GW	CFMW-DUP3-GW	CFMW-056-GW	CFMW-056-GW	CFMW-056-GW	CFMW-056a-GW	CFMW-056a-GW	CFMW-DUP4-GW	CFMW-056a-GW	CFMW-056a-GW	CFMW-057-GW
Chemical Name		12/8/2016	3/27/2017	6/28/2017	6/28/2017	9/20/2016	9/20/2016	12/13/2016	3/22/2017	6/22/2017	9/20/2016	12/6/2016	12/6/2016	3/30/2017	6/22/2017	9/19/2016
Hexachlorocyclopentadiene	0.041	0.61 U	0.64 U	0.61 U	0.61 U	---	---	---	---	---	---	---	---	---	---	---
Hexachloroethane	0.33	0.09 U	0.094 U	0.09 U	0.09 U	---	---	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-C,D)Pyrene	0.25	0.21 U	0.22 U	0.21 U	0.21 U	---	---	---	---	---	---	---	---	---	---	---
Isophorone	78	0.67 U	0.7 U	0.67 U	0.67 U	---	---	---	---	---	---	---	---	---	---	---
Naphthalene	0.17	0.8 U	0.83 U	0.8 U	0.8 U	---	---	---	---	---	---	---	---	---	---	---
Nitrobenzene	0.14	0.49 U	0.51 U	0.49 U	0.49 U	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodi-N-Propylamine	0.011	0.83 U	0.86 U	0.83 U	0.83 U	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	12	0.74 U	0.77 U	0.74 U	0.74 U	---	---	---	---	---	---	---	---	---	---	---
Pentachlorophenol	0.041	2.2 U	2.3 U	2.2 U	2.2 U	---	---	---	---	---	---	---	---	---	---	---
Phenanthrene	--	0.65 U	0.68 U	0.65 U	0.65 U	---	---	---	---	---	---	---	---	---	---	---
Phenol	580	0.41 U	0.43 U	0.41 U	0.41 U	---	---	---	---	---	---	---	---	---	---	---
Pyrene	12	0.83 U	0.86 UJ	0.83 U	0.83 U	---	---	---	---	---	---	---	---	---	---	---
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	0.28 U	0.28 U	0.28 U	0.28 U	---	---	---	---	---	---	---	---	---	---	---
1,1,2,2-Tetrachloroethane	0.076	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	---	---	---	---	---	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---	---	---	---	---	---	---	---
1,1,2-Trichloroethane	0.041	0.08 U	0.08 U	0.08 U	0.08 U	---	---	---	---	---	---	---	---	---	---	---
1,1-Dichloroethane	2.8	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---	---	---	---	---	---	---	---
1,1-Dichloroethene	7	0.34 U	0.34 U	0.34 U	0.34 U	---	---	---	---	---	---	---	---	---	---	---
1,2,3-Trichlorobenzene	0.7	0.35 U	0.35 U	0.35 U	0.35 U	---	---	---	---	---	---	---	---	---	---	---
1,2,4-Trichlorobenzene	0.4	0.27 U	0.27 U	0.27 U	0.27 U	---	---	---	---	---	---	---	---	---	---	---
1,2-Dibromo-3-Chloropropane	0.00033	0.23 U	0.23 U	0.23 U	0.23 U	---	---	---	---	---	---	---	---	---	---	---
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	0.19 U	0.19 U	0.19 U	0.19 U	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	30	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichloroethane	0.17	0.25 U	0.25 U	0.25 U	0.25 U	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichloropropane	0.14	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	600	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	---	---	---	---	---	---	---
1,4-Dichlorobenzene	0.48	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	---	---	---	---	---	---	---
2-Hexanone	3.8	0.72 U	0.72 U	0.72 U	0.72 U	---	---	---	---	---	---	---	---	---	---	---
Acetone	1400	1.1 U	1.1 U	1.1 U	1.1 U	---	---	---	---	---	---	---	---	---	---	---
Benzene	0.46	0.09 U	0.09 U	0.09 U	0.09 U	---	---	---	---	---	---	---	---	---	---	---
Bromochloromethane	8.3	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---	---	---	---	---	---	---	---
Bromodichloromethane	0.13	0.15 U	0.15 U	0.15 U	0.15 U	---	---	---	---	---	---	---	---	---	---	---
Bromoform	3.3	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	---	---	---	---	---	---	---
Bromomethane	0.75	0.18 U	0.18 U	0.18 U	0.18 U	---	---	---	---	---	---	---	---	---	---	---
Carbon Disulfide	81	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	---	---	---	---	---	---	---
Carbon Tetrachloride	0.46	0.33 U	0.33 U	0.33 U	0.33 U	---	---	---	---	---	---	---	---	---	---	---
Chlorobenzene	7.8	0.24 U	0.24 U	0.24 U	0.24 U	---	---	---	---	---	---	---	---	---	---	---
Chloroethane	2100	0.37 U	0.37 U	0.37 U	0.37 U	---	---	---	---	---	---	---	---	---	---	---
Chloroform	0.22	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	---	---	---	---	---	---	---
Chloromethane	19	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	---	---	---	---	---	---	---
Cis-1,2-Dichloroethylene	3.6	0.26 U	0.26 U	0.26 U	0.26 U	---	---	---	---	---	---	---	---	---	---	---
Cis-1,3-Dichloropropene	4	0.16 U	0.16 U	0.16 U	0.16 U	---	---	---	---	---	---	---	---	---	---	---
Cyclohexane	1300	0.26 U	0.26 U	0.26 UJ	0.26 UJ	---	---	---	---	---	---	---	---	---	---	---
Dibromochloromethane	0.87	0.22 U	0.22 U	0.22 U	0.22 U	---	---	---	---	---	---	---	---	---	---	---
Dichlorodifluoromethane	20	0.14 U	0.14 U	0.14 UJ	0.14 UJ	---	---	---	---	---	---	---	---	---	---	---
Ethylbenzene	1.5	0.3 U	0.3 U	0.3 U	0.3 U	---	---	---	---	---	---	---	---	---	---	---
Isopropylbenzene (Cumene)	45	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---	---	---	---	---	---	---	---
M,P-Xylene	--	0.28 U	0.28 U	0.28 U	0.28 U	---	---	---	---	---	---	---	---	---	---	---
Methyl Acetate	2000	0.58 U	0.58 U	0.58 U	0.58 U	---	---	---	---	---	---	---	---	---	---	---
Methyl Ethyl Ketone (2-Butanone)	560	2.2 U	2.2 U	2.2 U	2.2 U	---	---	---	---	---	---	---	---	---	---	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	0.63 U	0.63 U	0.63 U	0.63 U	---	---	---	---	---	---	---	---	---	---	---
Methylcyclohexane	--	0.22 U	0.22 U	0.22 UJ	0.22 UJ	---	---	---	---	---	---	---	---	---	---	---
Methylene Chloride	5	0.21 U	0.21 U	0.21 U	0.21 U	---	---	---	---	---	---	---	---	---	---	---
O-Xylene (1,2-Dimethylbenzene)	19	0.32 U	0.32 U	0.32 U	0.32 U	---	---	---	---	---	---	---	---	---	---	---
Styrene	100	0.17 U	0.17 U	0.17 U	0.17 U	---	---	---	---	---	---	---	---	---	---	---
Tert-Butyl Methyl Ether	14	0.13 U	0.13 U	0.13 U	0.13 U	---	---	---	---	---	---	---	---	---	---	---

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 6 NORTH-CENTRAL UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-011	CFMW-011	CFMW-011	CFMW-011-DUP	CFMW-056	CFMW-056-DUP	CFMW-056	CFMW-056	CFMW-056	CFMW-056A	CFMW-056A	CFMW-056A-DUP	CFMW-056A	CFMW-056A	CFMW-057
Sample Name		CFMW-011-GW	CFMW-011-GW	CFMW-011-GW	CFMW-DUP15-GW	CFMW-056-GW	CFMW-DUP3-GW	CFMW-056-GW	CFMW-056-GW	CFMW-056-GW	CFMW-056a-GW	CFMW-056a-GW	CFMW-DUP4-GW	CFMW-056a-GW	CFMW-056a-GW	CFMW-057-GW
Chemical Name		12/8/2016	3/27/2017	6/28/2017	6/28/2017	9/20/2016	9/20/2016	12/13/2016	3/22/2017	6/22/2017	9/20/2016	12/6/2016	12/6/2016	3/30/2017	6/22/2017	9/19/2016
Tetrachloroethylene (PCE)	4.1	0.12 U	0.12 U	0.12 U	0.12 U	...	...	...	...	...	...	...	...	...	...	...
Toluene	110	0.25 U	0.25 U	0.25 U	0.25 U	...	...	...	...	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	36	0.18 U	0.18 U	0.18 U	0.18 U	...	...	...	...	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	2	0.19 U	0.19 U	0.19 U	0.19 U	...	...	...	...	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.28	0.22 U	0.22 U	0.22 U	0.22 U	...	...	...	...	...	...	...	...	...	...	...
Trichlorofluoromethane	520	0.15 U	0.15 U	0.15 U	0.15 U	...	...	...	...	...	...	...	...	...	...	...
Vinyl Chloride	0.019	0.06 U	0.06 U	0.06 U	0.06 U	...	...	...	...	...	...	...	...	...	...	...

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

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Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Below Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Upper Hydrogeologic Unit	Exp Area 7 WESTERN UNDEVELOPED Upper Hydrogeologic Unit
Sample Water Bearing Zone																
Sample Location ID	**CFAC Site-Specific Human Health Groundwater (µg/l)**	**CFMW-057**	**CFMW-057**	**CFMW-057-DUP**	**CFMW-057**	**CFMW-057A**	**CFMW-057A**	**CFMW-057A**	**CFMW-057A**	**CFMW-059A**	**CFMW-059A**	**CFMW-059A**	**CFMW-059A**	**CFMW-056B**	**CFMW-056B**	**CFMW-056B**
Sample Name		**CFMW-057-GW**	**CFMW-057-GW**	**CFMW-DUP11-GW**	**CFMW-057-GW**	**CFMW-057a-GW**	**CFMW-057a-GW**	**CFMW-057a-GW**	**CFMW-057a-GW**	**CFMW-059a-GW**	**CFMW-059a-GW**	**CFMW-059a-GW**	**CFMW-059a-GW**	**CFMW-056b-GW**	**CFMW-056b-GW**	**CFMW-0566-GW**
Chemical Name		**12/5/2016**	**3/29/2017**	**3/29/2017**	**6/28/2017**	**9/19/2016**	**12/16/2016**	**3/22/2017**	**6/28/2017**	**9/19/2016**	**12/16/2016**	**3/29/2017**	**6/28/2017**	**9/13/2016**	**12/12/2016**	**3/21/2017**
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	--	209	--	--	--	337 J+	--	--	--	157 J+	--	--	--
Fluoride	80	127 J-	137	136	204 J-	15 U	180 J	425	322 J-	147	198 J	233	185 J-	156	194	271
Cyanide (Dissolved)	0.15	--	--	--	2 U	--	--	--	2 U	--	--	--	2 U	--	--	--
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	0.15	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Cyanide (Free)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	18.2 U	18.2 U	18.2 U	168	417	902	897	137	18.2 U	20.2 J	34.6 J	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	4	4.3	3.7	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	43.6	50.8	51	111	924	364	148	89.7	268	121	110	125	132	132	123
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	19400	21900	21800	39400	581000	344000	154000	109000	340000	29000	32400	34500	69000	64900	61300
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	16	22.3	24.1	17.2	1.3 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	1.4 U	1.4 U	1.4 U	1.4 U	7.1	3.6 J	5.2	3.9 J	3.7 J	1.4 U	1.4 U	1.4 U	3.7 J	1.4 U	1.4 U
Iron (Dissolved)	1400	2440	3430	3420	2580	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	1.3	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	15700	20500	20200	21500	63.6 U	63.6 U	63.6 U	63.6 U	63.6 U	10500	9860	9290	17500	15400	15600
Manganese (Dissolved)	43	59.1	74.4	74.2	46	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	29.8	29	33.3	83.2	11.2	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium (Dissolved)	--	1690	1830	1820	2240	18100	6500	12300	11000	7920	1210	1560	1560	925	771	692
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	3800	3920	3850	5040	48100	28200	26600	19300	15400	3430 J+	3800	3400	9450	7000	3490
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 J	3.9 J	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	73.9	71.3	8.8 J	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	--	--	123 J+	--	--	--	1240	--	--	--	861	--	--	--
Antimony	0.78	--	--	--	0.62 U	--	--	--	1.6 J	--	--	--	0.62 U	--	--	--
Arsenic	0.052	--	--	--	1.7 J	--	--	--	0.64 J	--	--	--	4.6	--	--	--
Barium	380	--	--	--	121	--	--	--	98	--	--	--	147	--	--	--
Beryllium	2.5	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--
Cadmium	0.92	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--
Calcium	--	--	--	--	39500	--	--	--	112000	--	--	--	39700	--	--	--
Chromium, Total	100	--	--	--	1.3 U	--	--	--	20.4	--	--	--	1.5 J	--	--	--
Cobalt	0.6	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--
Copper	80	--	--	--	1.4 U	--	--	--	6.5	--	--	--	1.9 J	--	--	--
Iron	1400	--	--	--	17400	--	--	--	457	--	--	--	1120	--	--	--
Lead	15	--	--	--	6.6	--	--	--	0.85 J	--	--	--	0.65 J	--	--	--
Magnesium	--	--	--	--	23800	--	--	--	226	--	--	--	10900	--	--	--
Manganese	43	--	--	--	96.5	--	--	--	9.8	--	--	--	71.5	--	--	--
Mercury	0.063	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--
Nickel	39	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--
Potassium	--	--	--	--	2360	--	--	--	11500	--	--	--	1940	--	--	--
Selenium	10	--	--	--	0.73 U	--	--	--	0.98 J	--	--	--	0.73 U	--	--	--
Silver	9.4	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--
Sodium	--	--	--	--	5880 J+	--	--	--	21600	--	--	--	4050	--	--	--
Thallium	0.02	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--
Vanadium	9	--	--	--	1.9 U	--	--	--	5.2	--	--	--	2 J	--	--	--
Zinc	600	--	--	--	770	--	--	--	7 U	--	--	--	7 U	--	--	--

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Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-057	CFMW-057	CFMW-057-DUP	CFMW-057	CFMW-057A	CFMW-057A	CFMW-057A	CFMW-057A	CFMW-059A	CFMW-059A	CFMW-059A	CFMW-059A	CFMW-056B	CFMW-056B	CFMW-056B
Sample Name		CFMW-057-GW	CFMW-057-GW	CFMW-DUP11-GW	CFMW-057-GW	CFMW-057a-GW	CFMW-057a-GW	CFMW-057a-GW	CFMW-057a-GW	CFMW-059a-GW	CFMW-059a-GW	CFMW-059a-GW	CFMW-059a-GW	CFMW-056b-GW	CFMW-056b-GW	CFMW-0566-GW
Chemical Name		12/5/2016	3/29/2017	3/29/2017	6/28/2017	9/19/2016	12/16/2016	3/22/2017	6/28/2017	9/19/2016	12/16/2016	3/29/2017	6/28/2017	9/13/2016	12/12/2016	3/21/2017
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,4-Dioxane (P-Dioxane)	0.46	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,3,4,6-Tetrachlorophenol	24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,5-Trichlorophenol	120	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,6-Trichlorophenol	1.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenol	4.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	36	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrophenol	3.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrotoluene	0.24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,6-Dinitrotoluene	0.049	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	75	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chlorophenol	9.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylnaphthalene	3.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylphenol (O-Cresol)	93	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitroaniline	19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitrophenol	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3- And 4- Methylphenol (Total)	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3,3'-Dichlorobenzidine	0.13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3-Nitroaniline	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4,6-Dinitro-2-Methylphenol	0.15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Bromophenyl Phenyl Ether	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloro-3-Methylphenol	140	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloroaniline	0.37	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chlorophenyl Phenyl Ether	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitroaniline	3.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitrophenol	50	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthene	53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthylene	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acetophenone	190	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Anthracene	180	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Atrazine	0.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzaldehyde	19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(A)Anthracene	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(A)Pyrene	0.025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(B)Fluoranthene	0.25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(G,H,I)Perylene	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(K)Fluoranthene	2.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzyl Butyl Phthalate	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Biphenyl (Diphenyl)	0.083	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-Chloroethoxy) Methane	5.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-Chloroisopropyl) Ether	71	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-Ethylhexyl) Phthalate	5.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Caprolactam	990	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Carbazole	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chrysene	25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenz(A,H)Anthracene	0.025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenzofuran	0.79	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Diethyl Phthalate	600	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dimethyl Phthalate	2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-N-Butyl Phthalate	20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-N-Octylphthalate	20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluoranthene	20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluorene	29	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobenzene	0.0098	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobutadiene	0.14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-057	CFMW-057	CFMW-057-DUP	CFMW-057	CFMW-057A	CFMW-057A	CFMW-057A	CFMW-057A	CFMW-059A	CFMW-059A	CFMW-059A	CFMW-059A	CFMW-056B	CFMW-056B	CFMW-056B
Sample Name		CFMW-057-GW	CFMW-057-GW	CFMW-DUP11-GW	CFMW-057-GW	CFMW-057a-GW	CFMW-057a-GW	CFMW-057a-GW	CFMW-057a-GW	CFMW-059a-GW	CFMW-059a-GW	CFMW-059a-GW	CFMW-059a-GW	CFMW-056b-GW	CFMW-056b-GW	CFMW-0566-GW
Chemical Name		12/5/2016	3/29/2017	3/29/2017	6/28/2017	9/19/2016	12/16/2016	3/22/2017	6/28/2017	9/19/2016	12/16/2016	3/29/2017	6/28/2017	9/13/2016	12/12/2016	3/21/2017
Hexachlorocyclopentadiene	0.041	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachloroethane	0.33	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-C,D)Pyrene	0.25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Isophorone	78	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Naphthalene	0.17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nitrobenzene	0.14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodi-N-Propylamine	0.011	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pentachlorophenol	0.041	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenanthrene	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenol	580	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pyrene	12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1,2,2-Tetrachloroethane	0.076	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1,2-Trichloroethane	0.041	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1-Dichloroethane	2.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1-Dichloroethene	7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2,3-Trichlorobenzene	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2,4-Trichlorobenzene	0.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dibromo-3-Chloropropane	0.00033	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	30	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichloroethane	0.17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichloropropane	0.14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	600	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,4-Dichlorobenzene	0.48	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Hexanone	3.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acetone	1400	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzene	0.46	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bromochloromethane	8.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bromodichloromethane	0.13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bromoform	3.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bromomethane	0.75	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Carbon Disulfide	81	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Carbon Tetrachloride	0.46	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chlorobenzene	7.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chloroethane	2100	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chloroform	0.22	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chloromethane	19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cis-1,2-Dichloroethylene	3.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cis-1,3-Dichloropropene	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cyclohexane	1300	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibromochloromethane	0.87	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dichlorodifluoromethane	20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Ethylbenzene	1.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Isopropylbenzene (Cumene)	45	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M,P-Xylene	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Methyl Acetate	2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Methyl Ethyl Ketone (2-Butanone)	560	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Methylcyclohexane	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Methylene Chloride	5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
O-Xylene (1,2-Dimethylbenzene)	19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Styrene	100	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Tert-Butyl Methyl Ether	14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED
Sample Water Bearing Zone		Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Below Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-057	CFMW-057	CFMW-057-DUP	CFMW-057	CFMW-057A	CFMW-057A	CFMW-057A	CFMW-057A	CFMW-059A	CFMW-059A	CFMW-059A	CFMW-059A	CFMW-056B	CFMW-056B	CFMW-056B
Sample Name		CFMW-057-GW	CFMW-057-GW	CFMW-DUP11-GW	CFMW-057-GW	CFMW-057a-GW	CFMW-057a-GW	CFMW-057a-GW	CFMW-057a-GW	CFMW-059a-GW	CFMW-059a-GW	CFMW-059a-GW	CFMW-059a-GW	CFMW-056b-GW	CFMW-056b-GW	CFMW-0566-GW
Chemical Name		12/5/2016	3/29/2017	3/29/2017	6/28/2017	9/19/2016	12/16/2016	3/22/2017	6/28/2017	9/19/2016	12/16/2016	3/29/2017	6/28/2017	9/13/2016	12/12/2016	3/21/2017
Tetrachloroethylene (PCE)	4.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Toluene	110	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,2-Dichloroethene	36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trans-1,3-Dichloropropene	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichloroethylene (TCE)	0.28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trichlorofluoromethane	520	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vinyl Chloride	0.019	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

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Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-056B-DUP	CFMW-056B	CFMW-059	CFMW-059	CFMW-059	CFMW-059	CFMW-061	CFMW-061	CFMW-061-DUP	CFMW-061	CFMW-061	CFMW-064	CFMW-064	CFMW-064	CFMW-064	CFMW-064-DUP
Sample Name		CFMW-Dup7-GW	CFMW-056b-GW	CFMW-059-GW	CFMW-059-GW	CFMW-059-GW	CFMW-059-GW	CFMW-061-GW	CFMW-061-GW	CFMW-DUP5-GW	CFMW-061-GW	CFMW-061-GW	CFMW-064-GW	CFMW-064-GW	CFMW-064-GW	CFMW-064-GW	CFMW-DUP14-GW
Chemical Name		3/21/2017	6/22/2017	9/15/2016	12/12/2016	3/23/2017	6/21/2017	9/15/2016	12/7/2016	12/7/2016	3/23/2017	6/23/2017	9/15/2016	12/7/2016	3/23/2017	6/23/2017	6/23/2017
GENERAL CHEMISTRY (µg/l)																	
Fluoride (Dissolved)	80	--	188	--	--	--	96	--	--	--	--	638	--	--	--	312	307
Fluoride	80	266	188	59.5 J	114	120	124	--	--	--	--	--	--	--	--	--	--
Cyanide (Dissolved)	0.15	--	2 U	--	--	--	2 U	--	--	--	--	2 U	--	--	--	62.6	61.5
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	--	--	--	--	--	1.5 U	--	--	--	1.5 U	1.5 U
Cyanide	0.15	2 U	2 U	2 U	2 U	2 U	2 U	7.7 J	4 J	3.8 J	2 U	2 U	42.7	62.4	13.5	60.1	60.5
Cyanide (Free)	--	--	--	--	--	--	--	--	--	--	1.5 U	1.5 U	--	--	1.5 U	1.5 U	1.5 U
METALS (µg/l)																	
Aluminum (Dissolved)	2000	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U	18.2 U
Antimony (Dissolved)	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium (Dissolved)	380	124	149	140	154	146	145	220	380	297	203	226	312	339	290	339	336
Beryllium (Dissolved)	3	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium (Dissolved)	--	61900	70800	69300	72100	68300	55000	50100	60700	60600	46300	51100	47100	46400	45000	48100	47700
Chromium, Total (Dissolved)	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper (Dissolved)	80	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	3.1	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 J	1.4 U	1.4 U	1.4 U
Iron (Dissolved)	1400	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	129	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U
Lead (Dissolved)	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium (Dissolved)	--	15700	17600	14100	14100	13900	14200	16200	20600	20100	15300	15400	17900	18700	17400	17700	17500
Manganese (Dissolved)	43	2.5 U	2.5 U	88.4	16.8	2.5 U	2.5 U	68	15.6	15.3	2.5 U	2.5 U	19.3	6.2 J	5.7 J	2.5 U	2.5 U
Mercury (Dissolved)	0.063	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel (Dissolved)	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	2.1 J	1.4 U
Potassium (Dissolved)	--	700	824	1150	1000	1010	917	837	871	861	667	690	948	982	794	905	908
Selenium (Dissolved)	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver (Dissolved)	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium (Dissolved)	--	3510	9500	20600	15200	18600	30600	8660	11400	11100	5890	5420	9020	10400	7410	9880	9840
Thallium (Dissolved)	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc (Dissolved)	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	18.2 J	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Aluminum	2000	--	18.2 U	--	--	--	619	--	--	--	--	18.2 U	--	--	--	18.2 U	101 J
Antimony	0.78	--	0.62 U	--	--	--	0.62 U	--	--	--	--	0.62 U	--	--	--	0.62 U	0.62 U
Arsenic	0.052	--	0.64 U	--	--	--	0.64 U	--	--	--	--	0.64 U	--	--	--	0.64 U	0.64 U
Barium	380	--	152	--	--	--	158	--	--	--	--	232	--	--	--	345	344
Beryllium	2.5	--	0.24 U	--	--	--	0.24 U	--	--	--	--	0.24 U	--	--	--	0.24 U	0.24 U
Cadmium	0.92	--	0.71 U	--	--	--	0.71 U	--	--	--	--	0.71 U	--	--	--	0.71 U	0.71 U
Calcium	--	--	69900	--	--	--	68700	--	--	--	--	51100	--	--	--	47800	47500
Chromium, Total	100	--	1.3 U	--	--	--	1.3 U	--	--	--	--	1.3 U	--	--	--	1.3 U	1.3 U
Cobalt	0.6	--	1.3 U	--	--	--	1.3 U	--	--	--	--	1.3 U	--	--	--	1.3 U	1.3 U
Copper	80	--	1.4 U	--	--	--	2.1 J	--	--	--	--	1.4 U	--	--	--	1.4 U	1.4 U
Iron	1400	--	42.4 U	--	--	--	940	--	--	--	--	42.4 U	--	--	--	42.4 U	140 J
Lead	15	--	0.38 U	--	--	--	0.73 J	--	--	--	--	0.38 U	--	--	--	0.38 U	0.38 U
Magnesium	--	--	18500	--	--	--	15200	--	--	--	--	17700	--	--	--	20000	19900
Manganese	43	--	2.5 U	--	--	--	40.5	--	--	--	--	2.5 U	--	--	--	2.5 U	6.5 J
Mercury	0.063	--	0.17 U	--	--	--	0.17 U	--	--	--	--	0.17 U	--	--	--	0.17 U	0.17 U
Nickel	39	--	1.4 U	--	--	--	1.4 U	--	--	--	--	1.4 U	--	--	--	1.4 U	1.4 U
Potassium	--	--	806	--	--	--	1230	--	--	--	--	692	--	--	--	924	945
Selenium	10	--	0.73 U	--	--	--	0.73 U	--	--	--	--	0.73 U	--	--	--	0.73 U	0.73 U
Silver	9.4	--	1.3 U	--	--	--	1.3 U	--	--	--	--	1.3 U	--	--	--	1.3 U	1.3 U
Sodium	--	--	9810	--	--	--	21600	--	--	--	--	6010	--	--	--	11200	11100
Thallium	0.02	--	0.26 U	--	--	--	0.26 U	--	--	--	--	0.26 U	--	--	--	0.26 U	0.26 U
Vanadium	9	--	1.9 U	--	--	--	1.9 U	--	--	--	--	1.9 U	--	--	--	1.9 U	1.9 U
Zinc	600	--	7 U	--	--	--	7 U	--	--	--	--	7 U	--	--	--	7 U	7 U

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-056B-DUP	CFMW-056B	CFMW-059	CFMW-059	CFMW-059	CFMW-059	CFMW-061	CFMW-061	CFMW-061-DUP	CFMW-061	CFMW-061	CFMW-064	CFMW-064	CFMW-064	CFMW-064	CFMW-064-DUP
Sample Name		CFMW-Dup7-GW	CFMW-056b-GW	CFMW-059-GW	CFMW-059-GW	CFMW-059-GW	CFMW-059-GW	CFMW-061-GW	CFMW-061-GW	CFMW-DUP5-GW	CFMW-061-GW	CFMW-061-GW	CFMW-064-GW	CFMW-064-GW	CFMW-064-GW	CFMW-064-GW	CFMW-DUP14-GW
Chemical Name		3/21/2017	6/22/2017	9/15/2016	12/12/2016	3/23/2017	6/21/2017	9/15/2016	12/7/2016	12/7/2016	3/23/2017	6/23/2017	9/15/2016	12/7/2016	3/23/2017	6/23/2017	6/23/2017
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																	
1,2,4,5-Tetrachlorobenzene	0.03	---	---	---	---	---	---	0.43 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U
1,4-Dioxane (P-Dioxane)	0.46	---	---	---	---	---	---	3.1 U	3.1 U	3.1 U	3.3 U	3.1 U	3.1 U	3.1 U	3.3 U	3.1 U	3.1 U
2,3,4,6-Tetrachlorophenol	24	---	---	---	---	---	---	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U
2,4,5-Trichlorophenol	120	---	---	---	---	---	---	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U
2,4,6-Trichlorophenol	1.2	---	---	---	---	---	---	0.53 U	0.53 U	0.53 U	0.55 U	0.53 U	0.53 U	0.53 U	0.56 U	0.53 U	0.53 U
2,4-Dichlorophenol	4.6	---	---	---	---	---	---	0.63 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U
2,4-Dimethylphenol	36	---	---	---	---	---	---	0.91 U	0.91 U	0.91 U	0.95 U	0.91 U	0.91 U	0.91 U	0.96 U	0.91 U	0.91 U
2,4-Dinitrophenol	3.9	---	---	---	---	---	---	2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	2.4 U	2.4 U	2.5 U	2.4 U	2.4 U
2,4-Dinitrotoluene	0.24	---	---	---	---	---	---	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	1 U
2,6-Dinitrotoluene	0.049	---	---	---	---	---	---	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U
2-Chloronaphthalene	75	---	---	---	---	---	---	0.61 U	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U
2-Chlorophenol	9.1	---	---	---	---	---	---	0.74 U	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.74 U	0.78 U	0.74 U	0.74 U
2-Methylnaphthalene	3.6	---	---	---	---	---	---	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 U
2-Methylphenol (O-Cresol)	93	---	---	---	---	---	---	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.3 U
2-Nitroaniline	19	---	---	---	---	---	---	0.65 UJ	0.65 U	0.65 U	0.68 U	0.65 UJ	0.65 UJ	0.65 U	0.68 U	0.65 U	0.65 UJ
2-Nitrophenol	--	---	---	---	---	---	---	0.59 U	0.59 U	0.59 U	0.62 U	0.59 U	0.59 U	0.59 U	0.62 U	0.59 U	0.59 U
3- And 4- Methylphenol (Total)	--	---	---	---	---	---	---	0.88 U	0.88 U	0.88 U	0.92 U	0.88 U	0.88 UJ	0.88 U	0.92 U	0.88 U	0.88 U
3,3'-Dichlorobenzidine	0.13	---	---	---	---	---	---	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	1 U
3-Nitroaniline	--	---	---	---	---	---	---	0.82 U	0.82 U	0.82 U	0.86 U	0.82 U	0.82 U	0.82 U	0.86 U	0.82 U	0.82 U
4,6-Dinitro-2-Methylphenol	0.15	---	---	---	---	---	---	2 U	2 U	2 U	2.1 U	2 U	2 U	2 U	2.1 U	2 U	2 U
4-Bromophenyl Phenyl Ether	--	---	---	---	---	---	---	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	1 U
4-Chloro-3-Methylphenol	140	---	---	---	---	---	---	0.76 U	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.8 U	0.76 U	0.76 U
4-Chloroaniline	0.37	---	---	---	---	---	---	0.73 U	0.73 U	0.73 U	0.76 U	0.73 U	0.73 U	0.73 U	0.77 U	0.73 U	0.73 U
4-Chlorophenyl Phenyl Ether	--	---	---	---	---	---	---	0.96 U	0.96 U	0.96 U	1 U	0.96 U	0.96 U	0.96 U	1 U	0.96 U	0.96 U
4-Nitroaniline	3.8	---	---	---	---	---	---	0.48 U	0.48 U	0.48 U	0.5 U	0.48 UJ	0.48 U	0.48 U	0.5 U	0.48 U	0.48 UJ
4-Nitrophenol	50	---	---	---	---	---	---	4.7 U	4.7 U	4.7 U	4.9 U	4.7 UJ	4.7 U	4.7 U	4.9 U	4.7 U	4.7 UJ
Acenaphthene	53	---	---	---	---	---	---	0.88 U	0.88 U	0.88 U	0.92 U	0.88 UJ	0.88 U	0.88 U	0.92 U	0.88 U	0.88 UJ
Acenaphthylene	--	---	---	---	---	---	---	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U
Acetophenone	190	---	---	---	---	---	---	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	1 U
Anthracene	180	---	---	---	---	---	---	0.57 U	0.57 U	0.57 U	0.6 U	0.57 U	0.57 U	0.57 U	0.6 U	0.57 U	0.57 U
Atrazine	0.3	---	---	---	---	---	---	0.77 U	0.77 U	0.77 U	0.81 U	0.77 U	0.77 U	0.77 U	0.81 U	0.77 U	0.77 U
Benzaldehyde	19	---	---	---	---	---	---	0.86 U	0.86 U	0.86 U	0.9 U	0.86 U	0.86 U	0.86 U	0.9 U	0.86 UJ	0.86 U
Benzo(A)Anthracene	0.03	---	---	---	---	---	---	0.55 U	0.55 U	0.55 U	0.58 U	0.55 U	0.55 U	0.55 U	0.58 U	0.55 U	0.55 U
Benzo(A)Pyrene	0.025	---	---	---	---	---	---	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U
Benzo(B)Fluoranthene	0.25	---	---	---	---	---	---	0.44 U	0.44 U	0.44 U	0.46 U	0.44 U	0.44 U	0.44 U	0.46 U	0.44 U	0.44 U
Benzo(G,H,I)Perylene	--	---	---	---	---	---	---	0.75 U	0.75 U	0.75 U	0.78 U	0.75 U	0.75 U	0.75 U	0.79 U	0.75 U	0.75 U
Benzo(K)Fluoranthene	2.5	---	---	---	---	---	---	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U
Benzyl Butyl Phthalate	1	---	---	---	---	---	---	0.6 U	0.6 U	0.6 U	0.63 U	0.6 U	0.6 U	0.6 U	0.63 U	0.6 U	0.6 U
Biphenyl (Diphenyl)	0.083	---	---	---	---	---	---	0.63 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U	0.63 U	0.66 U	0.63 U	0.63 U
Bis(2-Chloroethoxy) Methane	5.9	---	---	---	---	---	---	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	---	---	---	---	---	---	0.12 U	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U
Bis(2-Chloroisopropyl) Ether	71	---	---	---	---	---	---	0.93 U	0.93 U	0.93 U	0.97 U	0.93 UJ	0.93 U	0.93 U	0.98 U	0.93 U	0.93 UJ
Bis(2-Ethylhexyl) Phthalate	5.6	---	---	---	---	---	---	0.72 U	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.72 U	0.76 U	0.72 U	0.72 U
Caprolactam	990	---	---	---	---	---	---	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Carbazole	--	---	---	---	---	---	---	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U
Chrysene	25	---	---	---	---	---	---	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U
Dibenz(A,H)Anthracene	0.025	---	---	---	---	---	---	0.09 U	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.095 U	0.09 U	0.09 U
Dibenzofuran	0.79	---	---	---	---	---	---	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U	0.85 U	0.89 U	0.85 U	0.85 U
Diethyl Phthalate	600	---	---	---	---	---	---	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U
Dimethyl Phthalate	2000	---	---	---	---	---	---	0.98 U	0.98 U	0.98 U	1 U	0.98 U	0.98 U	0.98 U	1 U	0.98 U	0.98 U
Di-N-Butyl Phthalate	20	---	---	---	---	---	---	0.82 U	1.1 J	0.82 U	0.86 U	0.82 U	0.82 U	0.82 U	0.86 U	0.82 U	0.82 U
Di-N-Octylphthalate	20	---	---	---	---	---	---	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U	0.69 U	0.72 U	0.69 U	0.69 U
Fluoranthene	20	---	---	---	---	---	---	0.72 U	0.72 U	0.72 U	0.75 U	0.72 U	0.72 U	0.72 U	0.76 U	0.72 U	0.72 U
Fluorene	29	---	---	---	---	---	---	0.8 U	0.8 U	0.8 U	0.84 U	0.8 U	0.8 U	0.8 U	0.84 U	0.8 U	0.8 U
Hexachlorobenzene	0.0098	---	---	---	---	---	---	0.47 U	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U	0.47 U	0.49 U	0.47 U	0.47 U
Hexachlorobutadiene	0.14	---	---	---	---	---	---	0.76 U	0.76 U	0.76 U	0.79 U	0.76 U	0.76 U	0.76 U	0.8 U	0.76 U	0.76 U

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-056B-DUP	CFMW-056B	CFMW-059	CFMW-059	CFMW-059	CFMW-059	CFMW-061	CFMW-061	CFMW-061-DUP	CFMW-061	CFMW-061	CFMW-064	CFMW-064	CFMW-064	CFMW-064	CFMW-064-DUP
Sample Name		CFMW-Dup7-GW	CFMW-056b-GW	CFMW-059-GW	CFMW-059-GW	CFMW-059-GW	CFMW-059-GW	CFMW-061-GW	CFMW-061-GW	CFMW-DUP5-GW	CFMW-061-GW	CFMW-061-GW	CFMW-064-GW	CFMW-064-GW	CFMW-064-GW	CFMW-064-GW	CFMW-DUP14-GW
Chemical Name		3/21/2017	6/22/2017	9/15/2016	12/12/2016	3/23/2017	6/21/2017	9/15/2016	12/7/2016	12/7/2016	3/23/2017	6/23/2017	9/15/2016	12/7/2016	3/23/2017	6/23/2017	6/23/2017
Hexachlorocyclopentadiene	0.041	...	...	...	...	...	...	0.61 U	0.61 U	0.61 U	0.64 U	0.61 U	0.61 U	0.61 U	0.64 U	0.61 UJ	0.61 U
Hexachloroethane	0.33	...	...	...	...	...	...	0.09 U	0.09 U	0.09 U	0.094 U	0.09 U	0.09 U	0.09 U	0.095 U	0.09 U	0.09 U
Indeno(1,2,3-C,D)Pyrene	0.25	...	...	...	...	...	...	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U
Isophorone	78	...	...	...	...	...	...	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U	0.67 U	0.7 U	0.67 U	0.67 U
Naphthalene	0.17	...	...	...	...	...	...	0.8 U	0.8 U	0.8 U	0.84 U	0.8 U	0.8 U	0.8 U	0.84 U	0.8 U	0.8 U
Nitrobenzene	0.14	...	...	...	...	...	...	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U	0.49 U	0.51 U	0.49 U	0.49 U
N-Nitrosodi-N-Propylamine	0.011	...	...	...	...	...	...	0.83 UJ	0.83 U	0.83 U	0.87 U	0.83 U	0.83 UJ	0.83 U	0.87 U	0.83 U	0.83 U
N-Nitrosodiphenylamine	12	...	...	...	...	...	...	0.74 U	0.74 U	0.74 U	0.77 U	0.74 U	0.74 U	0.74 U	0.78 U	0.74 U	0.74 U
Pentachlorophenol	0.041	...	...	...	...	...	...	2.2 U	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U
Phenanthrene	--	...	...	...	...	...	...	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U	0.65 U	0.68 U	0.65 U	0.65 U
Phenol	580	...	...	...	...	...	...	0.41 U	0.41 U	0.41 U	0.43 U	0.41 U	0.41 U	0.41 U	0.43 U	0.41 U	0.41 U
Pyrene	12	...	...	...	...	...	...	0.83 U	0.83 U	0.83 U	0.87 U	0.83 U	0.83 U	0.83 U	0.87 U	0.83 U	0.83 U
VOLATILE ORGANIC COMPOUNDS (µg/l)																	
1,1,1-Trichloroethane	200	...	...	...	...	...	...	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
1,1,2,2-Tetrachloroethane	0.076	...	...	...	...	...	...	0.19 U	0.19 UJ	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 UJ	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	...	...	...	...	...	...	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.041	...	...	...	...	...	...	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethane	2.8	...	...	...	...	...	...	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethene	7	...	...	...	...	...	...	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,2,3-Trichlorobenzene	0.7	...	...	...	...	...	...	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,2,4-Trichlorobenzene	0.4	...	...	...	...	...	...	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	...	...	...	...	...	...	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 UJ	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	...	...	...	...	...	...	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-Dichlorobenzene	30	...	...	...	...	...	...	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,2-Dichloroethane	0.17	...	...	...	...	...	...	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U
1,2-Dichloropropane	0.14	...	...	...	...	...	...	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	600	...	...	...	...	...	...	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	0.48	...	...	...	...	...	...	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Hexanone	3.8	...	...	...	...	...	...	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
Acetone	1400	...	...	...	...	...	...	1.1 U	1.1 U	1.1 U	3.5 J	1.1 U	1.1 U	1.1 U	2.6 J	1.1 U	1.1 U
Benzene	0.46	...	...	...	...	...	...	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Bromochloromethane	8.3	...	...	...	...	...	...	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromodichloromethane	0.13	...	...	...	...	...	...	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Bromoform	3.3	...	...	...	...	...	...	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Bromomethane	0.75	...	...	...	...	...	...	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 U
Carbon Disulfide	81	...	...	...	...	...	...	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U
Carbon Tetrachloride	0.46	...	...	...	...	...	...	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Chlorobenzene	7.8	...	...	...	...	...	...	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chloroethane	2100	...	...	...	...	...	...	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Chloroform	0.22	...	...	...	...	...	...	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloromethane	19	...	...	...	...	...	...	0.22 U	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 UJ	0.22 UJ
Cis-1,2-Dichloroethylene	3.6	...	...	...	...	...	...	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Cis-1,3-Dichloropropene	4	...	...	...	...	...	...	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Cyclohexane	1300	...	...	...	...	...	...	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Dibromochloromethane	0.87	...	...	...	...	...	...	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Dichlorodifluoromethane	20	...	...	...	...	...	...	0.14 U	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 UJ
Ethylbenzene	1.5	...	...	...	...	...	...	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Isopropylbenzene (Cumene)	45	...	...	...	...	...	...	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
M,P-Xylene	--	...	...	...	...	...	...	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Methyl Acetate	2000	...	...	...	...	...	...	0.58 U	0.58 UJ	0.58 UJ	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U
Methyl Ethyl Ketone (2-Butanone)	560	...	...	...	...	...	...	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	...	...	...	...	...	...	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
Methylcyclohexane	--	...	...	...	...	...	...	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Methylene Chloride	5	...	...	...	...	...	...	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
O-Xylene (1,2-Dimethylbenzene)	19	...	...	...	...	...	...	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Styrene	100	...	...	...	...	...	...	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Tert-Butyl Methyl Ether	14	...	...	...	...	...	...	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U

Preliminary - Under EPA and MDEQ Review

Table C-2
Summary of Groundwater Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 7 WESTERN UNDEVELOPED	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION	Exp Area 8 SOUTH PERCOLATION
Sample Water Bearing Zone		Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit	Upper Hydrogeologic Unit
Sample Location ID	CFAC Site-Specific Human Health Groundwater (µg/l)	CFMW-056B-DUP	CFMW-056B	CFMW-059	CFMW-059	CFMW-059	CFMW-059	CFMW-061	CFMW-061	CFMW-061-DUP	CFMW-061	CFMW-061	CFMW-064	CFMW-064	CFMW-064	CFMW-064	CFMW-064-DUP
Sample Name		CFMW-Dup7-GW	CFMW-056b-GW	CFMW-059-GW	CFMW-059-GW	CFMW-059-GW	CFMW-059-GW	CFMW-061-GW	CFMW-061-GW	CFMW-DUP5-GW	CFMW-061-GW	CFMW-061-GW	CFMW-064-GW	CFMW-064-GW	CFMW-064-GW	CFMW-064-GW	CFMW-DUP14-GW
Chemical Name		3/21/2017	6/22/2017	9/15/2016	12/12/2016	3/23/2017	6/21/2017	9/15/2016	12/7/2016	12/7/2016	3/23/2017	6/23/2017	9/15/2016	12/7/2016	3/23/2017	6/23/2017	6/23/2017
Tetrachloroethylene (PCE)	4.1	...	...	...	...	...	...	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Toluene	110	...	...	...	...	...	...	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trans-1,2-Dichloroethene	36	...	...	...	...	...	...	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Trans-1,3-Dichloropropene	2	...	...	...	...	...	...	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Trichloroethylene (TCE)	0.28	...	...	...	...	...	...	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichlorofluoromethane	520	...	...	...	...	...	...	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Vinyl Chloride	0.019	...	...	...	...	...	...	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screenin
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Location ID		CFSWP-017	CFSWP-017	CFSWP-017	CFSWP-017	CFSWP-023	CFSWP-024	CFSWP-010	CFSWP-010	CFSWP-010	CFSWP-011	CFSWP-011	CFSWP-011	CFSWP-012	CFSWP-012	CFSWP-012-DUP
Sample Name		CFSWP-017-SW	CFSWP-017-SW	CFSWP-017-SW	CFSWP-017-SW	CFSWP-023-SW	CFSWP-024-SW	CFSWP-010-SW	CFSWP-010-SW	CFSWP-010-SW	CFSWP-011-SW	CFSWP-011-SW	CFSWP-011-SW	CFSWP-012-SW	CFSWP-012-SW	CFSWP-DUP5-SW
Chemical Name		9/16/2016	12/2/2016	4/4/2017	6/14/2017	4/3/2017	6/15/2017	6/7/2016	3/15/2017	6/12/2017	6/7/2016	4/3/2017	6/12/2017	6/7/2016	4/3/2017	4/3/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	--	119 J+	--	21500	--	--	177 J+	--	--	128 J+	--	--	--
Fluoride	80	56.2 J-	106 J-	85.7	121	2150	22400 J+	39.4 J	2600	181	38.7 J	103	131	39.5 J	101	89.6
Cyanide (Dissolved)	0.15	--	--	--	2 U	--	2 U	--	--	2 U	--	--	2 U	--	--	--
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	0.15	2 U	2 U	2 U	2 U	7.6 J	2 U	4 U	2 U	--	4 U	2 U	2 U	4 U	2 U	2 U
Cyanide (Free)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	--	--	--	18.2 U	--	4780	--	--	18.2 U	--	--	18.2 U	--	--	--
Antimony (Dissolved)	0.78	--	--	--	0.62 U	--	7.2	--	--	0.62 U	--	--	0.62 U	--	--	--
Arsenic (Dissolved)	0.052	--	--	--	0.64 U	--	1 J	--	--	0.64 U	--	--	0.64 U	--	--	--
Barium (Dissolved)	380	--	--	--	63.6	--	26.4	--	--	85.2	--	--	86.6	--	--	--
Beryllium (Dissolved)	2.5	--	--	--	0.24 U	--	0.51 J	--	--	0.24 U	--	--	0.24 U	--	--	--
Cadmium (Dissolved)	0.92	--	--	--	0.71 U	--	2.5	--	--	0.71 U	--	--	0.71 U	--	--	--
Calcium (Dissolved)	--	--	--	--	18600	--	7020	--	--	48600	--	--	48700	--	--	--
Chromium, Total (Dissolved)	100	--	--	--	1.3 U	--	1.3 U	--	--	1.3 U	--	--	1.3 U	--	--	--
Cobalt (Dissolved)	0.6	--	--	--	1.3 U	--	1.3 U	--	--	1.3 U	--	--	1.3 U	--	--	--
Copper (Dissolved)	80	--	--	--	1.4 U	--	2 J	--	--	1.4 U	--	--	1.4 U	--	--	--
Iron (Dissolved)	1400	--	--	--	42.4 U	--	42.4 U	--	--	42.4 U	--	--	42.4 U	--	--	--
Lead (Dissolved)	15	--	--	--	0.38 U	--	0.38 U	--	--	0.38 U	--	--	0.38 U	--	--	--
Magnesium (Dissolved)	--	--	--	--	4560	--	384	--	--	10900	--	--	11100	--	--	--
Manganese (Dissolved)	43	--	--	--	2.5 J	--	31.8	--	--	2.5 U	--	--	2.5 U	--	--	--
Mercury (Dissolved)	0.05	--	--	--	0.17 U	--	0.17 U	--	--	0.17 U	--	--	0.17 U	--	--	--
Nickel (Dissolved)	39	--	--	--	1.4 U	--	22.1	--	--	1.4 U	--	--	1.4 U	--	--	--
Potassium (Dissolved)	--	--	--	--	256	--	760	--	--	417	--	--	419	--	--	--
Selenium (Dissolved)	10	--	--	--	0.73 U	--	0.73 U	--	--	0.73 U	--	--	0.73 U	--	--	--
Silver (Dissolved)	9.4	--	--	--	1.3 U	--	1.3 U	--	--	1.3 U	--	--	1.3 U	--	--	--
Sodium (Dissolved)	--	--	--	--	576	--	6180	--	--	2060	--	--	2010	--	--	--
Thallium (Dissolved)	0.02	--	--	--	0.26 U	--	0.26 U	--	--	0.26 U	--	--	0.26 U	--	--	--
Vanadium (Dissolved)	8.6	--	--	--	1.9 U	--	4.3	--	--	1.9 U	--	--	1.9 U	--	--	--
Zinc (Dissolved)	600	--	--	--	7 U	--	512	--	--	7 U	--	--	7 U	--	--	--
Aluminum	2000	33.2 J	26.3 J	138	26.6 J	109	8630	44.6	507	18.2 U	28.2 J	37.9 J	18.2 U	35.9 J	27.4 J	37.7 J
Antimony	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	7.7	0.76 U	0.62 U	0.62 U	0.76 U	0.62 U	0.62 U	0.76 U	0.62 U	0.62 U
Arsenic	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	2.4	0.71 U	0.64 U	0.64 U	0.71 U	0.64 U	0.64 U	0.8 J	0.64 U	0.64 U
Barium	380	190	103	94.4	63.4	234	43.4	79.6	63.4	88	78.6	70.8	87.3	79	70.5	75.8
Beryllium	2.5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.71 J	0.29 U	0.24 U	0.24 U	0.29 U	0.24 U	0.24 U	0.29 U	0.24 U	0.24 U
Cadmium	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	3	0.72 U	0.71 U	0.71 U	0.72 U	0.71 U	0.71 U	0.72 U	0.71 U	0.71 U
Calcium	--	33800	25400	23900	17700	63300	7860	47000	38300	50700	47000	46600	50600	46800	45600	45300
Chromium, Total	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	2.7 J	1.5 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U
Cobalt	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.6 J	1.5 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U
Copper	80	1.4 U	1.4 U	1.4 U	1.4 U	3.8 J	16.5	1.6 U	1.5 J	1.4 U	2.1 J	1.4 U	1.4 U	4.1	1.4 U	1.4 U
Iron	1400	63.1 J	42.4 U	128	42.4 U	42.4 U	817	49.3 J	392	42.4 U	49.1 U	42.4 U	42.4 U	72.8 J	42.4 U	54.6 J
Lead	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	7.6	0.44 U	0.54 J	0.38 U	0.44 U	0.38 U	0.38 U	0.44 U	0.38 U	0.38 U
Magnesium	--	9260	7090	6230	4780	13900	804	10900	6510	12100	10800	10400	12100	10900	10300	10900
Manganese	43	21.8	2.5 U	4.2 J	2.6 J	2.5 U	37.4	7.8 J	19.6	3.1 J	6.3 J	7.5 J	3.8 J	8.6	6.8 J	7.9 J
Mercury	0.05	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.14 U	0.17 U	0.17 U	0.14 U	0.17 U	0.17 U	0.14 U	0.17 U	0.17 U
Nickel	39	1.4 U	1.4 U	1.4 U	1.4 U	1.9 J	55.9	1.6 U	1.4 U	1.4 U	1.6 U	1.4 U	1.4 U	1.6 U	1.4 U	1.4 U
Potassium	--	439	314	367	247	646	814	535	1100	473	540	454	472	537	433	451
Selenium	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.79 U	0.73 U	0.73 U	0.79 U	0.73 U	0.73 U	0.79 U	0.73 U	0.73 U
Silver	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U
Sodium	--	1580	1100	1080	692	5280	6730	2080	2180	2220	2120	2370	2210	2080	2310	2360
Thallium	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.27 J	0.31 U	0.26 U	0.26 U	0.31 U	0.26 U	0.26 U	0.31 U	0.26 U	0.26 U
Vanadium	8.6	1.9 U	1.9 U	1.9 U	1.9 U	6.9	18	2.1 J	1.9 U	1.9 U	2.1 J	1.9 U	1.9 U	2.1 J	1.9 U	1.9 U
Zinc	600	7 U	7 U	7 U	7 U	7 U	537	6.5 U	7 U	7 U	6.5 U	7 U	7 U	6.5 U	7 U	7 U
PESTICIDES (µg/l)																
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Location ID		CFSWP-017	CFSWP-017	CFSWP-017	CFSWP-017	CFSWP-023	CFSWP-024	CFSWP-010	CFSWP-010	CFSWP-010	CFSWP-011	CFSWP-011	CFSWP-011	CFSWP-012	CFSWP-012	CFSWP-012-DUP
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-017-SW	CFSWP-017-SW	CFSWP-017-SW	CFSWP-017-SW	CFSWP-023-SW	CFSWP-024-SW	CFSWP-010-SW	CFSWP-010-SW	CFSWP-010-SW	CFSWP-011-SW	CFSWP-011-SW	CFSWP-011-SW	CFSWP-012-SW	CFSWP-012-SW	CFSWP-DUP5-SW
Chemical Name		9/16/2016	12/2/2016	4/4/2017	6/14/2017	4/3/2017	6/15/2017	6/7/2016	3/15/2017	6/12/2017	6/7/2016	4/3/2017	6/12/2017	6/7/2016	4/3/2017	4/3/2017
Aldrin	0.00049	--	--	--	--	--	0.003 U	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.0072	--	--	--	--	--	0.007 U	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	20	--	--	--	--	--	0.002 U	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.025	--	--	--	--	--	0.004 U	--	--	--	--	--	--	--	--	--
Beta Endosulfan	20	--	--	--	--	--	0.004 U	--	--	--	--	--	--	--	--	--
cis-Chlordane	0.008	--	--	--	--	--	0.002 U	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	0.005 U	--	--	--	--	--	--	--	--	--
Dieldrin	0.00052	--	--	--	--	--	0.003 U	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	20	--	--	--	--	--	0.006 U	--	--	--	--	--	--	--	--	--
Endrin	0.059	--	--	--	--	--	0.004 U	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	1	--	--	--	--	--	0.008 U	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	0.008 U	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.042	--	--	--	--	--	0.012 U	--	--	--	--	--	--	--	--	--
Heptachlor	0.00079	--	--	--	--	--	0.003 U	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.00039	--	--	--	--	--	0.005 U	--	--	--	--	--	--	--	--	--
Methoxychlor	0.02	--	--	--	--	--	0.004 U	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0012	--	--	--	--	--	0.006 U	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.00018	--	--	--	--	--	0.002 U	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.0022	--	--	--	--	--	0.004 U	--	--	--	--	--	--	--	--	--
Toxaphene	0.007	--	--	--	--	--	0.11 U	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	0.003 U	--	--	--	--	--	--	--	--	--
PCB's (µg/l)																
PCB-1016 (Aroclor 1016)	0.14	--	--	--	--	--	1 U	--	--	--	--	--	--	--	--	--
PCB-1221 (Aroclor 1221)	0.0047	--	--	--	--	--	0.1 U	--	--	--	--	--	--	--	--	--
PCB-1232 (Aroclor 1232)	0.0047	--	--	--	--	--	0.1 U	--	--	--	--	--	--	--	--	--
PCB-1242 (Aroclor 1242)	0.0078	--	--	--	--	--	0.1 U	--	--	--	--	--	--	--	--	--
PCB-1248 (Aroclor 1248)	0.0078	--	--	--	--	--	0.1 U	--	--	--	--	--	--	--	--	--
PCB-1254 (Aroclor 1254)	0.0078	--	--	--	--	--	0.099 U	--	--	--	--	--	--	--	--	--
PCB-1260 (Aroclor 1260)	0.0078	--	--	--	--	--	0.099 U	--	--	--	--	--	--	--	--	--
PCB-1262 (Aroclor 1262)	--	--	--	--	--	--	0.099 U	--	--	--	--	--	--	--	--	--
PCB-1268 (Aroclor 1268)	--	--	--	--	--	--	0.099 U	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyl (PCBs)	--	--	--	--	--	--	0.1 U	--	--	--	--	--	--	--	--	--
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	--	--	--	--	--	0.43 U	--	--	--	--	--	--	--	--	--
1,4-Dioxane (P-Dioxane)	0.46	--	--	--	--	--	3.1 U	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	24	--	--	--	--	--	0.69 U	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	120	--	--	--	--	--	0.49 U	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	1.2	--	--	--	--	--	0.53 U	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	4.6	--	--	--	--	--	0.63 U	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	36	--	--	--	--	--	0.91 U	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	3.9	--	--	--	--	--	2.4 U	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	0.24	--	--	--	--	--	1 U	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.049	--	--	--	--	--	0.88 U	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	75	--	--	--	--	--	0.61 U	--	--	--	--	--	--	--	--	--
2-Chlorophenol	9.1	--	--	--	--	--	0.74 U	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	3.6	--	--	--	--	--	0.88 U	--	--	--	--	--	--	--	--	--
2-Methylphenol (O-Cresol)	93	--	--	--	--	--	1.3 U	--	--	--	--	--	--	--	--	--
2-Nitroaniline	19	--	--	--	--	--	0.65 U	--	--	--	--	--	--	--	--	--
2-Nitrophenol	--	--	--	--	--	--	0.59 U	--	--	--	--	--	--	--	--	--
3- And 4- Methylphenol (Total)	--	--	--	--	--	--	0.88 U	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	0.13	--	--	--	--	--	1 U	--	--	--	--	--	--	--	--	--
3-Nitroaniline	--	--	--	--	--	--	0.82 U	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	0.15	--	--	--	--	--	2 U	--	--	--	--	--	--	--	--	--
4-Bromophenyl Phenyl Ether	--	--	--	--	--	--	1 U	--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	140	--	--	--	--	--	0.76 U	--	--	--	--	--	--	--	--	--
4-Chloroaniline	0.37	--	--	--	--	--	0.73 U	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Location ID		CFSWP-017	CFSWP-017	CFSWP-017	CFSWP-017	CFSWP-023	CFSWP-024	CFSWP-010	CFSWP-010	CFSWP-010	CFSWP-011	CFSWP-011	CFSWP-011	CFSWP-012	CFSWP-012	CFSWP-012-DUP
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-017-SW	CFSWP-017-SW	CFSWP-017-SW	CFSWP-017-SW	CFSWP-023-SW	CFSWP-024-SW	CFSWP-010-SW	CFSWP-010-SW	CFSWP-010-SW	CFSWP-011-SW	CFSWP-011-SW	CFSWP-011-SW	CFSWP-012-SW	CFSWP-012-SW	CFSWP-DUP5-SW
Chemical Name		9/16/2016	12/2/2016	4/4/2017	6/14/2017	4/3/2017	6/15/2017	6/7/2016	3/15/2017	6/12/2017	6/7/2016	4/3/2017	6/12/2017	6/7/2016	4/3/2017	4/3/2017
4-Chlorophenyl Phenyl Ether	--	--	--	--	--	--	0.96 U	--	--	--	--	--	--	--	--	--
4-Nitroaniline	3.8	--	--	--	--	--	0.48 U	--	--	--	--	--	--	--	--	--
4-Nitrophenol	50	--	--	--	--	--	4.7 U	--	--	--	--	--	--	--	--	--
Acenaphthene	53	--	--	--	--	--	0.88 U	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	0.65 U	--	--	--	--	--	--	--	--	--
Acetophenone	190	--	--	--	--	--	1 U	--	--	--	--	--	--	--	--	--
Anthracene	180	--	--	--	--	--	0.57 U	--	--	--	--	--	--	--	--	--
Atrazine	0.3	--	--	--	--	--	0.77 U	--	--	--	--	--	--	--	--	--
Benzaldehyde	19	--	--	--	--	--	0.86 U	--	--	--	--	--	--	--	--	--
Benzo(A)Anthracene	0.03	--	--	--	--	--	3	--	--	--	--	--	--	--	--	--
Benzo(A)Pyrene	0.025	--	--	--	--	--	3.9	--	--	--	--	--	--	--	--	--
Benzo(B)Fluoranthene	0.038	--	--	--	--	--	10	--	--	--	--	--	--	--	--	--
Benzo(G,H,I)Perylene	--	--	--	--	--	--	3.9 J	--	--	--	--	--	--	--	--	--
Benzo(K)Fluoranthene	0.038	--	--	--	--	--	0.18 U	--	--	--	--	--	--	--	--	--
Benzyl Butyl Phthalate	1	--	--	--	--	--	0.6 U	--	--	--	--	--	--	--	--	--
Biphenyl (Diphenyl)	0.083	--	--	--	--	--	0.63 U	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy) Methane	5.9	--	--	--	--	--	0.69 U	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	--	--	--	--	--	0.12 U	--	--	--	--	--	--	--	--	--
Bis(2-Chloroisopropyl) Ether	71	--	--	--	--	--	0.93 U	--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	3.2	--	--	--	--	--	0.72 U	--	--	--	--	--	--	--	--	--
Caprolactam	990	--	--	--	--	--	1.1 U	--	--	--	--	--	--	--	--	--
Carbazole	--	--	--	--	--	--	0.85 U	--	--	--	--	--	--	--	--	--
Chrysene	1.2	--	--	--	--	--	7.6	--	--	--	--	--	--	--	--	--
Dibenz(A,H)Anthracene	0.0012	--	--	--	--	--	0.71 U	--	--	--	--	--	--	--	--	--
Dibenzofuran	0.79	--	--	--	--	--	0.9 U	--	--	--	--	--	--	--	--	--
Diethyl Phthalate	600	--	--	--	--	--	1 U	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	2000	--	--	--	--	--	0.98 U	--	--	--	--	--	--	--	--	--
Di-N-Butyl Phthalate	20	--	--	--	--	--	0.82 U	--	--	--	--	--	--	--	--	--
Di-N-Octylphthalate	20	--	--	--	--	--	0.69 U	--	--	--	--	--	--	--	--	--
Fluoranthene	20	--	--	--	--	--	9.3 J	--	--	--	--	--	--	--	--	--
Fluorene	29	--	--	--	--	--	0.8 U	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.00079	--	--	--	--	--	0.47 U	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.1	--	--	--	--	--	0.76 U	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	0.041	--	--	--	--	--	0.61 U	--	--	--	--	--	--	--	--	--
Hexachloroethane	0.33	--	--	--	--	--	0.09 U	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)Pyrene	0.012	--	--	--	--	--	3.1	--	--	--	--	--	--	--	--	--
Isophorone	78	--	--	--	--	--	0.67 U	--	--	--	--	--	--	--	--	--
Naphthalene	0.17	--	--	--	--	--	0.8 U	--	--	--	--	--	--	--	--	--
Nitrobenzene	0.14	--	--	--	--	--	0.49 U	--	--	--	--	--	--	--	--	--
N-Nitrosodi-N-Propylamine	0.011	--	--	--	--	--	0.83 U	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	12	--	--	--	--	--	0.74 U	--	--	--	--	--	--	--	--	--
Pentachlorophenol	0.041	--	--	--	--	--	2.2 U	--	--	--	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--	1.5 J	--	--	--	--	--	--	--	--	--
Phenol	580	--	--	--	--	--	0.41 U	--	--	--	--	--	--	--	--	--
Pyrene	12	--	--	--	--	--	7 J	--	--	--	--	--	--	--	--	--
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	--	--	--	--	--	0.28 UJ	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.076	--	--	--	--	--	0.19 U	--	--	--	--	--	--	--	--	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	--	--	--	--	--	0.34 U	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	0.041	--	--	--	--	--	0.08 U	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	2.8	--	--	--	--	--	0.24 U	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	--	--	--	--	--	0.34 U	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	0.7	--	--	--	--	--	0.35 U	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	0.071	--	--	--	--	--	0.27 U	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-Chloropropane	0.00033	--	--	--	--	--	0.23 U	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	--	--	--	--	--	0.19 U	--	--	--	--	--	--	--	--	--

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	UPSTREAM BACKGROUND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA
Sample Location ID		CFSWP-017	CFSWP-017	CFSWP-017	CFSWP-017	CFSWP-023	CFSWP-024	CFSWP-010	CFSWP-010	CFSWP-010	CFSWP-011	CFSWP-011	CFSWP-011	CFSWP-012	CFSWP-012	CFSWP-012-DUP
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-017-SW	CFSWP-017-SW	CFSWP-017-SW	CFSWP-017-SW	CFSWP-023-SW	CFSWP-024-SW	CFSWP-010-SW	CFSWP-010-SW	CFSWP-010-SW	CFSWP-011-SW	CFSWP-011-SW	CFSWP-011-SW	CFSWP-012-SW	CFSWP-012-SW	CFSWP-DUP5-SW
Chemical Name		9/16/2016	12/2/2016	4/4/2017	6/14/2017	4/3/2017	6/15/2017	6/7/2016	3/15/2017	6/12/2017	6/7/2016	4/3/2017	6/12/2017	6/7/2016	4/3/2017	4/3/2017
1,2-Dichlorobenzene	30	--	--	--	--	--	0.22 U	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	0.17	--	--	--	--	--	0.25 U	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	0.14	--	--	--	--	--	0.18 U	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	7	--	--	--	--	--	0.33 U	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	0.48	--	--	--	--	--	0.33 U	--	--	--	--	--	--	--	--	--
2-Hexanone	3.8	--	--	--	--	--	0.72 U	--	--	--	--	--	--	--	--	--
Acetone	1400	--	--	--	--	--	12	--	--	--	--	--	--	--	--	--
Benzene	0.46	--	--	--	--	--	0.09 U	--	--	--	--	--	--	--	--	--
Bromochloromethane	8.3	--	--	--	--	--	0.3 U	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.13	--	--	--	--	--	0.15 U	--	--	--	--	--	--	--	--	--
Bromoform	3.3	--	--	--	--	--	0.18 U	--	--	--	--	--	--	--	--	--
Bromomethane	0.75	--	--	--	--	--	0.18 UJ	--	--	--	--	--	--	--	--	--
Carbon Disulfide	81	--	--	--	--	--	0.22 U	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	0.46	--	--	--	--	--	0.33 U	--	--	--	--	--	--	--	--	--
Chlorobenzene	7.8	--	--	--	--	--	0.24 U	--	--	--	--	--	--	--	--	--
Chloroethane	2100	--	--	--	--	--	0.37 UJ	--	--	--	--	--	--	--	--	--
Chloroform	0.22	--	--	--	--	--	0.22 U	--	--	--	--	--	--	--	--	--
Chloromethane	19	--	--	--	--	--	0.22 U	--	--	--	--	--	--	--	--	--
Cis-1,2-Dichloroethylene	3.6	--	--	--	--	--	0.26 UJ	--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	3.4	--	--	--	--	--	0.16 U	--	--	--	--	--	--	--	--	--
Cyclohexane	1300	--	--	--	--	--	0.26 U	--	--	--	--	--	--	--	--	--
Dibromochloromethane	0.87	--	--	--	--	--	0.22 U	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	20	--	--	--	--	--	0.[illegible] U	--	--	--	--	--	--	--	--	--
Ethylbenzene	1.5	--	--	--	--	--	[illegible] U	--	--	--	--	--	--	--	--	--
Isopropylbenzene (Cumene)	45	--	--	--	--	--	[illegible] U	--	--	--	--	--	--	--	--	--
M,P-Xylene	--	--	--	--	--	--	0.28 U	--	--	--	--	--	--	--	--	--
Methyl Acetate	2000	--	--	--	--	--	0.58 UJ	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone (2-Butanone)	560	--	--	--	--	--	2.2 U	--	--	--	--	--	--	--	--	--
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	--	--	--	--	--	0.68 U	--	--	--	--	--	--	--	--	--
Methylcyclohexane	--	--	--	--	--	--	0.22 U	--	--	--	--	--	--	--	--	--
Methylene Chloride	5	--	--	--	--	--	0.21 UJ	--	--	--	--	--	--	--	--	--
O-Xylene (1,2-Dimethylbenzene)	19	--	--	--	--	--	0.32 U	--	--	--	--	--	--	--	--	--
Styrene	100	--	--	--	--	--	0.17 U	--	--	--	--	--	--	--	--	--
Tert-Butyl Methyl Ether	14	--	--	--	--	--	0.13 UJ	--	--	--	--	--	--	--	--	--
Tetrachloroethylene (PCE)	4.1	--	--	--	--	--	0.12 U	--	--	--	--	--	--	--	--	--
Toluene	57	--	--	--	--	--	0.25 U	--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	36	--	--	--	--	--	0.18 UJ	--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	2	--	--	--	--	--	0.19 U	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	0.28	--	--	--	--	--	0.22 U	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	520	--	--	--	--	--	0.15 U	--	--	--	--	--	--	--	--	--
Vinyl Chloride	0.019	--	--	--	--	--	0.06 U	--	--	--	--	--	--	--	--	--

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA
Sample Location ID		CFSWP-012	CFSWP-009	CFSWP-009	CFSWP-009	CFSWP-013	CFSWP-013-DUP	CFSWP-013	CFSWP-013	CFSWP-013	CFSWP-021	CFSWP-021	CFSWP-021	CFSWP-021	CFSWP-022	CFSWP-022
Sample Name		CFSWP-012-SW	CFSWP-009-SW	CFSWP-009-SW	CFSWP-009-SW	CFSWP-013-SW	CFSWP-DUP1-SW	CFSWP-013-SW	CFSWP-013-SW	CFSWP-013-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-022-SW	CFSWP-022-SW
Chemical Name		6/12/2017	6/7/2016	4/3/2017	6/12/2017	6/7/2016	6/7/2016	11/30/2016	3/15/2017	6/12/2017	6/6/2016	11/30/2016	3/15/2017	6/15/2017	6/6/2016	4/3/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	129 J+	--	--	185 J+	--	--	--	--	126 J+	--	--	--	188	--	--
Fluoride	80	131	80.3	105	188	39.2 J	38.3 J	473 J-	308	131	166	189 J-	231	243	177	223
Cyanide (Dissolved)	0.15	2 U	--	--	2 U	--	--	--	--	2 U	--	--	--	2 U	--	--
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	0.15	2 U	4 U	2 U	2 U	4 U	4 U	2 U	2 U	--	4 U	2 U	2 U	2 U	4 U	2 U
Cyanide (Free)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	18.2 U	--	--	18.2 U	--	--	--	--	18.2 U	--	--	--	18.2 U	--	--
Antimony (Dissolved)	0.78	0.62 U	--	--	0.62 U	--	--	--	--	0.62 U	--	--	--	0.62 U	--	--
Arsenic (Dissolved)	0.052	0.64 U	--	--	0.69 J	--	--	--	--	0.64 U	--	--	--	0.93 J	--	--
Barium (Dissolved)	380	85	--	--	116	--	--	--	--	86.5	--	--	--	96.5	--	--
Beryllium (Dissolved)	2.5	0.24 U	--	--	0.24 U	--	--	--	--	0.24 U	--	--	--	0.24 U	--	--
Cadmium (Dissolved)	0.92	0.71 U	--	--	0.71 U	--	--	--	--	0.71 U	--	--	--	0.71 U	--	--
Calcium (Dissolved)	--	48700	--	--	52200	--	--	--	--	48900	--	--	--	54100	--	--
Chromium, Total (Dissolved)	100	1.3 U	--	--	1.3 U	--	--	--	--	1.3 U	--	--	--	1.3 U	--	--
Cobalt (Dissolved)	0.6	1.3 U	--	--	1.3 U	--	--	--	--	1.3 U	--	--	--	1.3 U	--	--
Copper (Dissolved)	80	1.4 U	--	--	1.4 U	--	--	--	--	1.4 U	--	--	--	1.4 U	--	--
Iron (Dissolved)	1400	42.4 U	--	--	42.4 U	--	--	--	--	42.4 U	--	--	--	42.4 U	--	--
Lead (Dissolved)	15	0.38 U	--	--	0.38 U	--	--	--	--	0.38 U	--	--	--	0.38 U	--	--
Magnesium (Dissolved)	--	11100	--	--	12800	--	--	--	--	11000	--	--	--	12100	--	--
Manganese (Dissolved)	43	2.5 U	--	--	2.5 U	--	--	--	--	3.2 J	--	--	--	3.4 J	--	--
Mercury (Dissolved)	0.05	0.17 U	--	--	0.17 U	--	--	--	--	0.17 U	--	--	--	0.17 U	--	--
Nickel (Dissolved)	39	1.4 U	--	--	1.4 U	--	--	--	--	1.4 U	--	--	--	1.4 U	--	--
Potassium (Dissolved)	--	410	--	--	511	--	--	--	--	419	--	--	--	397	--	--
Selenium (Dissolved)	10	0.73 U	--	--	0.73 U	--	--	--	--	0.73 U	--	--	--	0.73 U	--	--
Silver (Dissolved)	9.4	1.3 U	--	--	1.3 U	--	--	--	--	1.3 U	--	--	--	1.3 U	--	--
Sodium (Dissolved)	--	2020	--	--	2250	--	--	--	--	2070	--	--	--	10400	--	--
Thallium (Dissolved)	0.02	0.26 U	--	--	0.26 U	--	--	--	--	0.26 U	--	--	--	0.26 U	--	--
Vanadium (Dissolved)	8.6	1.9 U	--	--	1.9 U	--	--	--	--	1.9 U	--	--	--	1.9 U	--	--
Zinc (Dissolved)	600	7 U	--	--	7 U	--	--	--	--	7 U	--	--	--	7 U	--	--
Aluminum	2000	18.2 U	16.8 J	34.8 J	64.4	30 J	34.6 J	1610	38.6 J	23.1 J	95.3	5750	112	390	937	140
Antimony	0.78	0.62 U	0.76 U	0.62 U	0.62 U	0.76 U	0.76 U	0.62 U	0.62 U	0.62 U	0.76 U	0.62 U	0.62 U	0.62 U	0.76 U	0.62 U
Arsenic	0.052	0.64 U	0.95 J	0.64 U	0.64 U	0.71 U	0.71 U	1.8 J	2.2	0.64 U	1.2 J	3.7	0.64 U	0.87 J	0.88 J	0.64 U
Barium	380	88.8	104	77.1	116	78	81.2	183	73	91.3	98	219	88.7	104	125	77.9
Beryllium	2.5	0.24 U	0.29 U	0.24 U	0.24 U	0.29 U	0.29 U	0.24 U	0.24 U	0.24 U	0.29 U	0.24 U	0.24 U	0.24 U	0.29 U	0.24 U
Cadmium	0.92	0.71 U	0.72 U	0.71 U	0.71 U	0.72 U	0.72 U	0.71 U	0.71 U	0.71 U	0.72 U	0.71 U	0.71 U	0.71 U	0.72 U	0.71 U
Calcium	--	50000	50100	46800	53000	46500	47700	40000	42600	50400	50500	82100	55600	54600	43600	45600
Chromium, Total	100	1.3 U	1.5 U	1.3 U	1.3 U	1.5 U	1.5 U	1.4 J	1.3 U	1.3 U	1.5 U	3.4 J	1.3 U	1.3 U	1.5 U	1.3 U
Cobalt	0.6	1.3 U	1.5 U	1.3 U	1.3 U	1.5 U	1.5 U	2.4 J	1.3 U	1.3 U	1.5 U	2 J	1.3 U	1.3 U	1.5 U	1.3 U
Copper	80	1.4 U	1.6 U	1.4 U	1.4 U	2.2 J	11.7 J	6.2	1.4 U	1.4 U	1.6 U	5.7	1.4 U	1.4 U	2.6 J	1.4 U
Iron	1400	42.4 U	49.1 U	42.4 U	42.4 U	49.1 U	49.1 U	2910	42.4 U	42.4 U	79.5 J	4760	99.2 J	197	302	50.2 J
Lead	15	0.38 U	0.44 U	0.38 U	0.38 U	0.44 U	0.44 U	2.1	0.38 U	0.38 U	0.44 U	4.5	0.38 U	0.66 J	0.44 U	0.38 U
Magnesium	--	12000	12600	10600	13200	10700	11100	11300	10900	12300	11700	19500	12200	12700	10900	10300
Manganese	43	4.4 J	3 U	3 J	3.4 J	10.7	11	3750	5.7 J	7.1 J	4.1 J	127	3.3 J	8.1	17.8	2.5 U
Mercury	0.05	0.17 U	0.14 U	0.17 U	0.17 U	0.14 U	0.14 U	0.17 U	0.17 U	0.17 U	0.14 U	0.17 U	0.17 U	0.17 U	0.14 U	0.17 U
Nickel	39	1.4 U	1.6 U	1.4 U	1.4 U	1.6 U	1.6 U	2.3 J	1.4 U	1.4 U	1.6 U	3.9 J	1.4 U	2.1 J	1.6 U	1.4 U
Potassium	--	474	560	460	551	530	556	778	556	480	578	1250	499	443	785	459
Selenium	10	0.73 U	0.79 U	0.73 U	0.73 U	0.79 U	0.79 U	0.73 U	0.73 U	0.73 U	0.79 U	0.73 U	0.73 U	0.73 U	0.79 U	0.73 U
Silver	9.4	1.3 U	1.5 U	1.3 U	1.3 U	1.5 U	1.5 U	1.3 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U	1.3 U	1.5 U	1.3 U
Sodium	--	2190	2340	2360	2380	2030	2120	2340	1410	2250	6150	31000	26300	10700	6900	4490
Thallium	0.02	0.26 U	0.31 U	0.26 U	0.26 U	0.31 U	0.31 U	0.26 U	0.26 U	0.26 U	0.31 U	0.26 U	0.26 U	0.26 U	0.31 U	0.26 U
Vanadium	8.6	1.9 U	2.2 J	1.9 U	1.9 U	1.9 J	1.8 J	1.9 J	1.9 U	1.9 U	2.1 J	3.9 J	1.9 U	1.9 U	2.2 J	1.9 U
Zinc	600	7 U	6.5 U	7 U	7 U	6.5 U	6.5 U	18.9	7 U	14.1 J	6.5 U	19.2	7 U	9.1 J	6.5 U	7 U
PESTICIDES (µg/l)																
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA
Sample Location ID		CFSWP-012	CFSWP-009	CFSWP-009	CFSWP-009	CFSWP-013	CFSWP-013-DUP	CFSWP-013	CFSWP-013	CFSWP-013	CFSWP-021	CFSWP-021	CFSWP-021	CFSWP-021	CFSWP-022	CFSWP-022
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-012-SW	CFSWP-009-SW	CFSWP-009-SW	CFSWP-009-SW	CFSWP-013-SW	CFSWP-DUP1-SW	CFSWP-013-SW	CFSWP-013-SW	CFSWP-013-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-022-SW	CFSWP-022-SW
Chemical Name		6/12/2017	6/7/2016	4/3/2017	6/12/2017	6/7/2016	6/7/2016	11/30/2016	3/15/2017	6/12/2017	6/6/2016	11/30/2016	3/15/2017	6/15/2017	6/6/2016	4/3/2017
Aldrin	0.00049	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Endosulfan	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	0.008	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.00052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00079	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.00039	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.00018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.0022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (µg/l)																
PCB-1016 (Aroclor 1016)	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1221 (Aroclor 1221)	0.0047	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1232 (Aroclor 1232)	0.0047	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1242 (Aroclor 1242)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1248 (Aroclor 1248)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1254 (Aroclor 1254)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1260 (Aroclor 1260)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1262 (Aroclor 1262)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1268 (Aroclor 1268)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyl (PCBs)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane (P-Dioxane)	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	4.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	3.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	0.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.049	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	9.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol (O-Cresol)	93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3- And 4- Methylphenol (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	0.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl Phenyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	0.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA
Sample Location ID		CFSWP-012	CFSWP-009	CFSWP-009	CFSWP-009	CFSWP-013	CFSWP-013-DUP	CFSWP-013	CFSWP-013	CFSWP-013	CFSWP-021	CFSWP-021	CFSWP-021	CFSWP-021	CFSWP-022	CFSWP-022
Sample Name		CFSWP-012-SW	CFSWP-009-SW	CFSWP-009-SW	CFSWP-009-SW	CFSWP-013-SW	CFSWP-DUP1-SW	CFSWP-013-SW	CFSWP-013-SW	CFSWP-013-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-022-SW	CFSWP-022-SW
Chemical Name		6/12/2017	6/7/2016	4/3/2017	6/12/2017	6/7/2016	6/7/2016	11/30/2016	3/15/2017	6/12/2017	6/6/2016	11/30/2016	3/15/2017	6/15/2017	6/6/2016	4/3/2017
4-Chlorophenyl Phenyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetophenone	190	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	180	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Atrazine	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(A)Anthracene	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(A)Pyrene	0.025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(B)Fluoranthene	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(G,H,I)Perylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(K)Fluoranthene	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl Butyl Phthalate	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biphenyl (Diphenyl)	0.083	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy) Methane	5.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroisopropyl) Ether	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Caprolactam	990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(A,H)Anthracene	0.0012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	0.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl Phthalate	600	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-N-Butyl Phthalate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-N-Octylphthalate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.00079	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	0.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)Pyrene	0.012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isophorone	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-N-Propylamine	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	580	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.076	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	0.071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-Chloropropane	0.00033	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA
Sample Location ID		CFSWP-012	CFSWP-009	CFSWP-009	CFSWP-009	CFSWP-013	CFSWP-013-DUP	CFSWP-013	CFSWP-013	CFSWP-013	CFSWP-021	CFSWP-021	CFSWP-021	CFSWP-021	CFSWP-022	CFSWP-022
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-012-SW	CFSWP-009-SW	CFSWP-009-SW	CFSWP-009-SW	CFSWP-013-SW	CFSWP-DUP1-SW	CFSWP-013-SW	CFSWP-013-SW	CFSWP-013-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-021-SW	CFSWP-022-SW	CFSWP-022-SW
Chemical Name		6/12/2017	6/7/2016	4/3/2017	6/12/2017	6/7/2016	6/7/2016	11/30/2016	3/15/2017	6/12/2017	6/6/2016	11/30/2016	3/15/2017	6/15/2017	6/6/2016	4/3/2017
1,2-Dichlorobenzene	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	0.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	1400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromochloromethane	8.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	0.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	7.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	0.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cis-1,2-Dichloroethylene	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	1300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	0.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene (Cumene)	45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
M,P-Xylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Acetate	2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone (2-Butanone)	560	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylcyclohexane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
O-Xylene (1,2-Dimethylbenzene)	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tert-Butyl Methyl Ether	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene (PCE)	4.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	0.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	0.019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening le
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Location ID		CFSWP-014	CFSWP-014	CFSWP-014-DUP	CFSWP-014	CFSWP-014-DUP	CFSWP-014	CFSWP-015	CFSWP-015-DUP	CFSWP-015	CFSWP-015	CFSWP-015	CFSWP-015	CFSWP-015-DUP	CFSWP-016	CFSWP-016
Sample Name		CFSWP-014-SW	CFSWP-014-SW	CFSWP-DUP3-SW	CFSWP-014-SW	CFSWP-Dup4-SW	CFSWP-014-SW	CFSWP-015-SW	CFSWP-DUP2-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-DUP7-SW	CFSWP-016-SW	CFSWP-016-SW
Chemical Name		8/29/2016	11/30/2016	11/30/2016	3/13/2017	3/13/2017	6/13/2017	8/29/2016	8/29/2016	11/30/2016	12/20/2016	3/13/2017	6/13/2017	6/13/2017	8/29/2016	11/30/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	--	--	--	130 J+	--	--	--	--	--	121 J+	130 J+	--	--
Fluoride	80	55.8 J	117 J-	123 J-	126	134	137	62.4 J	62.3 J	119 J-	112 J-	129	135	136	58.8 J	123 J-
Cyanide (Dissolved)	0.15	--	--	--	--	--	2 U	--	--	--	--	--	2 U	2 U	--	--
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	1.5 U	--	--	--	--	--	1.5 U	1.5 U	--	--
Cyanide	0.15	2 U	15.3 J	2 UJ	2 U	2 U	2 U	2.3 J	2 U	10.6	2 U	2 U	2 U	2 U	2 U	2 U
Cyanide (Free)	--	--	--	--	1.5 U	1.5 U	1.5 U	--	--	--	--	1.5 U	1.5 U	1.5 U	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	--	--	--	--	--	18.2 U	--	--	--	--	--	18.2 U	18.2 U	--	--
Antimony (Dissolved)	0.78	--	--	--	--	--	0.62 U	--	--	--	--	--	0.62 U	0.62 U	--	--
Arsenic (Dissolved)	0.052	--	--	--	--	--	0.64 U	--	--	--	--	--	0.64 U	0.64 U	--	--
Barium (Dissolved)	380	--	--	--	--	--	88.5	--	--	--	--	--	93	96.3	--	--
Beryllium (Dissolved)	2.5	--	--	--	--	--	0.24 U	--	--	--	--	--	0.24 U	0.24 U	--	--
Cadmium (Dissolved)	0.92	--	--	--	--	--	0.71 U	--	--	--	--	--	0.71 U	0.71 U	--	--
Calcium (Dissolved)	--	--	--	--	--	--	50100	--	--	--	--	--	50500	50100	--	--
Chromium, Total (Dissolved)	100	--	--	--	--	--	1.3 U	--	--	--	--	--	1.3 U	1.3 U	--	--
Cobalt (Dissolved)	0.6	--	--	--	--	--	1.3 U	--	--	--	--	--	1.3 U	1.3 U	--	--
Copper (Dissolved)	80	--	--	--	--	--	1.4 U	--	--	--	--	--	1.4 U	1.4 U	--	--
Iron (Dissolved)	1400	--	--	--	--	--	42.4 U	--	--	--	--	--	42.4 U	42.4 U	--	--
Lead (Dissolved)	15	--	--	--	--	--	0.38 U	--	--	--	--	--	0.38 U	0.38 U	--	--
Magnesium (Dissolved)	--	--	--	--	--	--	11700	--	--	--	--	--	11700	11700	--	--
Manganese (Dissolved)	43	--	--	--	--	--	2.7 J	--	--	--	--	--	3.5 J	3.2 J	--	--
Mercury (Dissolved)	0.05	--	--	--	--	--	0.17 U	--	--	--	--	--	0.17 U	0.17 U	--	--
Nickel (Dissolved)	39	--	--	--	--	--	1.4 U	--	--	--	--	--	1.4 U	1.4 U	--	--
Potassium (Dissolved)	--	--	--	--	--	--	435	--	--	--	--	--	434	429	--	--
Selenium (Dissolved)	10	--	--	--	--	--	0.73 U	--	--	--	--	--	0.73 U	0.73 U	--	--
Silver (Dissolved)	9.4	--	--	--	--	--	1.3 U	--	--	--	--	--	1.3 U	12.8 U	--	--
Sodium (Dissolved)	--	--	--	--	--	--	2000	--	--	--	--	--	1960	1940	--	--
Thallium (Dissolved)	0.02	--	--	--	--	--	0.26 U	--	--	--	--	--	0.26 U	0.26 U	--	--
Vanadium (Dissolved)	8.6	--	--	--	--	--	1.9 U	--	--	--	--	--	1.9 U	1.9 U	--	--
Zinc (Dissolved)	600	--	--	--	--	--	7 U	--	--	--	--	--	7 U	7 U	--	--
Aluminum	2000	37.6 J	18.2 UJ	27.4 J	18.2 U	18.2 U	33.7 J	44.9	39.7 J	18.2 U	20 J	18.2 U	45.6	40	59.2	19.5 J
Antimony	0.78	0.62 U	0.62 U	0.62 U	0.64 J	0.62 J	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.67 J	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium	380	98.1	101	103	109	104	94.4	103	101	106	118	107	97.5	97.1	99.5	105
Beryllium	2.5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium	--	43100	52800	53300	55800	52800	50900	47500	44600	53100	56800	53500	51600	51700	44400	53100
Chromium, Total	100	1.3 U	1.3 U	1.3 U	37.7 J	2.4 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper	80	5.4	1.4 U	1.4 U	2.3 J	1.4 UJ	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Iron	1400	42.4 U	42.4 U	42.4 U	304 J	51.7 J	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U	42.4 U
Lead	15	0.41 J	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Magnesium	--	13500	13500	13900	13500	12400	12400	13600	13400	13600	14000	12500	12600	12700	13500	13900
Manganese	43	13.2	5.2 J	3.9 J	13.7 J	9.7 J	12.7	8.6 J	5.9 J	4 J	5.5 J	6.6 J	12.5	13	3.5 J	3.6 J
Mercury	0.05	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium	--	377	481	486	656	486	467	405	357	484	519	502	469	466	367	483
Selenium	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium	--	3240	2590	2660	5530 J	2490 J	2240 J+	2870	2620	2610	2940	2520	2250	2270	3260	2630
Thallium	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc	600	16.4	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
PESTICIDES (µg/l)																
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Location ID		CFSWP-014	CFSWP-014	CFSWP-014-DUP	CFSWP-014	CFSWP-014-DUP	CFSWP-014	CFSWP-015	CFSWP-015-DUP	CFSWP-015	CFSWP-015	CFSWP-015	CFSWP-015	CFSWP-015-DUP	CFSWP-016	CFSWP-016
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-014-SW	CFSWP-014-SW	CFSWP-DUP3-SW	CFSWP-014-SW	CFSWP-Dup4-SW	CFSWP-014-SW	CFSWP-015-SW	CFSWP-DUP2-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-DUP7-SW	CFSWP-016-SW	CFSWP-016-SW
Chemical Name		8/29/2016	11/30/2016	11/30/2016	3/13/2017	3/13/2017	6/13/2017	8/29/2016	8/29/2016	11/30/2016	12/20/2016	3/13/2017	6/13/2017	6/13/2017	8/29/2016	11/30/2016
Aldrin	0.00049	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Endosulfan	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	0.008	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.00052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00079	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.00039	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.00018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.0022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (µg/l)																
PCB-1016 (Aroclor 1016)	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1221 (Aroclor 1221)	0.0047	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1232 (Aroclor 1232)	0.0047	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1242 (Aroclor 1242)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1248 (Aroclor 1248)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1254 (Aroclor 1254)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1260 (Aroclor 1260)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1262 (Aroclor 1262)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1268 (Aroclor 1268)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyl (PCBs)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane (P-Dioxane)	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	4.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	3.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	0.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.049	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	9.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol (O-Cresol)	93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3- And 4- Methylphenol (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	0.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl Phenyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	0.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Location ID		CFSWP-014	CFSWP-014	CFSWP-014-DUP	CFSWP-014	CFSWP-014-DUP	CFSWP-014	CFSWP-015	CFSWP-015-DUP	CFSWP-015	CFSWP-015	CFSWP-015	CFSWP-015	CFSWP-015-DUP	CFSWP-016	CFSWP-016
Sample Name		CFSWP-014-SW	CFSWP-014-SW	CFSWP-DUP3-SW	CFSWP-014-SW	CFSWP-Dup4-SW	CFSWP-014-SW	CFSWP-015-SW	CFSWP-DUP2-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-DUP7-SW	CFSWP-016-SW	CFSWP-016-SW
Chemical Name		8/29/2016	11/30/2016	11/30/2016	3/13/2017	3/13/2017	6/13/2017	8/29/2016	8/29/2016	11/30/2016	12/20/2016	3/13/2017	6/13/2017	6/13/2017	8/29/2016	11/30/2016
4-Chlorophenyl Phenyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetophenone	190	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	180	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Atrazine	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(A)Anthracene	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(A)Pyrene	0.025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(B)Fluoranthene	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(G,H,I)Perylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(K)Fluoranthene	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl Butyl Phthalate	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biphenyl (Diphenyl)	0.083	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy) Methane	5.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroisopropyl) Ether	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Caprolactam	990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(A,H)Anthracene	0.0012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	0.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl Phthalate	600	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-N-Butyl Phthalate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-N-Octylphthalate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.00079	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	0.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)Pyrene	0.012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isophorone	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-N-Propylamine	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	580	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.076	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	0.071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-Chloropropane	0.00033	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Location ID		CFSWP-014	CFSWP-014	CFSWP-014-DUP	CFSWP-014	CFSWP-014-DUP	CFSWP-014	CFSWP-015	CFSWP-015-DUP	CFSWP-015	CFSWP-015	CFSWP-015	CFSWP-015	CFSWP-015-DUP	CFSWP-016	CFSWP-016
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-014-SW	CFSWP-014-SW	CFSWP-DUP3-SW	CFSWP-014-SW	CFSWP-Dup4-SW	CFSWP-014-SW	CFSWP-015-SW	CFSWP-DUP2-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-015-SW	CFSWP-DUP7-SW	CFSWP-016-SW	CFSWP-016-SW
Chemical Name		8/29/2016	11/30/2016	11/30/2016	3/13/2017	3/13/2017	6/13/2017	8/29/2016	8/29/2016	11/30/2016	12/20/2016	3/13/2017	6/13/2017	6/13/2017	8/29/2016	11/30/2016
1,2-Dichlorobenzene	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	0.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	1400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromochloromethane	8.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	0.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	7.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	0.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cis-1,2-Dichloroethylene	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	1300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	0.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene (Cumene)	45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
M,P-Xylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Acetate	2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone (2-Butanone)	560	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylcyclohexane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
O-Xylene (1,2-Dimethylbenzene)	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tert-Butyl Methyl Ether	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene (PCE)	4.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	0.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	0.019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening le
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Location ID		CFSWP-016	CFSWP-016	CFSWP-016-DUP	CFSWP-025	CFSWP-025	CFSWP-025	CFSWP-018	CFSWP-018	CFSWP-018	CFSWP-018	CFSWP-019	CFSWP-019	CFSWP-019	CFSWP-019	CFSWP-020
Sample Name		CFSWP-016-SW	CFSWP-016-SW	CFSWP-DUP6-SW	CFSWP-025-SW	CFSWP-025-SW	CFSWP-025-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-020-SW
Chemical Name		3/13/2017	6/12/2017	6/12/2017	12/20/2016	3/13/2017	6/13/2017	6/6/2016	12/1/2016	4/3/2017	6/15/2017	6/6/2016	12/1/2016	4/3/2017	6/15/2017	6/6/2016
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	131 J+	138 J+	--	--	130 J+	--	--	--	1860	--	--	--	304	--
Fluoride	80	132	135	137	115 J-	128	134	--	--	--	--	--	--	--	--	--
Cyanide (Dissolved)	0.15	--	2 U	2 U	--	--	2 U	--	--	--	68.2	--	--	--	2 U	--
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	0.15	2 U	2 U	2 U	2 U	2 U	2 U	4 U	2 U	--	77.2	4 U	2 U	2 U	2 U	12.5
Cyanide (Free)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS (µg/l)																
Aluminum (Dissolved)	2000	--	18.2 U	18.2 U	--	--	18.2 U	--	--	--	18.2 U	--	--	--	18.2 U	--
Antimony (Dissolved)	0.78	--	0.62 U	0.62 U	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--
Arsenic (Dissolved)	0.052	--	0.64 U	0.64 U	--	--	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U	--
Barium (Dissolved)	380	--	93.5	99.8	--	--	93.3	--	--	--	194	--	--	--	248	--
Beryllium (Dissolved)	2.5	--	0.24 U	0.24 U	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--
Cadmium (Dissolved)	0.92	--	0.71 U	0.71 U	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--
Calcium (Dissolved)	--	--	50300	50600	--	--	50400	--	--	--	49400	--	--	--	37800	--
Chromium, Total (Dissolved)	100	--	1.3 U	1.3 U	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--
Cobalt (Dissolved)	0.6	--	1.3 U	1.3 U	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--
Copper (Dissolved)	80	--	1.4 U	1.4 U	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U	--
Iron (Dissolved)	1400	--	42.4 U	42.4 U	--	--	42.4 U	--	--	--	60.5 J	--	--	--	42.4 U	--
Lead (Dissolved)	15	--	0.38 U	0.38 U	--	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U	--
Magnesium (Dissolved)	--	--	11400	11400	--	--	11700	--	--	--	14800	--	--	--	12700	--
Manganese (Dissolved)	43	--	3.4 J	3.2 J	--	--	3.1 J	--	--	--	2.5 U	--	--	--	2.5 U	--
Mercury (Dissolved)	0.05	--	0.17 U	0.17 U	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--
Nickel (Dissolved)	39	--	1.4 U	1.4 U	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U	--
Potassium (Dissolved)	--	--	439	436	--	--	421	--	--	--	970	--	--	--	752	--
Selenium (Dissolved)	10	--	0.73 U	0.73 U	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--
Silver (Dissolved)	9.4	--	1.3 U	1.3 U	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--
Sodium (Dissolved)	--	--	2070	2020	--	--	2010	--	--	--	23500	--	--	--	3670	--
Thallium (Dissolved)	0.02	--	0.26 U	0.26 U	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--
Vanadium (Dissolved)	8.6	--	1.9 U	1.9 U	--	--	1.9 U	--	--	--	1.9 U	--	--	--	1.9 U	--
Zinc (Dissolved)	600	--	7 U	7 U	--	--	7 U	--	--	--	7 U	--	--	--	7 U	--
Aluminum	2000	19.6 J	85.5	66.8	44.4	18.2 U	49.5	13.5 U	583	60.7	285	18.7 J	61.7	24.5 J	18.2 U	15.3 J
Antimony	0.78	0.78 J	0.62 U	0.62 U	0.62 U	0.74 J	0.62 U	0.76 U	0.62 U	0.62 U	0.62 U	0.76 U	0.62 U	0.62 U	0.62 U	0.76 U
Arsenic	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.71 J	0.64 U	0.64 U	0.64 U	0.71 U	0.64 U	0.64 U	0.64 U	0.71 U
Barium	380	106	98.8	99.4	122	110	94.7	268	225	237	237	265	156	244	250	305
Beryllium	2.5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.29 U	0.24 U	0.24 U	0.24 U	0.29 U	0.24 U	0.24 U	0.24 U	0.29 U
Cadmium	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.72 U	0.71 U	0.71 U	0.71 U	0.72 U	0.71 U	0.71 U	0.71 U	0.72 U
Calcium	--	53700	50500	51000	56700	54200	51100	48300	77000	46300	62400	49100	51000	45600	38000	45500
Chromium, Total	100	1.3 U	1.3 U	1.3 U	1.3 U	8.9	1.3 U	3.9 J	1.3 U	1.3 U	1.3 U	1.8 J	1.3 U	4.3	1.3 U	1.5 U
Cobalt	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U	1.3 U	1.5 U
Copper	80	1.4 U	1.9 J	1.4 U	1.4 U	1.4 U	1.4 U	2 J	9.8	1.9 J	5.3	3.3 J	1.6 J	1.8 J	1.4 U	1.8 J
Iron	1400	42.4 U	129 J	54.7 J	42.4 U	100 J	42.4 U	109 J	449	48.9 J	268	110 J	134	111 J	42.4 U	49.1 U
Lead	15	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.44 U	1.7	0.38 U	0.99 J	0.44 U	0.38 U	0.38 U	0.38 U	0.44 U
Magnesium	--	12600	12200	12400	13900	12700	12400	16200	17200	13900	16300	16200	16500	14000	13300	15600
Manganese	43	5.6 J	14.7	14	8.9	6.7 J	13.5	5.7 J	8.3	2.5 U	3.4 J	4.4 J	9.3	3.4 J	2.5 U	3 U
Mercury	0.05	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.14 U	0.17 U	0.17 U	0.17 U	0.14 U	0.17 U	0.17 U	0.17 U	0.14 U
Nickel	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.6 U	1.6 J	1.4 U	1.4 U	1.6 U	1.4 U	1.4 U	1.4 U	1.6 U
Potassium	--	495	477	479	528	509	456	797	600	700	1060	910	641	678	769	818
Selenium	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.79 U	0.73 U	0.73 U	0.73 U	0.79 U	0.73 U	0.73 U	0.73 U	0.79 U
Silver	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U	1.3 U	1.5 U	1.3 U	1.3 U	1.3 U	1.5 U
Sodium	--	2480	2200	2200	2880	2530	2250	5660	9290	4600	25800	5840	8710	4630	4330	5150
Thallium	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.31 U	0.26 U	0.26 U	0.26 U	0.31 U	0.26 U	0.26 U	0.26 U	0.31 U
Vanadium	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	2.1 J	1.9 U	1.9 U	1.9 U	2.1 J	1.9 U	1.9 U	1.9 U	2.1 J
Zinc	600	7 U	13.5 J	7 UJ	7 U	7 U	7 U	6.5 U	18.2	7 U	15.2 J	6.5 U	7 U	7 U	7 U	6.5 U
PESTICIDES (µg/l)																
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	0.004 U	--	--	--	--

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Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Location ID		CFSWP-016	CFSWP-016	CFSWP-016-DUP	CFSWP-025	CFSWP-025	CFSWP-025	CFSWP-018	CFSWP-018	CFSWP-018	CFSWP-018	CFSWP-019	CFSWP-019	CFSWP-019	CFSWP-019	CFSWP-020
Sample Name		CFSWP-016-SW	CFSWP-016-SW	CFSWP-DUP6-SW	CFSWP-025-SW	CFSWP-025-SW	CFSWP-025-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-020-SW
Chemical Name		3/13/2017	6/12/2017	6/12/2017	12/20/2016	3/13/2017	6/13/2017	6/6/2016	12/1/2016	4/3/2017	6/15/2017	6/6/2016	12/1/2016	4/3/2017	6/15/2017	6/6/2016
Aldrin	0.00049	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.0072	--	--	--	--	--	--	0.006 U	--	--	--	0.006 U	--	--	--	0.006 U
Alpha Endosulfan	20	--	--	--	--	--	--	0.005 U	--	--	--	0.005 U	--	--	--	0.005 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.025	--	--	--	--	--	--	0.005 U	--	--	--	0.005 U	--	--	--	0.005 U
Beta Endosulfan	20	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
cis-Chlordane	0.008	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	0.006 U	--	--	--	0.006 U	--	--	--	0.006 U
Dieldrin	0.00052	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Endosulfan Sulfate	20	--	--	--	--	--	--	0.005 U	--	--	--	0.005 U	--	--	--	0.005 U
Endrin	0.059	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Endrin Aldehyde	1	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Endrin Ketone	--	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Gamma Bhc (Lindane)	0.042	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Heptachlor	0.00079	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Heptachlor Epoxide	0.00039	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Methoxychlor	0.02	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
P,P'-DDD	0.0012	--	--	--	--	--	--	0.005 U	--	--	--	0.005 U	--	--	--	0.005 U
P,P'-DDE	0.00018	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
P,P'-DDT	0.0022	--	--	--	--	--	--	0.004 U	--	--	--	0.004 U	--	--	--	0.004 U
Toxaphene	0.007	--	--	--	--	--	--	0.06 U	--	--	--	0.06 U	--	--	--	0.06 U
trans-Chlordane	--	--	--	--	--	--	--	0.005 U	--	--	--	0.005 U	--	--	--	0.005 U
PCB's (µg/l)																
PCB-1016 (Aroclor 1016)	0.14	--	--	--	--	--	--	0.098 U	--	--	--	0.098 U	--	--	--	0.098 U
PCB-1221 (Aroclor 1221)	0.0047	--	--	--	--	--	--	0.098 U	--	--	--	0.098 U	--	--	--	0.098 U
PCB-1232 (Aroclor 1232)	0.0047	--	--	--	--	--	--	0.098 U	--	--	--	0.098 U	--	--	--	0.098 U
PCB-1242 (Aroclor 1242)	0.0078	--	--	--	--	--	--	0.098 U	--	--	--	0.098 U	--	--	--	0.098 U
PCB-1248 (Aroclor 1248)	0.0078	--	--	--	--	--	--	0.098 U	--	--	--	0.098 U	--	--	--	0.098 U
PCB-1254 (Aroclor 1254)	0.0078	--	--	--	--	--	--	0.084 U	--	--	--	0.084 U	--	--	--	0.084 U
PCB-1260 (Aroclor 1260)	0.0078	--	--	--	--	--	--	0.084 U	--	--	--	0.084 U	--	--	--	0.084 U
PCB-1262 (Aroclor 1262)	--	--	--	--	--	--	--	0.084 U	--	--	--	0.084 U	--	--	--	0.084 U
PCB-1268 (Aroclor 1268)	--	--	--	--	--	--	--	0.084 U	--	--	--	0.084 U	--	--	--	0.084 U
Polychlorinated Biphenyl (PCBs)	--	--	--	--	--	--	--	0.098 U	--	--	--	0.098 U	--	--	--	0.098 U
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	--	--	--	--	--	--	0.45 U	--	--	--	0.43 U	--	--	--	0.47 U
1,4-Dioxane (P-Dioxane)	0.46	--	--	--	--	--	--	3.2 U	--	--	--	3.1 U	--	--	--	3.4 U
2,3,4,6-Tetrachlorophenol	24	--	--	--	--	--	--	0.72 U	--	--	--	0.69 U	--	--	--	0.75 U
2,4,5-Trichlorophenol	120	--	--	--	--	--	--	0.51 U	--	--	--	0.49 U	--	--	--	0.53 U
2,4,6-Trichlorophenol	1.2	--	--	--	--	--	--	0.55 U	--	--	--	0.53 U	--	--	--	0.58 U
2,4-Dichlorophenol	4.6	--	--	--	--	--	--	0.66 U	--	--	--	0.63 U	--	--	--	0.68 U
2,4-Dimethylphenol	36	--	--	--	--	--	--	0.95 U	--	--	--	0.91 U	--	--	--	0.99 U
2,4-Dinitrophenol	3.9	--	--	--	--	--	--	2.5 U	--	--	--	2.4 U	--	--	--	2.6 U
2,4-Dinitrotoluene	0.24	--	--	--	--	--	--	1.1 U	--	--	--	1 U	--	--	--	1.1 U
2,6-Dinitrotoluene	0.049	--	--	--	--	--	--	0.92 U	--	--	--	0.88 U	--	--	--	0.96 U
2-Chloronaphthalene	75	--	--	--	--	--	--	0.64 U	--	--	--	0.61 U	--	--	--	0.66 U
2-Chlorophenol	9.1	--	--	--	--	--	--	0.77 U	--	--	--	0.74 U	--	--	--	0.8 U
2-Methylnaphthalene	3.6	--	--	--	--	--	--	0.92 U	--	--	--	0.88 U	--	--	--	0.96 U
2-Methylphenol (O-Cresol)	93	--	--	--	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.4 U
2-Nitroaniline	19	--	--	--	--	--	--	0.68 U	--	--	--	0.65 U	--	--	--	0.71 U
2-Nitrophenol	--	--	--	--	--	--	--	0.61 U	--	--	--	0.59 U	--	--	--	0.64 U
3- And 4- Methylphenol (Total)	--	--	--	--	--	--	--	0.92 U	--	--	--	0.88 U	--	--	--	0.96 U
3,3'-Dichlorobenzidine	0.13	--	--	--	--	--	--	1.1 U	--	--	--	1 U	--	--	--	1.1 U
3-Nitroaniline	--	--	--	--	--	--	--	0.85 U	--	--	--	0.82 U	--	--	--	0.89 U
4,6-Dinitro-2-Methylphenol	0.15	--	--	--	--	--	--	2.1 U	--	--	--	2 U	--	--	--	2.2 U
4-Bromophenyl Phenyl Ether	--	--	--	--	--	--	--	1.1 U	--	--	--	1 U	--	--	--	1.1 U
4-Chloro-3-Methylphenol	140	--	--	--	--	--	--	0.79 U	--	--	--	0.76 U	--	--	--	0.83 U
4-Chloroaniline	0.37	--	--	--	--	--	--	0.76 U	--	--	--	0.73 U	--	--	--	0.79 U

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Location ID		CFSWP-016	CFSWP-016	CFSWP-016-DUP	CFSWP-025	CFSWP-025	CFSWP-025	CFSWP-018	CFSWP-018	CFSWP-018	CFSWP-018	CFSWP-019	CFSWP-019	CFSWP-019	CFSWP-019	CFSWP-020
Sample Name		CFSWP-016-SW	CFSWP-016-SW	CFSWP-DUP6-SW	CFSWP-025-SW	CFSWP-025-SW	CFSWP-025-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-020-SW
Chemical Name		3/13/2017	6/12/2017	6/12/2017	12/20/2016	3/13/2017	6/13/2017	6/6/2016	12/1/2016	4/3/2017	6/15/2017	6/6/2016	12/1/2016	4/3/2017	6/15/2017	6/6/2016
4-Chlorophenyl Phenyl Ether	--	--	--	--	--	--	--	1 U	--	--	--	0.96 U	--	--	--	1 U
4-Nitroaniline	3.8	--	--	--	--	--	--	0.5 U	--	--	--	0.48 U	--	--	--	0.52 U
4-Nitrophenol	50	--	--	--	--	--	--	4.8 U	--	--	--	4.7 U	--	--	--	5.1 U
Acenaphthene	53	--	--	--	--	--	--	0.92 U	--	--	--	0.88 U	--	--	--	0.96 U
Acenaphthylene	--	--	--	--	--	--	--	0.68 U	--	--	--	0.65 U	--	--	--	0.71 U
Acetophenone	190	--	--	--	--	--	--	1.1 U	--	--	--	1 U	--	--	--	1.1 U
Anthracene	180	--	--	--	--	--	--	0.59 U	--	--	--	0.57 U	--	--	--	0.62 U
Atrazine	0.3	--	--	--	--	--	--	0.8 U	--	--	--	0.77 U	--	--	--	0.84 U
Benzaldehyde	19	--	--	--	--	--	--	0.9 U	--	--	--	0.86 U	--	--	--	0.93 U
Benzo(A)Anthracene	0.03	--	--	--	--	--	--	0.57 U	--	--	--	0.55 U	--	--	--	0.6 U
Benzo(A)Pyrene	0.025	--	--	--	--	--	--	0.17 U	--	--	--	0.16 U	--	--	--	0.17 U
Benzo(B)Fluoranthene	0.038	--	--	--	--	--	--	0.46 U	--	--	--	0.44 U	--	--	--	0.48 U
Benzo(G,H,I)Perylene	--	--	--	--	--	--	--	0.78 U	--	--	--	0.75 U	--	--	--	0.82 U
Benzo(K)Fluoranthene	0.038	--	--	--	--	--	--	0.19 U	--	--	--	0.18 U	--	--	--	0.2 U
Benzyl Butyl Phthalate	1	--	--	--	--	--	--	0.63 U	--	--	--	0.6 U	--	--	--	0.65 U
Biphenyl (Diphenyl)	0.083	--	--	--	--	--	--	0.66 U	--	--	--	0.63 U	--	--	--	0.68 U
Bis(2-Chloroethoxy) Methane	5.9	--	--	--	--	--	--	0.72 U	--	--	--	0.69 U	--	--	--	0.75 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	--	--	--	--	--	--	0.12 U	--	--	--	0.12 U	--	--	--	0.13 U
Bis(2-Chloroisopropyl) Ether	71	--	--	--	--	--	--	0.97 U	--	--	--	0.93 U	--	--	--	1 U
Bis(2-Ethylhexyl) Phthalate	3.2	--	--	--	--	--	--	0.75 U	--	--	--	0.72 U	--	--	--	0.78 U
Caprolactam	990	--	--	--	--	--	--	1.1 U	--	--	--	1.1 U	--	--	--	1.1 U
Carbazole	--	--	--	--	--	--	--	0.89 U	--	--	--	0.85 U	--	--	--	0.92 U
Chrysene	1.2	--	--	--	--	--	--	0.7 U	--	--	--	0.67 U	--	--	--	0.73 U
Dibenz(A,H)Anthracene	0.0012	--	--	--	--	--	--	0.094 U	--	--	--	0.09 U	--	--	--	0.098 U
Dibenzofuran	0.79	--	--	--	--	--	--	0.89 U	--	--	--	0.85 U	--	--	--	0.92 U
Diethyl Phthalate	600	--	--	--	--	--	--	1 U	--	--	--	1 U	--	--	--	1.1 U
Dimethyl Phthalate	2000	--	--	--	--	--	--	1 U	--	--	--	0.98 U	--	--	--	1.1 U
Di-N-Butyl Phthalate	20	--	--	--	--	--	--	0.85 U	--	--	--	0.82 U	--	--	--	0.89 U
Di-N-Octylphthalate	20	--	--	--	--	--	--	0.72 U	--	--	--	0.69 U	--	--	--	0.75 U
Fluoranthene	20	--	--	--	--	--	--	0.75 U	--	--	--	0.72 U	--	--	--	0.78 U
Fluorene	29	--	--	--	--	--	--	0.83 U	--	--	--	0.8 U	--	--	--	0.87 U
Hexachlorobenzene	0.00079	--	--	--	--	--	--	0.49 U	--	--	--	0.47 U	--	--	--	0.51 U
Hexachlorobutadiene	0.1	--	--	--	--	--	--	0.79 U	--	--	--	0.76 U	--	--	--	0.83 U
Hexachlorocyclopentadiene	0.041	--	--	--	--	--	--	0.64 U	--	--	--	0.61 U	--	--	--	0.66 U
Hexachloroethane	0.33	--	--	--	--	--	--	0.094 U	--	--	--	0.09 U	--	--	--	0.098 U
Indeno(1,2,3-C,D)Pyrene	0.012	--	--	--	--	--	--	0.22 U	--	--	--	0.21 U	--	--	--	0.23 U
Isophorone	78	--	--	--	--	--	--	0.7 U	--	--	--	0.67 U	--	--	--	0.73 U
Naphthalene	0.17	--	--	--	--	--	--	0.83 U	--	--	--	0.8 U	--	--	--	0.87 U
Nitrobenzene	0.14	--	--	--	--	--	--	0.51 U	--	--	--	0.49 U	--	--	--	0.53 U
N-Nitrosodi-N-Propylamine	0.011	--	--	--	--	--	--	0.86 U	--	--	--	0.83 U	--	--	--	0.9 U
N-Nitrosodiphenylamine	12	--	--	--	--	--	--	0.77 U	--	--	--	0.74 U	--	--	--	0.8 U
Pentachlorophenol	0.041	--	--	--	--	--	--	2.3 U	--	--	--	2.2 U	--	--	--	2.4 U
Phenanthrene	--	--	--	--	--	--	--	0.68 U	--	--	--	0.65 U	--	--	--	0.71 U
Phenol	580	--	--	--	--	--	--	0.43 U	--	--	--	0.41 U	--	--	--	0.45 U
Pyrene	12	--	--	--	--	--	--	0.86 U	--	--	--	0.83 U	--	--	--	0.9 U
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	--	--	--	--	--	--	0.28 U	--	--	--	0.28 U	--	--	--	0.28 U
1,1,2,2-Tetrachloroethane	0.076	--	--	--	--	--	--	0.19 U	--	--	--	0.19 U	--	--	--	0.19 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	--	--	--	--	--	--	0.34 U	--	--	--	0.34 U	--	--	--	0.34 U
1,1,2-Trichloroethane	0.041	--	--	--	--	--	--	0.08 U	--	--	--	0.08 U	--	--	--	0.08 U
1,1-Dichloroethane	2.8	--	--	--	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U
1,1-Dichloroethene	7	--	--	--	--	--	--	0.34 U	--	--	--	0.34 U	--	--	--	0.34 U
1,2,3-Trichlorobenzene	0.7	--	--	--	--	--	--	0.35 U	--	--	--	0.35 U	--	--	--	0.35 U
1,2,4-Trichlorobenzene	0.071	--	--	--	--	--	--	0.27 U	--	--	--	0.27 U	--	--	--	0.27 U
1,2-Dibromo-3-Chloropropane	0.00033	--	--	--	--	--	--	0.23 U	--	--	--	0.23 U	--	--	--	0.23 U
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	--	--	--	--	--	--	0.19 U	--	--	--	0.19 U	--	--	--	0.19 U

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Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA
Sample Location ID		CFSWP-016	CFSWP-016	CFSWP-016-DUP	CFSWP-025	CFSWP-025	CFSWP-025	CFSWP-018	CFSWP-018	CFSWP-018	CFSWP-018	CFSWP-019	CFSWP-019	CFSWP-019	CFSWP-019	CFSWP-020
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-016-SW	CFSWP-016-SW	CFSWP-DUP6-SW	CFSWP-025-SW	CFSWP-025-SW	CFSWP-025-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-018-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-019-SW	CFSWP-020-SW
Chemical Name		3/13/2017	6/12/2017	6/12/2017	12/20/2016	3/13/2017	6/13/2017	6/6/2016	12/1/2016	4/3/2017	6/15/2017	6/6/2016	12/1/2016	4/3/2017	6/15/2017	6/6/2016
1,2-Dichlorobenzene	30	--	--	--	--	--	--	0.22 U	--	--	--	0.22 U	--	--	--	0.22 U
1,2-Dichloroethane	0.17	--	--	--	--	--	--	0.25 U	--	--	--	0.25 U	--	--	--	0.25 U
1,2-Dichloropropane	0.14	--	--	--	--	--	--	0.18 U	--	--	--	0.18 U	--	--	--	0.18 U
1,3-Dichlorobenzene	7	--	--	--	--	--	--	0.33 U	--	--	--	0.33 U	--	--	--	0.33 U
1,4-Dichlorobenzene	0.48	--	--	--	--	--	--	0.33 U	--	--	--	0.33 U	--	--	--	0.33 U
2-Hexanone	3.8	--	--	--	--	--	--	0.72 U	--	--	--	0.72 U	--	--	--	0.72 U
Acetone	1400	--	--	--	--	--	--	1.1 U	--	--	--	1.1 U	--	--	--	1.1 U
Benzene	0.46	--	--	--	--	--	--	0.09 U	--	--	--	0.09 U	--	--	--	0.09 U
Bromochloromethane	8.3	--	--	--	--	--	--	0.3 U	--	--	--	0.3 U	--	--	--	0.3 U
Bromodichloromethane	0.13	--	--	--	--	--	--	0.15 U	--	--	--	0.15 U	--	--	--	0.15 U
Bromoform	3.3	--	--	--	--	--	--	0.18 U	--	--	--	0.18 U	--	--	--	0.18 U
Bromomethane	0.75	--	--	--	--	--	--	0.18 UJ	--	--	--	0.18 UJ	--	--	--	0.18 UJ
Carbon Disulfide	81	--	--	--	--	--	--	0.22 U	--	--	--	0.22 U	--	--	--	0.22 U
Carbon Tetrachloride	0.46	--	--	--	--	--	--	0.33 U	--	--	--	0.33 U	--	--	--	0.33 U
Chlorobenzene	7.8	--	--	--	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U
Chloroethane	2100	--	--	--	--	--	--	0.37 U	--	--	--	0.37 U	--	--	--	0.37 U
Chloroform	0.22	--	--	--	--	--	--	0.22 U	--	--	--	0.22 U	--	--	--	0.22 U
Chloromethane	19	--	--	--	--	--	--	0.22 U	--	--	--	0.22 U	--	--	--	0.22 U
Cis-1,2-Dichloroethylene	3.6	--	--	--	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U
Cis-1,3-Dichloropropene	3.4	--	--	--	--	--	--	0.16 U	--	--	--	0.16 U	--	--	--	0.16 U
Cyclohexane	1300	--	--	--	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U
Dibromochloromethane	0.87	--	--	--	--	--	--	0.22 U	--	--	--	0.22 U	--	--	--	0.22 U
Dichlorodifluoromethane	20	--	--	--	--	--	--	0.14 U	--	--	--	0.14 U	--	--	--	0.14 U
Ethylbenzene	1.5	--	--	--	--	--	--	0.3 U	--	--	--	0.3 U	--	--	--	0.3 U
Isopropylbenzene (Cumene)	45	--	--	--	--	--	--	0.32 U	--	--	--	0.32 U	--	--	--	0.32 U
M,P-Xylene	--	--	--	--	--	--	--	0.28 U	--	--	--	0.28 U	--	--	--	0.28 U
Methyl Acetate	2000	--	--	--	--	--	--	0.58 U	--	--	--	0.58 U	--	--	--	0.58 U
Methyl Ethyl Ketone (2-Butanone)	560	--	--	--	--	--	--	2.2 U	--	--	--	2.2 U	--	--	--	2.2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	--	--	--	--	--	--	0.63 U	--	--	--	0.63 U	--	--	--	0.63 U
Methylcyclohexane	--	--	--	--	--	--	--	0.22 U	--	--	--	0.22 U	--	--	--	0.22 U
Methylene Chloride	5	--	--	--	--	--	--	0.47 J	--	--	--	0.21 U	--	--	--	0.9 J
O-Xylene (1,2-Dimethylbenzene)	19	--	--	--	--	--	--	0.32 U	--	--	--	0.32 U	--	--	--	0.32 U
Styrene	100	--	--	--	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U
Tert-Butyl Methyl Ether	14	--	--	--	--	--	--	0.13 U	--	--	--	0.13 U	--	--	--	0.13 U
Tetrachloroethylene (PCE)	4.1	--	--	--	--	--	--	0.12 U	--	--	--	0.12 U	--	--	--	0.12 U
Toluene	57	--	--	--	--	--	--	0.25 U	--	--	--	0.25 U	--	--	--	0.25 U
Trans-1,2-Dichloroethene	36	--	--	--	--	--	--	0.18 U	--	--	--	0.18 U	--	--	--	0.18 U
Trans-1,3-Dichloropropene	2	--	--	--	--	--	--	0.19 U	--	--	--	0.19 U	--	--	--	0.19 U
Trichloroethylene (TCE)	0.28	--	--	--	--	--	--	0.22 U	--	--	--	0.22 U	--	--	--	0.22 U
Trichlorofluoromethane	520	--	--	--	--	--	--	0.15 U	--	--	--	0.15 U	--	--	--	0.15 U
Vinyl Chloride	0.019	--	--	--	--	--	--	0.06 U	--	--	--	0.06 U	--	--	--	0.06 U

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening le
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator

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Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA
Sample Location ID		CFSWP-020	CFSWP-020	CFSWP-020	CFSWP-001	CFSWP-001	CFSWP-001	CFSWP-001	CFSWP-002	CFSWP-002	CFSWP-002	CFSWP-002	CFSWP-006	CFSWP-006	CFSWP-006	CFSWP-006
Sample Name		CFSWP-020-SW	CFSWP-020-SW	CFSWP-020-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-006-SW	CFSWP-006-SW	CFSWP-006-SW	CFSWP-006-SW
Chemical Name		12/1/2016	3/16/2017	6/15/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017	6/14/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	289	--	--	--	118 J+	--	--	--	109 J+	--	--	--	119 J+
Fluoride	80	--	--	--	35.8 J-	211 J-	84.2	118	35.9 J-	547 J-	95	119	37.3 J	106 J-	122 J	122
Cyanide (Dissolved)	0.15	--	--	5.3 J	--	--	--	2 U	--	--	--	2 U	--	--	--	2 U
Cyanide (Free) (Dissolved)	--	--	--	1.7 J	--	--	--	--	--	--	--	--	--	--	--	1.6 J
Cyanide	0.15	16.4	11.3	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	2 U	3.2 J	2 U	2 U	2 U
Cyanide (Free)	--	--	9	2.1 J	--	--	--	--	--	--	--	--	--	--	1.5 U	1.5 U
METALS (µg/l)																
Aluminum (Dissolved)	2000	--	--	18.2 U	--	--	--	18.2 U	--	--	--	18.2 U	--	--	--	18.2 U
Antimony (Dissolved)	0.78	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U
Arsenic (Dissolved)	0.052	--	--	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U
Barium (Dissolved)	380	--	--	270	--	--	--	70.7	--	--	--	64.4	--	--	--	64.9
Beryllium (Dissolved)	2.5	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U
Cadmium (Dissolved)	0.92	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U
Calcium (Dissolved)	--	--	--	39800	--	--	--	19700	--	--	--	18400	--	--	--	18200
Chromium, Total (Dissolved)	100	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U
Cobalt (Dissolved)	0.6	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U
Copper (Dissolved)	80	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	3 J
Iron (Dissolved)	1400	--	--	42.4 U	--	--	--	42.4 U	--	--	--	42.4 U	--	--	--	42.4 U
Lead (Dissolved)	15	--	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U
Magnesium (Dissolved)	--	--	--	13200	--	--	--	4890	--	--	--	4520	--	--	--	4520
Manganese (Dissolved)	43	--	--	4.5 J	--	--	--	2.5 U	--	--	--	2.5 U	--	--	--	2.5 U
Mercury (Dissolved)	0.05	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U
Nickel (Dissolved)	39	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	1.4 U
Potassium (Dissolved)	--	--	--	619	--	--	--	257	--	--	--	246	--	--	--	240
Selenium (Dissolved)	10	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U
Silver (Dissolved)	9.4	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U
Sodium (Dissolved)	--	--	--	3860	--	--	--	706	--	--	--	583	--	--	--	562
Thallium (Dissolved)	0.02	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U
Vanadium (Dissolved)	8.6	--	--	1.9 U	--	--	--	1.9 U	--	--	--	1.9 U	--	--	--	1.9 U
Zinc (Dissolved)	600	--	--	7 U	--	--	--	7 U	--	--	--	7 U	--	--	--	7 U
Aluminum	2000	615	18.2 U	18.2 U	23.7 J	25.6 J	103	824	28.8 J	23.7 J	139	18.2 U	19.9 J	29.8 J	1540	1000
Antimony	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.64 J	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.66 J	0.62 U
Arsenic	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.88 J	0.64 U
Barium	380	424	239	275	107	102	98.4	83.4	102	101	97.2	68.3	105	99.7	103	82.7
Beryllium	2.5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium	--	73300	38700	41100	24200	25300	23600	20800	23200	24300	23700	18900	24200	24500	22000	19700
Chromium, Total	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	2 J	1.3 U
Cobalt	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Copper	80	4	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	2.2 J	1.7 J
Iron	1400	451	43.1 J	42.4 U	42.4 U	42.4 U	204	870	42.4 U	42.4 U	137	42.4 U	42.4 U	42.4 U	1600	1210
Lead	15	0.91 J	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.57 J	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	1.2	0.7 J
Magnesium	--	16500	12600	14000	6320	7060	6060	5770	6030	6750	6150	5040	6630	6750	6300	5620
Manganese	43	10.1	5.3 J	5.3 J	2.5 U	2.5 U	4.3 J	24.9	2.5 U	2.5 U	4.5 J	2.5 U	2.5 U	2.5 U	51.9	32.6
Mercury	0.05	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium	--	894	656	652	330	341	368	557	306	319	396	257	328	315	775	605
Selenium	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium	--	4860	4080	4570	1070	1200	1010	815	1030	1060	1030	712	1030	1150	1030	710
Thallium	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 J	1.9 U
Zinc	600	7 U	7 U	7 U	7 U	7 U	7 U	8.8 J	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
PESTICIDES (µg/l)																
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA
Sample Location ID		CFSWP-020	CFSWP-020	CFSWP-020	CFSWP-001	CFSWP-001	CFSWP-001	CFSWP-001	CFSWP-002	CFSWP-002	CFSWP-002	CFSWP-002	CFSWP-006	CFSWP-006	CFSWP-006	CFSWP-006
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-020-SW	CFSWP-020-SW	CFSWP-020-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-006-SW	CFSWP-006-SW	CFSWP-006-SW	CFSWP-006-SW
Chemical Name		12/1/2016	3/16/2017	6/15/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017	6/14/2017
Aldrin	0.00049	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Endosulfan	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	0.008	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.00052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00079	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.00039	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.00018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.0022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (µg/l)																
PCB-1016 (Aroclor 1016)	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1221 (Aroclor 1221)	0.0047	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1232 (Aroclor 1232)	0.0047	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1242 (Aroclor 1242)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1248 (Aroclor 1248)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1254 (Aroclor 1254)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1260 (Aroclor 1260)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1262 (Aroclor 1262)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1268 (Aroclor 1268)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyl (PCBs)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane (P-Dioxane)	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	4.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	3.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	0.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.049	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	9.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol (O-Cresol)	93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3- And 4- Methylphenol (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	0.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl Phenyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	0.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA
Sample Location ID		CFSWP-020	CFSWP-020	CFSWP-020	CFSWP-001	CFSWP-001	CFSWP-001	CFSWP-001	CFSWP-002	CFSWP-002	CFSWP-002	CFSWP-002	CFSWP-006	CFSWP-006	CFSWP-006	CFSWP-006
Sample Name		CFSWP-020-SW	CFSWP-020-SW	CFSWP-020-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-006-SW	CFSWP-006-SW	CFSWP-006-SW	CFSWP-006-SW
Chemical Name		12/1/2016	3/16/2017	6/15/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017	6/14/2017
4-Chlorophenyl Phenyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetophenone	190	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	180	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Atrazine	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(A)Anthracene	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(A)Pyrene	0.025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(B)Fluoranthene	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(G,H,I)Perylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(K)Fluoranthene	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl Butyl Phthalate	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biphenyl (Diphenyl)	0.083	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy) Methane	5.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroisopropyl) Ether	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Caprolactam	990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(A,H)Anthracene	0.0012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	0.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl Phthalate	600	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-N-Butyl Phthalate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-N-Octylphthalate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.00079	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	0.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)Pyrene	0.012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isophorone	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-N-Propylamine	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	580	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.076	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	0.071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-Chloropropane	0.00033	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA
Sample Location ID		CFSWP-020	CFSWP-020	CFSWP-020	CFSWP-001	CFSWP-001	CFSWP-001	CFSWP-001	CFSWP-002	CFSWP-002	CFSWP-002	CFSWP-002	CFSWP-006	CFSWP-006	CFSWP-006	CFSWP-006
Sample Name	CFAC Site-Specific Human Health Surface Water (µg/l)	CFSWP-020-SW	CFSWP-020-SW	CFSWP-020-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-001-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-002-SW	CFSWP-006-SW	CFSWP-006-SW	CFSWP-006-SW	CFSWP-006-SW
Chemical Name		12/1/2016	3/16/2017	6/15/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017	6/14/2017
1,2-Dichlorobenzene	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	0.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	1400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromochloromethane	8.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	0.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	7.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	0.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cis-1,2-Dichloroethylene	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	1300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	0.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene (Cumene)	45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
M,P-Xylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Acetate	2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone (2-Butanone)	560	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylcyclohexane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
O-Xylene (1,2-Dimethylbenzene)	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tert-Butyl Methyl Ether	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene (PCE)	4.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	0.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	0.019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening le
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA
Sample Location ID		CFSWP-007	CFSWP-007	CFSWP-007	CFSWP-007	CFSWP-008	CFSWP-008	CFSWP-008	CFSWP-008	CFSWP-003	CFSWP-003	CFSWP-003	CFSWP-003	CFSWP-004	CFSWP-004	CFSWP-004
Sample Name		CFSWP-007-SW	CFSWP-007-SW	CFSWP-007-SW	CFSWP-007-SW	CFSWP-008-SW	CFSWP-008-SW	CFSWP-008-SW	CFSWP-008-SW	CFSWP-003-SW	CFSWP-003-SW	CFSWP-003-SW	CFSWP-003-SW	CFSWP-004-SW	CFSWP-004-SW	CFSWP-004-SW
Chemical Name		9/16/2016	12/2/2016	3/16/2017	6/14/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017
GENERAL CHEMISTRY (µg/l)																
Fluoride (Dissolved)	80	--	--	--	118 J+	--	--	--	117 J+	--	--	--	185 J+	--	--	--
Fluoride	80	33.8 J-	110 J-	114 J	123	33.5 J-	107 J-	96.8	124	--	--	--	--	--	--	--
Cyanide (Dissolved)	0.15	--	--	--	2 U	--	--	--	2 U	--	--	--	12.5	--	--	--
Cyanide (Free) (Dissolved)	--	--	--	--	--	--	--	--	--	--	--	--	5.4	--	--	--
Cyanide	0.15	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	18.8	36.2	7.7 J	9.5 J	209	178	21.3
Cyanide (Free)	--	--	--	--	--	--	--	--	--	--	--	1.5 U	3.5 J	--	--	6.4
METALS (µg/l)																
Aluminum (Dissolved)	2000	--	--	--	18.2 U	--	--	--	18.2 U	--	--	--	18.2 U	--	--	--
Antimony (Dissolved)	0.78	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--	0.62 U	--	--	--
Arsenic (Dissolved)	0.052	--	--	--	0.64 U	--	--	--	0.64 U	--	--	--	0.64 U	--	--	--
Barium (Dissolved)	380	--	--	--	64	--	--	--	63.7	--	--	--	70.2	--	--	--
Beryllium (Dissolved)	2.5	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--	0.24 U	--	--	--
Cadmium (Dissolved)	0.92	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--	0.71 U	--	--	--
Calcium (Dissolved)	--	--	--	--	18300	--	--	--	18200	--	--	--	20500	--	--	--
Chromium, Total (Dissolved)	100	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--
Cobalt (Dissolved)	0.6	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--
Copper (Dissolved)	80	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	26.4	--	--	--
Iron (Dissolved)	1400	--	--	--	42.4 U	--	--	--	42.4 U	--	--	--	164	--	--	--
Lead (Dissolved)	15	--	--	--	0.38 U	--	--	--	0.38 U	--	--	--	0.38 U	--	--	--
Magnesium (Dissolved)	--	--	--	--	4460	--	--	--	4510	--	--	--	5150	--	--	--
Manganese (Dissolved)	43	--	--	--	2.5 U	--	--	--	2.5 U	--	--	--	12.5	--	--	--
Mercury (Dissolved)	0.05	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--	0.17 U	--	--	--
Nickel (Dissolved)	39	--	--	--	1.4 U	--	--	--	1.4 U	--	--	--	32.2	--	--	--
Potassium (Dissolved)	--	--	--	--	255	--	--	--	237	--	--	--	286	--	--	--
Selenium (Dissolved)	10	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--	0.73 U	--	--	--
Silver (Dissolved)	9.4	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--	1.3 U	--	--	--
Sodium (Dissolved)	--	--	--	--	574	--	--	--	570	--	--	--	2160	--	--	--
Thallium (Dissolved)	0.02	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--	0.26 U	--	--	--
Vanadium (Dissolved)	8.6	--	--	--	1.9 U	--	--	--	1.9 U	--	--	--	1.9 U	--	--	--
Zinc (Dissolved)	600	--	--	--	7 U	--	--	--	7 U	--	--	--	7 U	--	--	--
Aluminum	2000	28.9 J	54.5	1460	879	33.9 J	31 J	133	18.2 U	63.5	172	794	746	522	53.3	625
Antimony	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.64 J	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic	0.052	0.64 U	0.64 U	0.84 J	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.78 J	0.64 U	0.64 U
Barium	380	102	102	102	81.9	103	103	98.6	62.8	117	118	99.3	85.8	197	173	103
Beryllium	2.5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium	--	23100	24500	21700	19300	23200	25400	24400	17600	27700	30000	23200	21900	60700	52400	26200
Chromium, Total	100	1.3 U	1.3 U	2 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 J	1.3 U	1.3 U	1.3 U	1.3 J
Cobalt	0.6	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 J	1.3 U	1.3 U
Copper	80	1.4 U	1.4 U	3.4 J	1.4 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 J	1.8 J	1.4 U
Iron	1400	42.4 U	42.4 U	1640	1090	42.4 U	42.4 U	127	42.4 U	135	294	868	802	827	238	611
Lead	15	0.38 U	0.38 U	1.2	0.68 J	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.63 J	0.5 J	0.48 J	2.9	0.55 J
Magnesium	--	6010	6780	6280	5500	6050	7110	6300	4670	7650	8430	6350	6080	18200	15100	7110
Manganese	43	2.5 U	3.9 J	52	31.8	2.5 U	2.5 U	4.6 J	2.5 U	10.9	30.4	25.6	31.1	57.1	57.9	24
Mercury	0.05	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel	39	1.4 U	1.4 U	1.4 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium	--	311	313	748	547	317	309	378	242	398	476	580	551	1120	833	581
Selenium	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium	--	951	1040	1030	677	958	1140	1080	666	3780	5990	2050	2050	36400	26100	4780
Thallium	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc	600	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
PESTICIDES (µg/l)																
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA
Sample Location ID		**CFSWP-007**	**CFSWP-007**	**CFSWP-007**	**CFSWP-007**	**CFSWP-008**	**CFSWP-008**	**CFSWP-008**	**CFSWP-008**	**CFSWP-003**	**CFSWP-003**	**CFSWP-003**	**CFSWP-003**	**CFSWP-004**	**CFSWP-004**	**CFSWP-004**
Sample Name	**CFAC Site-Specific Human Health Surface Water (µg/l)**	**CFSWP-007-SW**	**CFSWP-007-SW**	**CFSWP-007-SW**	**CFSWP-007-SW**	**CFSWP-008-SW**	**CFSWP-008-SW**	**CFSWP-008-SW**	**CFSWP-008-SW**	**CFSWP-003-SW**	**CFSWP-003-SW**	**CFSWP-003-SW**	**CFSWP-003-SW**	**CFSWP-004-SW**	**CFSWP-004-SW**	**CFSWP-004-SW**
Chemical Name		**9/16/2016**	**12/2/2016**	**3/16/2017**	**6/14/2017**	**9/16/2016**	**12/2/2016**	**4/4/2017**	**6/14/2017**	**9/9/2016**	**12/1/2016**	**3/16/2017**	**6/14/2017**	**9/9/2016**	**12/1/2016**	**3/16/2017**
Aldrin	0.00049	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alpha Endosulfan	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beta Endosulfan	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	0.008	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.00052	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan Sulfate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.042	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.00079	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.00039	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDD	0.0012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDE	0.00018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P,P'-DDT	0.0022	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toxaphene	0.007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB's (µg/l)																
PCB-1016 (Aroclor 1016)	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1221 (Aroclor 1221)	0.0047	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1232 (Aroclor 1232)	0.0047	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1242 (Aroclor 1242)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1248 (Aroclor 1248)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1254 (Aroclor 1254)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1260 (Aroclor 1260)	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1262 (Aroclor 1262)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB-1268 (Aroclor 1268)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyl (PCBs)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)																
1,2,4,5-Tetrachlorobenzene	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dioxane (P-Dioxane)	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	4.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	3.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	0.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	0.049	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	9.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol (O-Cresol)	93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3- And 4- Methylphenol (Total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	0.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl Phenyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	0.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA
Sample Location ID		CFSWP-007	CFSWP-007	CFSWP-007	CFSWP-007	CFSWP-008	CFSWP-008	CFSWP-008	CFSWP-008	CFSWP-003	CFSWP-003	CFSWP-003	CFSWP-003	CFSWP-004	CFSWP-004	CFSWP-004
Sample Name	**CFAC Site-Specific Human Health Surface Water (µg/l)**	CFSWP-007-SW	CFSWP-007-SW	CFSWP-007-SW	CFSWP-007-SW	CFSWP-008-SW	CFSWP-008-SW	CFSWP-008-SW	CFSWP-008-SW	CFSWP-003-SW	CFSWP-003-SW	CFSWP-003-SW	CFSWP-003-SW	CFSWP-004-SW	CFSWP-004-SW	CFSWP-004-SW
Chemical Name		9/16/2016	12/2/2016	3/16/2017	6/14/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017
4-Chlorophenyl Phenyl Ether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitroaniline	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetophenone	190	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	180	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Atrazine	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(A)Anthracene	0.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(A)Pyrene	0.025	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(B)Fluoranthene	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(G,H,I)Perylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(K)Fluoranthene	0.038	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl Butyl Phthalate	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biphenyl (Diphenyl)	0.083	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy) Methane	5.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Chloroisopropyl) Ether	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Caprolactam	990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(A,H)Anthracene	0.0012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	0.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl Phthalate	600	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-N-Butyl Phthalate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-N-Octylphthalate	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	0.00079	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	0.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)Pyrene	0.012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isophorone	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-N-Propylamine	0.011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	580	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOLATILE ORGANIC COMPOUNDS (µg/l)																
1,1,1-Trichloroethane	200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.076	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	0.041	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	0.071	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-Chloropropane	0.00033	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA
Sample Location ID		CFSWP-007	CFSWP-007	CFSWP-007	CFSWP-007	CFSWP-008	CFSWP-008	CFSWP-008	CFSWP-008	CFSWP-003	CFSWP-003	CFSWP-003	CFSWP-003	CFSWP-004	CFSWP-004	CFSWP-004
Sample Name	**CFAC Site-Specific Human Health Surface Water (µg/l)**	CFSWP-007-SW	CFSWP-007-SW	CFSWP-007-SW	CFSWP-007-SW	CFSWP-008-SW	CFSWP-008-SW	CFSWP-008-SW	CFSWP-008-SW	CFSWP-003-SW	CFSWP-003-SW	CFSWP-003-SW	CFSWP-003-SW	CFSWP-004-SW	CFSWP-004-SW	CFSWP-004-SW
Chemical Name		9/16/2016	12/2/2016	3/16/2017	6/14/2017	9/16/2016	12/2/2016	4/4/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017	6/14/2017	9/9/2016	12/1/2016	3/16/2017
1,2-Dichlorobenzene	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	0.17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	0.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	0.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	1400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromochloromethane	8.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromomethane	0.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	7.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	0.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloromethane	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cis-1,2-Dichloroethylene	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	1300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibromochloromethane	0.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene (Cumene)	45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
M,P-Xylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Acetate	2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone (2-Butanone)	560	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylcyclohexane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene Chloride	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
O-Xylene (1,2-Dimethylbenzene)	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tert-Butyl Methyl Ether	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene (PCE)	4.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene (TCE)	0.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	520	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	0.019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening le
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area Sample Location ID Sample Name Chemical Name	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-004 CFSWP-004-SW 6/14/2017	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 9/9/2016	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 12/1/2016	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 3/16/2017	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 6/14/2017
GENERAL CHEMISTRY (µg/l)						
Fluoride (Dissolved)	80	167 J+	--	--	--	558 J+
Fluoride	80	--	--	--	--	--
Cyanide (Dissolved)	0.15	11.7	--	--	--	162
Cyanide (Free) (Dissolved)	--	5.6	--	--	--	42.2
Cyanide	0.15	11.5	213	192	24.7	197
Cyanide (Free)	--	4.1 J	--	--	8	45.6
METALS (µg/l)						
Aluminum (Dissolved)	2000	18.2 U	--	--	--	18.2 U
Antimony (Dissolved)	0.78	0.62 U	--	--	--	0.62 U
Arsenic (Dissolved)	0.052	0.64 U	--	--	--	0.64 U
Barium (Dissolved)	380	67.7	--	--	--	98.3
Beryllium (Dissolved)	2.5	0.24 U	--	--	--	0.24 U
Cadmium (Dissolved)	0.92	0.71 U	--	--	--	0.71 U
Calcium (Dissolved)	--	19900	--	--	--	32700
Chromium, Total (Dissolved)	100	1.3 U	--	--	--	1.3 U
Cobalt (Dissolved)	0.6	1.3 U	--	--	--	1.3 U
Copper (Dissolved)	80	1.4 U	--	--	--	1.4 U
Iron (Dissolved)	1400	42.4 U	--	--	--	56 J
Lead (Dissolved)	15	0.38 U	--	--	--	0.38 U
Magnesium (Dissolved)	--	4990	--	--	--	8770
Manganese (Dissolved)	43	8.2	--	--	--	27.1
Mercury (Dissolved)	0.05	0.17 U	--	--	--	0.17 U
Nickel (Dissolved)	39	1.4 U	--	--	--	1.4 U
Potassium (Dissolved)	--	268	--	--	--	521
Selenium (Dissolved)	10	0.73 U	--	--	--	0.73 U
Silver (Dissolved)	9.4	1.3 U	--	--	--	1.3 U
Sodium (Dissolved)	--	1850	--	--	--	14300
Thallium (Dissolved)	0.02	0.26 U	--	--	--	0.26 U
Vanadium (Dissolved)	8.6	1.9 U	--	--	--	1.9 U
Zinc (Dissolved)	600	7 U	--	--	--	7 U
Aluminum	2000	619	143	94.3	521	553
Antimony	0.78	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
Arsenic	0.052	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
Barium	380	81.3	192	179	107	116
Beryllium	2.5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Cadmium	0.92	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U
Calcium	--	21000	60200	62600	27900	37000
Chromium, Total	100	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt	0.6	1.3 U	1.3 U	1.3 J	1.3 U	1.3 U
Copper	80	1.4 U	1.6 J	1.4 U	1.4 U	1.4 U
Iron	1400	629	256	266	502	704
Lead	15	0.38 J	0.38 U	0.38 U	0.41 J	0.39 J
Magnesium	--	5880	17800	17900	7370	10800
Manganese	43	23.9	15.7	21.2	24.1	43.2
Mercury	0.05	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Nickel	39	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Potassium	--	495	1020	1060	561	762
Selenium	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
Silver	9.4	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Sodium	--	2060	36900	35600	5240	18200
Thallium	0.02	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Vanadium	8.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Zinc	600	7 U	19.9	7 U	7 U	7 U
PESTICIDES (µg/l)						
Endrin	0.059	--	--	--	--	--

Preliminary - Under EPA and MDEQ Review

Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area Sample Location ID Sample Name Chemical Name	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-004 CFSWP-004-SW 6/14/2017	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 9/9/2016	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 12/1/2016	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 3/16/2017	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 6/14/2017
Aldrin	0.00049	--	--	--	--	--
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.0072	--	--	--	--	--
Alpha Endosulfan	20	--	--	--	--	--
Beta Bhc (Beta Hexachlorocyclohexane)	0.025	--	--	--	--	--
Beta Endosulfan	20	--	--	--	--	--
cis-Chlordane	0.008	--	--	--	--	--
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	--	--	--
Dieldrin	0.00052	--	--	--	--	--
Endosulfan Sulfate	20	--	--	--	--	--
Endrin	0.059	--	--	--	--	--
Endrin Aldehyde	1	--	--	--	--	--
Endrin Ketone	--	--	--	--	--	--
Gamma Bhc (Lindane)	0.042	--	--	--	--	--
Heptachlor	0.00079	--	--	--	--	--
Heptachlor Epoxide	0.00039	--	--	--	--	--
Methoxychlor	0.02	--	--	--	--	--
P,P'-DDD	0.0012	--	--	--	--	--
P,P'-DDE	0.00018	--	--	--	--	--
P,P'-DDT	0.0022	--	--	--	--	--
Toxaphene	0.007	--	--	--	--	--
trans-Chlordane	--	--	--	--	--	--
PCB's (µg/l)						
PCB-1016 (Aroclor 1016)	0.14	--	--	--	--	--
PCB-1221 (Aroclor 1221)	0.0047	--	--	--	--	--
PCB-1232 (Aroclor 1232)	0.0047	--	--	--	--	--
PCB-1242 (Aroclor 1242)	0.0078	--	--	--	--	--
PCB-1248 (Aroclor 1248)	0.0078	--	--	--	--	--
PCB-1254 (Aroclor 1254)	0.0078	--	--	--	--	--
PCB-1260 (Aroclor 1260)	0.0078	--	--	--	--	--
PCB-1262 (Aroclor 1262)	--	--	--	--	--	--
PCB-1268 (Aroclor 1268)	--	--	--	--	--	--
Polychlorinated Biphenyl (PCBs)	--	--	--	--	--	--
SEMIVOLATILE ORGANIC COMPOUNDS (µg/l)						
1,2,4,5-Tetrachlorobenzene	0.03	--	--	--	--	--
1,4-Dioxane (P-Dioxane)	0.46	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	24	--	--	--	--	--
2,4,5-Trichlorophenol	120	--	--	--	--	--
2,4,6-Trichlorophenol	1.2	--	--	--	--	--
2,4-Dichlorophenol	4.6	--	--	--	--	--
2,4-Dimethylphenol	36	--	--	--	--	--
2,4-Dinitrophenol	3.9	--	--	--	--	--
2,4-Dinitrotoluene	0.24	--	--	--	--	--
2,6-Dinitrotoluene	0.049	--	--	--	--	--
2-Chloronaphthalene	75	--	--	--	--	--
2-Chlorophenol	9.1	--	--	--	--	--
2-Methylnaphthalene	3.6	--	--	--	--	--
2-Methylphenol (O-Cresol)	93	--	--	--	--	--
2-Nitroaniline	19	--	--	--	--	--
2-Nitrophenol	--	--	--	--	--	--
3- And 4- Methylphenol (Total)	--	--	--	--	--	--
3,3'-Dichlorobenzidine	0.13	--	--	--	--	--
3-Nitroaniline	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	0.15	--	--	--	--	--
4-Bromophenyl Phenyl Ether	--	--	--	--	--	--
4-Chloro-3-Methylphenol	140	--	--	--	--	--
4-Chloroaniline	0.37	--	--	--	--	--

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Table C-3
Summary of Surface Water Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area Sample Location ID Sample Name Chemical Name	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-004 CFSWP-004-SW 6/14/2017	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 9/9/2016	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 12/1/2016	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 3/16/2017	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 6/14/2017
4-Chlorophenyl Phenyl Ether	--	--	--	--	--	--
4-Nitroaniline	3.8	--	--	--	--	--
4-Nitrophenol	50	--	--	--	--	--
Acenaphthene	53	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--
Acetophenone	190	--	--	--	--	--
Anthracene	180	--	--	--	--	--
Atrazine	0.3	--	--	--	--	--
Benzaldehyde	19	--	--	--	--	--
Benzo(A)Anthracene	0.03	--	--	--	--	--
Benzo(A)Pyrene	0.025	--	--	--	--	--
Benzo(B)Fluoranthene	0.038	--	--	--	--	--
Benzo(G,H,I)Perylene	--	--	--	--	--	--
Benzo(K)Fluoranthene	0.038	--	--	--	--	--
Benzyl Butyl Phthalate	1	--	--	--	--	--
Biphenyl (Diphenyl)	0.083	--	--	--	--	--
Bis(2-Chloroethoxy) Methane	5.9	--	--	--	--	--
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.014	--	--	--	--	--
Bis(2-Chloroisopropyl) Ether	71	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	3.2	--	--	--	--	--
Caprolactam	990	--	--	--	--	--
Carbazole	--	--	--	--	--	--
Chrysene	1.2	--	--	--	--	--
Dibenz(A,H)Anthracene	0.0012	--	--	--	--	--
Dibenzofuran	0.79	--	--	--	--	--
Diethyl Phthalate	600	--	--	--	--	--
Dimethyl Phthalate	2000	--	--	--	--	--
Di-N-Butyl Phthalate	20	--	--	--	--	--
Di-N-Octylphthalate	20	--	--	--	--	--
Fluoranthene	20	--	--	--	--	--
Fluorene	29	--	--	--	--	--
Hexachlorobenzene	0.00079	--	--	--	--	--
Hexachlorobutadiene	0.1	--	--	--	--	--
Hexachlorocyclopentadiene	0.041	--	--	--	--	--
Hexachloroethane	0.33	--	--	--	--	--
Indeno(1,2,3-C,D)Pyrene	0.012	--	--	--	--	--
Isophorone	78	--	--	--	--	--
Naphthalene	0.17	--	--	--	--	--
Nitrobenzene	0.14	--	--	--	--	--
N-Nitrosodi-N-Propylamine	0.011	--	--	--	--	--
N-Nitrosodiphenylamine	12	--	--	--	--	--
Pentachlorophenol	0.041	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--
Phenol	580	--	--	--	--	--
Pyrene	12	--	--	--	--	--
VOLATILE ORGANIC COMPOUNDS (µg/l)						
1,1,1-Trichloroethane	200	--	--	--	--	--
1,1,2,2-Tetrachloroethane	0.076	--	--	--	--	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	1000	--	--	--	--	--
1,1,2-Trichloroethane	0.041	--	--	--	--	--
1,1-Dichloroethane	2.8	--	--	--	--	--
1,1-Dichloroethene	7	--	--	--	--	--
1,2,3-Trichlorobenzene	0.7	--	--	--	--	--
1,2,4-Trichlorobenzene	0.071	--	--	--	--	--
1,2-Dibromo-3-Chloropropane	0.00033	--	--	--	--	--
1,2-Dibromoethane (Ethylene Dibromide)	0.0075	--	--	--	--	--

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Sample Investigation Area Sample Location ID Sample Name Chemical Name	CFAC Site-Specific Human Health Surface Water (µg/l)	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-004 CFSWP-004-SW 6/14/2017	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 9/9/2016	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 12/1/2016	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 3/16/2017	Exp Area 9A BACKWATER SEEP SAMPLING AREA CFSWP-005 CFSWP-005-SW 6/14/2017
1,2-Dichlorobenzene	30	--	--	--	--	--
1,2-Dichloroethane	0.17	--	--	--	--	--
1,2-Dichloropropane	0.14	--	--	--	--	--
1,3-Dichlorobenzene	7	--	--	--	--	--
1,4-Dichlorobenzene	0.48	--	--	--	--	--
2-Hexanone	3.8	--	--	--	--	--
Acetone	1400	--	--	--	--	--
Benzene	0.46	--	--	--	--	--
Bromochloromethane	8.3	--	--	--	--	--
Bromodichloromethane	0.13	--	--	--	--	--
Bromoform	3.3	--	--	--	--	--
Bromomethane	0.75	--	--	--	--	--
Carbon Disulfide	81	--	--	--	--	--
Carbon Tetrachloride	0.46	--	--	--	--	--
Chlorobenzene	7.8	--	--	--	--	--
Chloroethane	2100	--	--	--	--	--
Chloroform	0.22	--	--	--	--	--
Chloromethane	19	--	--	--	--	--
Cis-1,2-Dichloroethylene	3.6	--	--	--	--	--
Cis-1,3-Dichloropropene	3.4	--	--	--	--	--
Cyclohexane	1300	--	--	--	--	--
Dibromochloromethane	0.87	--	--	--	--	--
Dichlorodifluoromethane	20	--	--	--	--	--
Ethylbenzene	1.5	--	--	--	--	--
Isopropylbenzene (Cumene)	45	--	--	--	--	--
M,P-Xylene	--	--	--	--	--	--
Methyl Acetate	2000	--	--	--	--	--
Methyl Ethyl Ketone (2-Butanone)	560	--	--	--	--	--
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	630	--	--	--	--	--
Methylcyclohexane	--	--	--	--	--	--
Methylene Chloride	5	--	--	--	--	--
O-Xylene (1,2-Dimethylbenzene)	19	--	--	--	--	--
Styrene	100	--	--	--	--	--
Tert-Butyl Methyl Ether	14	--	--	--	--	--
Tetrachloroethylene (PCE)	4.1	--	--	--	--	--
Toluene	57	--	--	--	--	--
Trans-1,2-Dichloroethene	36	--	--	--	--	--
Trans-1,3-Dichloropropene	2	--	--	--	--	--
Trichloroethylene (TCE)	0.28	--	--	--	--	--
Trichlorofluoromethane	520	--	--	--	--	--
Vinyl Chloride	0.019	--	--	--	--	--

Notes:
µg/l = micrograms per liter
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening le
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-4
Summary of Sediment Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		UPSTREAM BACKGROUND	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID		CFSDP-017	CFSDP-023	CFSDP-023-DUP	CFSDP-024	CFSDP-010	CFSDP-011	CFSDP-012	CFSDP-012-DUP	CFSDP-009	CFSDP-013	CFSDP-021	CFSDP-022	CFSDP-014	CFSDP-015	CFSDP-016
Sample Lab IDs		200-35201-19, 460-119897-5	200-35201-11, 460-119830-1	460-119830-6	200-35201-12, 460-119830-2	200-35201-5, 460-119741-2	200-35201-6, 460-119741-3	200-35201-7, 460-119741-4	460-119741-6	200-35201-4, 460-119741-1	200-35201-8, 460-119741-5	200-35201-9, 460-119741-7	200-35201-10, 460-119741-8	200-35201-1, 460-119363-1	200-35201-2, 460-119363-2	200-35201-3, 460-119363-3
Sample Name	CFAC Site-Specific Human Health Sediment (mg/kg)	CFSDP-017-SO	CFSDP-023-SD	CFSDP-DUP2-SD	CFSDP-024-SD	CFSDP-010-SO	CFSDP-011-SO	CFSDP-012-SO	CFSDP-DUP1-SO	CFSDP-009-SO	CFSDP-013-SO	CFSDP-021-SO	CFSDP-022-SO	CFSDP-014-SD	CFSDP-015-SD	CFSDP-016-SD
Sample Depth		0-0.5 ft	--	--	--	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	--	--	--
Chemical Name		9/8/2016	9/7/2016	9/7/2016	9/7/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	8/29/2016	8/29/2016	8/29/2016
GENERAL CHEMISTRY (mg/kg)																
Fluoride	310	0.83 J	56.6 J	59.3 J	219	4.27	1.62	1.3	1.57	1.62	1.81	2.6	3.79	1.63 J+	1.41 J+	1.71 J+
Cyanide	2.3	0.038 U	0.096 J	0.88 J	7.8 J-	0.85	0.3	0.56	0.57	0.34	1.5	0.24	0.84	0.24 J	0.15 J	0.15 J
Fluoride	310	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals (mg/kg)																
Aluminum	7700	8010	20800	22100	112000	22700	14700	20700	21400	17400	18400	15500	34700	10300	8250	9100
Antimony	3.1	0.34 UJ	0.39 UJ	0.53 J-	2.6 J-	0.37 UJ	0.32 UJ	0.34 UJ	0.34 UJ	0.32 UJ	0.46 UJ	0.31 UJ	0.44 UJ	0.06 U	0.84 U	0.93 U
Arsenic	0.68	3.6	7.6	7.6	26.4	4.3	5.2	5.5	5.8	6.8	4.1	7.6	6.2	2.3 J	2.1 J	2.3 J
Barium	1500	104	539	469	317	257	180	251	255	295	290	191	905	173	151	165
Beryllium	16	0.34 J	1.6	1.5	4.5	0.98	0.64	0.8	0.85	0.66	1	0.62	1.1	0.43 J	0.34 J	0.4 J
Cadmium	7.1	0.36 U	2.7	2.6	8	0.39 U	0.33 U	0.36 U	0.36 U	0.34 U	0.48 U	0.33 U	0.47 U	0.91 U	0.89 U	0.99 U
Calcium	--	15200	106000	102000	33400	30100	23500	21700	20600	11500	28500	11000	10900	13800	14800	16400
Chromium, Total	--	9.8	53	52.1	42.3	14.9	11.8	14.1	15.2	11.8	15	9.1	11.3	9.7	7.7	8.3
Cobalt	2.3	5.8	5.3	5.4	18.5	8.3	7.5	8.4	8.6	5.8	7.6	5.6	4	4.2 J	3.2 J	3.5 J
Copper	310	10.2	56.4	58.6	83.6	23.3	20.1	20.8	22.3	19.8	27.8	12.3	32.1	13.6	12.2	13.6
Iron	5500	14500	2940	3030	9040	18800	16800	19500	20200	14100	16300	14000	12700	10100	7770	8680
Lead	400	6	24.8	24.6	109	18.2	13	18.5	18.1	13	17.4	10.6	14.6	7.6	6.1	6.8
Magnesium	--	10500	2660	2740	4020	11500	12200	10400	10600	8750	11500	5690	5590	7710	5410	6010
Manganese	180	225	24.8	25.2	74.7	640	1070	1250	1280	517	1140	234	175	280	272	302
Mercury	1.1	0.014 U	0.028	0.03	0.1	0.045	0.029	0.045	0.043	0.038	0.045	0.012 J	0.025 J	0.032 J	0.036 J	0.044 J
Nickel	150	12.1	208	215	771	43.8 J+	23.7 J+	28.9 J+	30 J+	16 J+	18.1 J+	9.8 J+	13.3 J+	8.6	6.9	7.1
Potassium	--	709	351	403	1150	1330	922	1290	1290	978	1700	1040	1180	789	613	672
Selenium	39	0.32 U	0.89 J	0.95 J	3.4 J	0.46 J	0.29 U	0.34 J	0.35 J	0.54 J	1.4 J	0.29 U	0.81 J	0.8 U	0.78 U	0.87 U
Silver	39	0.67 U	0.76 U	0.72 U	1 J	0.73 U	0.62 U	0.67 U	0.67 U	0.62 U	0.89 U	0.61 U	0.86 U	1.7 U	1.6 U	1.8 U
Sodium	--	46.6 U	177	183	840	104 J	60 J	71.5 J	72.4 J	171	120 J	152	477	116 U	128 J	148 J
Thallium	0.078	0.14 U	0.26 J	0.28 J	1.2 J	0.1[illegible]	0.13 U	0.14 U	0.14 U	0.13 U	0.18 U	0.12 U	0.17 U	0.34 U	0.33 U	0.37 U
Vanadium	39	20.9	66.1	63.3	233	18	11.5	14	14.5	12.1	11.6	11	13.3	7.2	5.4	5.9
Zinc	2300	37	349	351	871	129	128	81.1	82.3	59	89.8	41.6	41	47	37.3	48.9
PESTICIDES (mg/kg)																
Aldrin	0.039	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U	0.00099 U	0.0011 U	0.001 U	0.00097 U	0.0015 U	0.00093 U	0.0013 U	0.0025 U	0.002 U	0.0027 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.086	0.00082 U	0.00089 U	0.00086 U	0.0009[illegible] U	0.00084 U	0.00074 U	0.00079 U	0.00079 U	0.00072 U	0.0011 U	0.0007 U	0.00097 U	0.0019 U	0.002 U	0.002 U
Alpha Endosulfan	--	0.0013 U	0.0013 U	0.0012 U	0.0014 U	0.0013 U	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.0017 U	0.0011 U	0.0015 U	0.0029 U	0.003 U	0.0031 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.3	0.00088 U	0.0009[illegible] U	0.0009[illegible] U	0.0[illegible] U	0.0009 U	0.00079 U	0.00085 U	0.00084 U	0.00078 U	0.0012 U	0.00075 U	0.001 U	0.002 U	0.002 U	0.0022 U
Beta Endosulfan	--	0.0014 U	0.0015 U	0.0015 U	[illegible] U	0.0015 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0019 U	0.0012 U	0.0017 U	0.0023 U	0.003 U	0.0035 U
cis-Chlordane	--	0.0015 U	0.0015 U	0.0015 U	0.0017 U	0.0015 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.002 U	0.0013 U	0.0017 U	0.0034 U	0.003 U	0.0036 U
Delta BHC (Delta Hexachlorocyclohexane)	--	0.00099 U	0.001 U	0.001 U	0.0011 U	0.001 U	0.00089 U	0.00095 U	0.00094 U	0.00087 U	0.0013 U	0.00084 U	0.0012 U	0.0023 U	0.002 U	0.0024 U
Dieldrin	0.034	0.0012 U	0.0012 U	0.0012 U	0.0013 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.001 U	0.0016 U	0.01 U	0.0014 U	0.0027 U	0.003 U	0.0029 U
Endosulfan Sulfate	--	0.0011 U	0.0011 U	0.0[illegible] U	0.0012 U	0.0011 U	0.00095 U	0.001 U	0.001 U	0.00093 U	0.0014 U	0.0009 U	0.0012 U	0.0025 U	0.002 U	0.0026 U
Endrin	1.9	0.0011 U	0.0012 U	0.0012 U	0.0013 U	0.0012 U	0.001 U	0.0011 U	0.0011 U	0.001 U	0.0015 U	0.00088 U	0.0013 U	0.0027 U	0.003 U	0.0028 U
Endrin Aldehyde	--	0.0011 U	0.0012 U	0.0012 U	0.0013 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.00099 U	0.0015 U	0.00085 U	0.0013 U	0.0026 U	0.003 U	0.0028 U
Endrin Ketone	--	0.0013 U	0.0013 U	0.0013 U	0.0014 U	0.0013 U	0.0011 U	0.0012 U	0.0012 U	0.0011 U	0.0017 U	0.0011 U	0.0015 U	0.0029 U	0.003 U	0.0031 U
Gamma Bhc (Lindane)	0.57	0.00081 U	0.00084 U	0.00084 U	0.00092 U	0.00083 U	0.00073 U	0.00078 U	0.00077 U	0.00072 U	0.0011 U	0.00069 U	0.00095 U	0.0019 U	0.002 U	0.002 U
Heptachlor	0.13	0.0012 U	0.0012 U	0.0012 U	0.0013 U	0.0012 U	0.001 U	0.0011 U	0.0011 U	0.001 U	0.0016 U	0.00099 U	0.0014 U	0.0027 U	0.003 U	0.0029 U
Heptachlor Epoxide	0.07	0.0018 U	0.0018 U	0.0018 U	0.002 U	0.0018 U	0.0016 U	0.0017 U	0.0017 U	0.0016 U	0.0024 U	0.0015 U	0.0021 U	0.0041 U	0.004 U	0.0044 U
Methoxychlor	32	0.0019 U	0.002 U	0.002 U	0.0022 U	0.002 U	0.0017 U	0.0018 U	0.0018 U	0.0017 U	0.0026 U	0.0016 U	0.0022 U	0.0045 U	0.004 U	0.0048 U
P,P'-DDD	2.3	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0016 U	0.001 U	0.0014 U	0.0028 U	0.003 U	0.0029 U
P,P'-DDE	2	0.0013 U	0.0014 U	0.0014 U	0.0015 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0012 U	0.0018 U	0.0011 U	0.0015 U	0.003 U	0.003 U	0.0032 U
P,P'-DDT	1.9	0.00093 U	0.00096 U	0.00097 U	0.0011 U	0.00096 U	0.00084 U	0.0009 U	0.00089 U	0.00083 U	0.0012 U	0.00079 U	0.0011 U	0.0022 U	0.002 U	0.0023 U
Toxaphene	0.49	0.026 U	0.027 U	0.027 U	0.03 U	0.027 U	0.024 U	0.025 U	0.025 U	0.023 U	0.035 U	0.022 U	0.031 U	0.061 U	0.059 U	0.065 U
trans-Chlordane	--	0.002 U	0.002 U	0.002 U	0.0022 U	0.002 U	0.0018 U	0.0019 U	0.0019 U	0.0017 U	0.0026 U	0.0017 U	0.0023 U	0.0046 U	0.004 U	0.0049 U
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.41	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.016 U	0.01 U	0.014 U	0.028 U	0.027 U	0.03 U
PCB-1221 (Aroclor 1221)	0.2	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.016 U	0.01 U	0.014 U	0.028 U	0.027 U	0.03 U
PCB-1232 (Aroclor 1232)	0.17	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.016 U	0.01 U	0.014 U	0.028 U	0.027 U	0.03 U
PCB-1242 (Aroclor 1242)	0.23	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.016 U	0.01 U	0.014 U	0.028 U	0.027 U	0.03 U

Preliminary - Under EPA and MDEQ Review

Table C-4
Summary of Sediment Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		UPSTREAM BACKGROUND	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID		CFSDP-017	CFSDP-023	CFSDP-023-DUP	CFSDP-024	CFSDP-010	CFSDP-011	CFSDP-012	CFSDP-012-DUP	CFSDP-009	CFSDP-013	CFSDP-021	CFSDP-022	CFSDP-014	CFSDP-015	CFSDP-016
Sample Lab IDs		200-35201-19, 460-119897-5	200-35201-11, 460-119830-1	460-119830-6	200-35201-12, 460-119830-2	200-35201-5, 460-119741-2	200-35201-6, 460-119741-3	200-35201-7, 460-119741-4	460-119741-6	200-35201-4, 460-119741-1	200-35201-8, 460-119741-5	200-35201-9, 460-119741-7	200-35201-10, 460-119741-8	200-35201-1, 460-119363-1	200-35201-2, 460-119363-2	200-35201-3, 460-119363-3
Sample Name	CFAC Site-Specific Human Health Sediment (mg/kg)	CFSDP-017-SO	CFSDP-023-SD	CFSDP-DUP2-SD	CFSDP-024-SD	CFSDP-010-SO	CFSDP-011-SO	CFSDP-012-SO	CFSDP-DUP1-SO	CFSDP-009-SO	CFSDP-013-SO	CFSDP-021-SO	CFSDP-022-SO	CFSDP-014-SD	CFSDP-015-SD	CFSDP-016-SD
Sample Depth		0-0.5 ft	--	--	--	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	--	--	--
Chemical Name		9/8/2016	9/7/2016	9/7/2016	9/7/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	8/29/2016	8/29/2016	8/29/2016
PCB-1248 (Aroclor 1248)	0.23	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.016 U	0.01 U	0.014 U	0.028 U	0.027 U	0.03 U
PCB-1254 (Aroclor 1254)	0.12	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.011 U	0.012 U	0.012 U	0.011 U	0.017 U	0.011 U	0.015 U	0.029 U	0.028 U	0.031 U
PCB-1260 (Aroclor 1260)	0.24	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.011 U	0.012 U	0.012 U	0.011 U	0.017 U	0.011 U	0.015 U	0.029 U	0.028 U	0.031 U
PCB-1262 (Aroclor 1262)	--	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.011 U	0.012 U	0.012 U	0.011 U	0.017 U	0.011 U	0.015 U	0.029 U	0.028 U	0.031 U
PCB-1268 (Aroclor 1268)	--	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.011 U	0.012 U	0.012 U	0.011 U	0.017 U	0.011 U	0.015 U	0.029 U	0.028 U	0.031 U
Polychlorinated Biphenyl (PCBs)	--	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.011 U	0.012 U	0.012 U	0.011 U	0.017 U	0.011 U	0.015 U	0.029 U	0.028 U	0.031 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																
1,2,4,5-Tetrachlorobenzene	2.3	0.033 U	0.17 U	0.34 U	0.76 U	0.034 U	0.03 U	0.032 U	0.03 U	0.029 U	0.044 U	0.028 U	0.039 U	0.077 U	0.074 U	0.082 U
1,4-Dioxane (P-Dioxane)	5.3	0.12 U	0.62 U	1.2 U	2.7 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.16 U	0.1 U	0.14 U	0.28 U	0.27 U	0.3 U
2,3,4,6-Tetrachlorophenol	190	0.042 U	0.22 U	0.44 U	0.96 U	0.043 U	0.038 U	0.04 U	0.04 U	0.037 U	0.056 UJ	0.036 U	0.049 U	0.098 U	0.094 U	0.1 U
2,4,5-Trichlorophenol	630	0.044 U	0.23 U	0.46 U	1 U	0.046 U	0.04 U	0.043 U	0.042 U	0.039 U	0.059 UJ	0.038 U	0.052 U	0.1 U	0.099 U	0.11 U
2,4,6-Trichlorophenol	6.3	0.013 U	0.066 U	0.13 U	0.29 U	0.013 U	0.011 U	0.012 U	0.012 U	0.011 U	0.017 UJ	0.011 U	0.015 U	0.03 U	0.028 U	0.031 U
2,4-Dichlorophenol	19	0.011 U	0.054 U	0.11 U	0.24 U	0.011 U	0.0095 U	0.01 U	0.01 U	0.0093 U	0.014 UJ	0.009 U	0.012 U	0.024 U	0.024 U	0.026 U
2,4-Dimethylphenol	130	0.098 U	0.51 U	1 U	2.2 U	0.1 U	0.089 U	0.09 U	0.094 U	0.087 U	0.13 UJ	0.083 U	0.12 U	0.23 U	0.22 U	0.24 U
2,4-Dinitrophenol	13	0.34 U	1.7 U	3.5 U	7.7 U	0.35 U	0.31 U	0.32 U	0.32 U	0.3 UJ	0.45 UR	0.29 UJ	0.4 U	0.78 UJ	0.75 UJ	0.84 UJ
2,4-Dinitrotoluene	1.7	0.018 U	0.091 U	0.18 U	0.4 U	0.018 U	0.016 U	0.017 U	0.017 U	0.016 U	0.024 UJ	0.015 U	0.021 U	0.041 U	0.04 U	0.044 U
2,6-Dinitrotoluene	0.36	0.024 U	0.12 U	0.25 U	0.54 U	0.024 U	0.021 U	0.023 U	0.023 U	0.021 U	0.032 UJ	0.02 U	0.028 U	0.055 U	0.053 U	0.059 U
2-Chloronaphthalene	480	0.01 U	0.052 U	0.1 U	0.23 U	0.01 U	0.0092 U	0.0098 U	0.0097 U	0.009 U	0.014 UJ	0.0096 U	0.012 U	0.024 U	0.023 U	0.025 U
2-Chlorophenol	39	0.011 U	0.059 U	0.12 U	0.26 U	0.012 U	0.01 U	0.011 U	0.011 U	0.01 U	0.015 UJ	0.0096 U	0.013 U	0.026 U	0.025 U	0.028 U
2-Methylnaphthalene	24	0.0038 U	0.13 J	0.15 J	0.52 J	0.01 U	0.032 J	0.0095 U	0.0094 U	0.0087 U	0.013 UJ	0.0094 U	0.012 U	0.023 U	0.022 U	0.024 U
2-Methylphenol (O-Cresol)	320	0.019 U	0.1 U	0.2 U	0.44 U	0.02 U	0.018 U	0.019 U	0.019 U	0.017 U	0.026 UJ	0.017 U	0.023 U	0.045 U	0.043 U	0.048 U
2-Nitroaniline	63	0.015 U	0.076 U	0.15 U	0.34 U	0.015 U	0.013 U	0.014 U	0.014 U	0.013 U	0.02 U	0.013 U	0.017 U	0.034 U	0.032 U	0.036 U
2-Nitrophenol	--	0.015 U	0.078 U	0.16 U	0.34 U	0.015 U	0.014 U	0.014 U	0.014 U	0.013 U	0.02 UJ	0.013 U	0.018 U	0.035 U	0.034 U	0.037 U
3- And 4- Methylphenol (Total)	--	0.012 U	0.061 U	0.12 U	0.27 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.016 UJ	0.01 U	0.014 U	0.028 U	0.027 U	0.029 U
3,3'-Dichlorobenzidine	1.2	0.05 U	0.26 U	0.52 U	1.1 U	0.051 U	0.045 U	0.048 U	0.048 U	0.044 U	0.067 UJ	0.042 U	0.058 U	0.12 U	0.11 U	0.12 U
3-Nitroaniline	--	0.013 U	0.068 U	0.14 U	0.3 U	0.013 U	0.012 U	0.013 U	0.013 U	0.012 U	0.018 U	0.011 U	0.016 U	0.031 U	0.03 U	0.033 U
4,6-Dinitro-2-Methylphenol	0.51	0.12 U	0.62 U	1.2 U	2.7 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.16 UJ	0.1 U	0.14 U	0.28 U	0.27 U	0.29 U
4-Bromophenyl Phenyl Ether	--	0.014 U	0.073 U	0.15 U	0.32 U	0.014 U	0.013 U	0.014 U	0.013 U	0.012 U	0.019 U	0.012 U	0.016 U	0.033 U	0.031 U	0.035 U
4-Chloro-3-Methylphenol	630	0.019 U	0.099 U	0.2 U	0.44 U	0.02 U	0.017 U	0.018 U	0.018 U	0.017 U	0.026 UJ	0.016 U	0.023 U	0.045 U	0.043 U	0.047 U
4-Chloroaniline	2.7	0.011 U	0.13 J	0.12 U	0.26 U	0.012 U	0.01 U	0.011 U	0.011 U	0.01 U	0.015 U	0.0098 U	0.013 U	0.027 U	0.026 U	0.028 U
4-Chlorophenyl Phenyl Ether	--	0.013 U	0.069 U	0.14 U	0.3 U	0.014 U	0.012 U	0.013 U	0.013 U	0.012 U	0.018 UJ	0.011 U	0.016 U	0.031 U	0.03 U	0.033 U
4-Nitroaniline	25	0.017 U	0.087 U	0.18 U	0.39 U	0.017 U	0.015 U	0.016 U	0.016 U	0.015 U	0.023 UJ	0.014 U	0.02 U	0.039 U	0.038 U	0.042 U
4-Nitrophenol	--	0.21 U	1.1 U	2.2 U	5 U	0.22 U	0.19 U	0.21 U	0.2 U	0.19 UJ	0.29 UJ	0.18 UJ	0.25 UJ	0.5 U	0.48 U	0.53 U
Acenaphthene	360	0.011 U	0.28 J	0.32 J	4.1 J	0.043 J	0.075 J	0.046 J	0.037 J	0.0096 U	0.014 UJ	0.0092 U	0.013 U	0.025 U	0.024 U	0.027 U
Acenaphthylene	--	0.011 U	0.086 J	0.12 U	0.26 U	0.012 U	0.01 U	0.011 U	0.011 U	0.01 U	0.015 UJ	0.0092 U	0.013 U	0.027 U	0.026 U	0.028 U
Acetophenone	780	0.0097 U	0.05 U	0.1 U	0.22 U	0.011 J	0.0088 U	0.0094 U	0.0093 U	0.0086 U	0.013 U	0.0083 U	0.011 U	0.023 U	0.022 U	0.024 U
Anthracene	1800	0.042 U	1.7 J	1.3 J	9.9 J	0.082 J	0.14 J	0.096 J	0.083 J	0.038 U	0.057 UJ	0.036 U	0.05 U	0.099 U	0.095 U	0.1 U
Atrazine	2.4	0.02 U	0.1 U	0.2 U	0.45 U	0.02 U	0.018 U	0.019 U	0.019 U	0.018 U	0.027 U	0.017 U	0.023 U	0.046 U	0.044 U	0.049 U
Benzaldehyde	170	0.034 U	0.18 U	0.35 U	0.77 U	0.069 J	0.031 U	0.033 U	0.032 U	0.02 U	0.046 UJ	0.029 U	0.04 U	0.079 U	0.15 J	0.17 J
Benzo(A)Anthracene	1.1	0.037 U	14	15	76	0.82	0.74	0.64	0.55	0.1	0.093 J-	0.032 U	0.074	0.087 U	0.083 U	0.12
Benzo(A)Pyrene	0.11	0.013 U	19	21	100	1.1	0.94	0.83	0.74	0.12	0.11 J-	0.021 J	0.091	0.031 U	0.043 J	0.094 J
Benzo(B)Fluoranthene	1.1	0.017 U	40	55	210	1.8	1.3	1.2	1.1	0.21	0.19 J-	0.036 J	0.15	0.04 U	0.039 U	0.12
Benzo(G,H,I)Perylene	--	0.026 U	13	20	150	1.3	0.84	0.77	0.69	0.11 J	0.13 J	0.027 J	0.1 J	0.06 U	0.057 U	0.081 J
Benzo(K)Fluoranthene	11	0.019 U	17	18	64	0.47	0.49	0.45	0.45	0.069	0.051 J-	0.017 U	0.053	0.045 U	0.043 U	0.048 U
Benzyl Butyl Phthalate	290	0.014 U	0.071 U	0.14 U	0.31 U	0.014 U	0.012 U	0.031 J	0.027 J	0.012 U	0.018 U	0.012 U	0.016 U	0.032 U	0.031 U	0.034 U
Biphenyl (Diphenyl)	4.7	0.038 U	0.2 U	0.4 U	0.87 U	0.039 U	0.034 U	0.037 U	0.036 U	0.034 U	0.051 U	0.032 U	0.045 U	0.089 U	0.085 U	0.094 U
Bis(2-Chloroethoxy) Methane	19	0.014 U	0.072 U	0.14 U	0.32 U	0.014 U	0.012 U	0.013 U	0.013 U	0.012 U	0.019 UJ	0.012 U	0.016 U	0.032 U	0.031 U	0.034 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.23	0.011 U	0.054 U	0.11 U	0.24 U	0.011 U	0.0095 U	0.01 U	0.01 U	0.0093 U	0.014 UJ	0.009 U	0.012 U	0.024 U	0.024 U	0.026 U
Bis(2-Chloroisopropyl) Ether	310	0.018 U	0.095 U	0.19 U	0.42 U	0.019 U	0.017 U	0.018 U	0.018 U	0.016 U	0.025 U	0.016 U	0.022 U	0.043 U	0.041 U	0.045 U
Bis(2-Ethylhexyl) Phthalate	39	0.017 U	0.18 J	0.18 U	0.4 U	0.018 U	0.016 U	0.045 J	0.031 J	0.015 U	0.023 U	0.015 U	0.02 U	0.04 U	0.04 J	0.043 U
Caprolactam	3100	0.032 U	0.17 U	0.32 U	0.73 U	0.033 U	0.029 U	0.031 U	0.031 U	0.028 UJ	0.043 UJ	0.027 UJ	0.038 U	0.075 U	0.072 U	0.08 U
Carbazole	--	0.011 U	1 J	0.97 J	9.6 J	0.1 J	0.1 J	0.1 J	0.091 J	0.011 J	0.017 J-	0.0094 U	0.013 U	0.026 U	0.025 U	0.027 U
Chrysene	110	0.012 U	18	19	150	1.1	0.93	0.89	0.82	0.14 J	0.13 J-	0.019 J	0.13 J	0.038 J	0.069 J	0.13 J
Dibenz(A,H)Anthracene	0.11	0.023 U	4.8	6.1	40	0.28	0.16	0.2	0.15	0.021 U	0.031 U	0.02 U	0.027 U	0.054 U	0.052 U	0.058 U
Dibenzofuran	7.3	0.013 U	0.53 J	0.58 J	1.4 J	0.014 U	0.024 J	0.015 J	0.014 J	0.012 U	0.018 UJ	0.011 U	0.016 U	0.031 U	0.03 U	0.033 U

Preliminary - Under EPA and MDEQ Review

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Columbia Falls, Montana

Sample Investigation Area		UPSTREAM BACKGROUND	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 2 NORTH PERCOLATION POND AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 3 CENTRAL LANDFILLS AREA	Exp Area 5 EASTERN UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 6 NORTH-CENTRAL UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA	Exp Area 7 WESTERN UNDEVELOPED AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID		CFSDP-017	CFSDP-023	CFSDP-023-DUP	CFSDP-024	CFSDP-010	CFSDP-011	CFSDP-012	CFSDP-012-DUP	CFSDP-009	CFSDP-013	CFSDP-021	CFSDP-022	CFSDP-014	CFSDP-015	CFSDP-016
Sample Lab IDs		200-35201-19, 460-119897-5	200-35201-11, 460-119830-1	460-119830-6	200-35201-12, 460-119830-2	200-35201-5, 460-119741-2	200-35201-6, 460-119741-3	200-35201-7, 460-119741-4	460-119741-6	200-35201-4, 460-119741-1	200-35201-8, 460-119741-5	200-35201-9, 460-119741-7	200-35201-10, 460-119741-8	200-35201-1, 460-119363-1	200-35201-2, 460-119363-2	200-35201-3, 460-119363-3
Sample Name	CFAC Site-Specific Human Health Sediment (mg/kg)	CFSDP-017-SO	CFSDP-023-SD	CFSDP-DUP2-SD	CFSDP-024-SD	CFSDP-010-SO	CFSDP-011-SO	CFSDP-012-SO	CFSDP-DUP1-SO	CFSDP-009-SO	CFSDP-013-SO	CFSDP-021-SO	CFSDP-022-SO	CFSDP-014-SD	CFSDP-015-SD	CFSDP-016-SD
Sample Depth		0-0.5 ft	--	--	--	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	--	--	--
Chemical Name		9/8/2016	9/7/2016	9/7/2016	9/7/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	8/29/2016	8/29/2016	8/29/2016
Diethyl Phthalate	5100	0.013 U	0.066 U	0.13 U	0.29 U	0.013 U	0.011 U	0.012 U	0.012 U	0.011 U	0.017 UJ	0.011 U	0.015 U	0.03 U	0.028 U	0.031 U
Dimethyl Phthalate	--	0.013 U	0.067 U	0.13 U	0.3 U	0.013 U	0.012 U	0.012 U	0.012 U	0.011 U	0.017 UJ	0.011 U	0.015 U	0.03 U	0.029 U	0.032 U
Di-N-Butyl Phthalate	630	0.013 U	0.069 U	0.14 U	0.3 U	0.014 U	0.012 U	0.039 J	0.018 J	0.012 U	0.018 UJ	0.011 U	0.016 U	0.031 U	0.03 U	0.033 U
Di-N-Octylphthalate	63	0.023 U	0.12 U	0.24 U	0.52 U	0.023 U	0.02 U	0.022 U	0.022 U	0.02 U	0.03 U	0.019 U	0.027 U	0.053 U	0.051 U	0.056 U
Fluoranthene	240	0.013 U	21	17	120	1.1	1.1	1	0.92	0.013 J	0.14 J-	0.018 J	0.12 J	0.042 J	0.08 J	0.19 J
Fluorene	240	0.0097 U	0.11 J	0.12 J	2.1 J	0.028 J	0.053 J	0.03 J	0.024 J	0.0086 U	0.013 UJ	0.0083 U	0.011 U	0.023 U	0.022 U	0.024 U
Hexachlorobenzene	0.21	0.018 U	0.094 U	0.19 U	0.41 U	0.019 U	0.016 U	0.017 U	0.017 U	0.016 U	0.024 U	0.015 U	0.021 U	0.042 U	0.04 U	0.045 U
Hexachlorobutadiene	1.2	0.013 U	0.065 U	0.13 U	0.28 U	0.013 U	0.011 U	0.012 U	0.012 U	0.011 U	0.017 UJ	0.011 U	0.015 U	0.029 U	0.028 U	0.031 U
Hexachlorocyclopentadiene	0.18	0.028 U	0.14 U	0.29 U	0.63 U	0.029 U	0.025 U	0.027 U	0.027 U	0.025 U	0.037 UJ	0.024 U	0.033 U	0.065 U	0.062 U	0.069 U
Hexachloroethane	1.8	0.016 U	0.085 U	0.17 U	0.37 U	0.017 U	0.015 U	0.016 U	0.016 U	0.014 U	0.022 UJ	0.014 U	0.019 U	0.038 U	0.037 U	0.04 U
Indeno(1,2,3-C,D)Pyrene	1.1	0.03 U	15	23	140	1.3	0.95	0.87	0.76	0.12	0.11	0.025 J	0.093	0.069 U	0.066 U	0.087 J+
Isophorone	570	0.0096 U	0.05 U	0.1 U	0.22 U	0.014 J	0.012 J	0.014 J	0.011 J	0.0085 U	0.016 J-	0.0081 U	0.015 J	0.078 J	0.071 U	0.06 J
Naphthalene	3.8	0.011 U	0.39 J	0.45 J	0.89 J	0.013 J	0.02 J	0.013 J	0.011 J	0.01 U	0.015 UJ	0.0096 U	0.013 U	0.026 U	0.025 U	0.028 U
Nitrobenzene	5.1	0.014 U	0.073 U	0.15 U	0.32 U	0.014 U	0.013 U	0.014 U	0.013 U	0.012 U	0.019 UJ	0.012 U	0.016 U	0.033 U	0.031 U	0.035 U
N-Nitrosodi-N-Propylamine	0.078	0.015 U	0.078 U	0.16 U	0.34 U	0.015 U	0.014 U	0.015 U	0.014 U	0.013 U	0.02 U	0.013 U	0.018 U	0.035 U	0.034 U	0.037 U
N-Nitrosodiphenylamine	110	0.04 U	0.21 U	0.42 U	0.92 U	0.042 U	0.037 U	0.041 U	0.039 U	0.036 U	0.054 U	0.034 U	0.048 U	0.094 U	0.091 U	0.1 U
Pentachlorophenol	1	0.054 U	0.28 U	0.56 U	1.2 U	0.055 U	0.049 U	0.052 U	0.052 U	0.048 U	0.072 UJ	0.046 U	0.063 U	0.13 U	0.12 U	0.13 U
Phenanthrene	--	0.012 U	6.2	6.9	41	0.53	0.69	0.55	0.49	0.065 J	0.067 J-	0.011 J	0.058 J	0.039 J	0.072 J	0.17 J
Phenol	1900	0.015 U	0.075 U	0.15 U	0.33 U	0.015 U	0.013 U	0.014 U	0.014 U	0.013 U	0.02 UJ	0.012 U	0.017 U	0.034 U	0.033 U	0.036 U
Pyrene	180	0.02 U	16	26	120	1.5	1.4	1.1	1	0.19 J	0.13 J	0.027 J	0.11 J	0.047 U	0.069 J	0.16 J

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening level
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-4
Summary of Sediment Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Flathead River	Flathead River
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID		CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-006	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-009	CFSDP-010	CFSDP-011	CFSDP-012	CFSDP-012-DUP	CFSDP-013	CFSDP-001	CFSDP-002
Sample Lab IDs		200-35201-13, 460-119830-3	200-35201-14, 460-119830-4	200-35201-15, 460-119830-5	460-119996-4	200-35201-20, 460-119996-1	200-35201-21, 460-119996-2	200-35201-22, 460-119996-3	200-35201-4, 460-119741-1	200-35201-5, 460-119741-2	200-35201-6, 460-119741-3	200-35201-7, 460-119741-4	460-119741-6	200-35201-8, 460-119741-5	200-35201-16, 460-119897-1	460-119897-2
Sample Name	CFAC Site-Specific Human Health Sediment (mg/kg)	CFSDP-018-SD	CFSDP-019-SD	CFSDP-020-SD	CFSDP-006-SD	CFSDP-003-SD	CFSDP-004-SD	CFSDP-005-SD	CFSDP-009-SO	CFSDP-010-SO	CFSDP-011-SO	CFSDP-012-SO	CFSDP-DUP1-SO	CFSDP-013-SO	CFSDP-001-SO	CFSDP-002-SO
Sample Depth		--	--	--	--	--	--	--	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
Chemical Name		9/7/2016	9/7/2016	9/7/2016	9/9/2016	9/9/2016	9/9/2016	9/9/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/8/2016	9/8/2016
GENERAL CHEMISTRY (mg/kg)																
Fluoride	310	19.1	29.4	5.3	1.23 J+	10.4 J+	8.57 J+	13.7 J+	1.62	4.27	1.62	1.3	1.57	1.81	0.78 J	0.36 J
Cyanide	2.3	1.3 J-	0.27 J-	0.29 J-	0.032 U	3.2	2	1	0.34	0.85	0.3	0.56	0.57	1.5	0.036 U	0.032 U
Fluoride	310				--				--		--	--	--	--	--	--
Metals (mg/kg)																
Aluminum	7700	5420	2360	9710	7750	8180	7820	7980	17400	22700	14700	20700	21400	18400	8420	6570
Antimony	3.1	0.6 UJ	0.64 UJ	0.4 UJ	0.3 UJ	0.57 UJ	0.45 UJ	0.38 UJ	0.32 UJ	0.37 UJ	0.32 UJ	0.34 UJ	0.34 UJ	0.46 UJ	0.33 UJ	0.31 UJ
Arsenic	0.68	1 J	0.65 U	1.3	3.7	6	6.2	4.2	6.8	4.3	5.2	5.5	5.8	4.1	4.3	4.4
Barium	1500	758	476	548	80.8	149	151	128	295	257	180	251	255	290	82.6	38
Beryllium	16	0.18 J	0.2 U	0.45 J	0.35 J	0.54 J	0.51 J	0.39 J	0.66	0.98	0.64	0.8	0.85	1	0.38 J	0.28 J
Cadmium	7.1	0.64 U	0.68 U	0.42 U	0.32 U	0.61 U	0.48 U	0.4 U	0.34 U	0.39 U	0.33 U	0.36 U	0.36 U	0.48 U	0.35 U	0.33 U
Calcium	--	273000	166000	133000	11800	24100	19700	16900	11500	30100	23500	21700	20600	28500	17700	28000
Chromium, Total	--	8.3	3.3 J	9.7	9.6	9.6	9.4	9.3	11.8	14.9	11.8	14.1	15.2	15	10	7.7
Cobalt	2.3	1.4 J	1.4 J	4.6	5.4	5.5	5.2	5.2	5.8	8.3	7.5	8.4	8.6	7.6	6	4.8
Copper	310	79.1	42.3	26	9.4	13.6	13.8	13.1	19.8	23.3	20.1	20.8	22.3	27.8	11.2	11
Iron	5500	2620	1490	9400	15200	14200	13800	13100	14100	18800	16800	19500	20200	16300	14500	10800
Lead	400	17	5.8	8.6	5.6	9	8.5	8	13	18.2	13	18.5	18.1	17.4	6.8	6.2
Magnesium	--	5410	3470	9270	9590	9700	9720	9890	8750	11500	12200	10400	10600	11500	11200	9790
Manganese	180	28.4	27.5	97.2	234	286	172	139	517	640	1070	1250	1280	1140	286	297
Mercury	1.1	0.11	0.035 J	0.016 J	0.013 U	0.024 J	0.042	0.019 J	0.038	0.045	0.029	0.045	0.043	0.045	0.013 U	0.013 U
Nickel	150	12.3	5.4	15	11.3	11.6	10.6	10.5	16 J+	43.8 J+	23.7 J+	28.9 J+	30 J+	18.1 J+	12.1	9.8
Potassium	--	506	272	979	617	1080	968	853	978	1330	922	1290	1290	1700	657	390
Selenium	39	0.57 J	0.6 U	0.37 U	0.28 U	0.53 U	0.4 U	0.36 U	0.54 J	0.46 J	0.29 U	0.34 J	0.35 J	1.4 J	0.31 U	0.29 U
Silver	39	1.2 U	1.3 U	0.77 U	0.59 U	1.1 U	0.8 U	0.75 U	0.62 U	0.73 U	0.62 U	0.67 U	0.67 U	0.89 U	0.64 U	0.6 U
Sodium	--	410	284	166	40.8 U	148 J	106 J	80.7 J	171	104 J	60 J	71.5 J	72.4 J	120 J	45.1 J	41.7 U
Thallium	0.078	0.14 U	0.25 U	0.16 U	0.12 U	0.23 U	0.18 U	0.15 U	0.13 U	0.15 U	0.13 U	0.14 U	0.14 U	0.18 U	0.13 U	0.12 U
Vanadium	39	4.6	2.3 J	15.3	25.5	10.9	11.5	12	12.1	18	11.5	14	14.5	11.6	12	7.5
Zinc	2300	89.4	50.6	44.7	38.4	48.8	38.9	38.6	59	129	128	81.1	82.3	89.8	38.1	35
PESTICIDES (mg/kg)																
Aldrin	0.039	0.0015 U	0.0019 U	0.0013 U	0.00098 U	0.0017 U	0.0014 U	0.0013 U	0.00097 U	0.0011 U	0.00099 U	0.0011 U	0.001 U	0.0015 U	0.0011 U	0.00098 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.086	0.0011 U	0.0015 U	0.00096 U	0.00074 U	0.0012 U	0.001 U	0.00095 U	0.00073 U	0.00084 U	0.00074 U	0.00079 U	0.00079 U	0.0011 U	0.00083 U	0.00074 U
Alpha Endosulfan	--	0.0017 U	0.0022 U	0.0015 U	0.0011 U	0.002 U	0.0016 U	0.0014 U	0.0011 U	0.0013 U	0.0011 U	0.0012 U	0.0012 U	0.0017 U	0.0013 U	0.0011 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.3	0.0012 U	0.0016 U	0.001 U	0.00079 U	0.0014 U	0.0011 U	0.001 U	0.00078 U	0.00099 U	0.00079 U	0.00085 U	0.00084 U	0.0012 U	0.00089 U	0.00078 U
Beta Endosulfan	--	0.0017 U	0.0025 U	0.0016 U	0.0012 U	0.0022 U	0.0018 U	0.0016 U	0.0013 U	0.0015 U	0.0013 U	0.0014 U	0.0014 U	0.0019 U	0.0014 U	0.0013 U
cis-Chlordane	--	0.002 U	0.0026 U	0.0017 U	0.0013 U	0.0023 U	0.0019 U	0.0017 U	0.0013 U	0.0015 U	0.0013 U	0.0014 U	0.0014 U	0.002 U	0.0015 U	0.0013 U
Delta BHC (Delta Hexachlorocyclohexane)	--	0.0013 U	0.0017 U	0.0011 U	0.00088 U	0.0016 U	0.0012 U	0.0011 U	0.00087 U	0.001 U	0.00089 U	0.00095 U	0.00094 U	0.0013 U	0.001 U	0.00088 U
Dieldrin	0.034	0.0016 U	0.0021 U	0.0014 U	0.0011 U	0.0019 U	0.0015 U	0.0014 U	0.001 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0016 U	0.0012 U	0.0011 U
Endosulfan Sulfate	--	0.0014 U	0.0019 U	0.0012 U	0.00094 U	0.0017 U	0.0013 U	0.0012 U	0.00093 U	0.0011 U	0.00095 U	0.001 U	0.001 U	0.0014 U	0.0011 U	0.00094 U
Endrin	1.9	0.0016 U	0.002 U	0.0012 U	0.001 U	0.0018 U	0.0015 U	0.0013 U	0.001 U	0.0012 U	0.001 U	0.0011 U	0.0011 U	0.0015 U	0.0012 U	0.001 U
Endrin Aldehyde	--	0.0015 U	0.002 U	0.0013 U	0.001 U	0.0018 U	0.0014 U	0.0013 U	0.00099 U	0.0011 U	0.001 U	0.0011 U	0.0011 U	0.0015 U	0.0011 U	0.001 U
Endrin Ketone	--	0.0017 U	0.0022 U	0.0015 U	0.0011 U	0.002 U	0.0016 U	0.0014 U	0.0011 U	0.0013 U	0.0011 U	0.0012 U	0.0012 U	0.0017 U	0.0013 U	0.0011 U
Gamma Bhc (Lindane)	0.57	0.0011 U	0.0014 U	0.00094 U	0.00072 U	0.0013 U	0.001 U	0.00093 U	0.00072 U	0.00083 U	0.00073 U	0.00078 U	0.00077 U	0.0011 U	0.00082 U	0.00072 U
Heptachlor	0.13	0.0016 U	0.0021 U	0.0013 U	0.001 U	0.0018 U	0.0015 U	0.0013 U	0.001 U	0.0012 U	0.001 U	0.0011 U	0.0011 U	0.0016 U	0.0012 U	0.001 U
Heptachlor Epoxide	0.07	0.0024 U	0.0031 U	0.0021 U	0.0016 U	0.0026 U	0.0022 U	0.002 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U	0.0017 U	0.0024 U	0.0018 U	0.0016 U
Methoxychlor	32	0.0026 U	0.0034 U	0.0022 U	0.0017 U	0.003 U	0.0024 U	0.0022 U	0.0017 U	0.002 U	0.0017 U	0.0018 U	0.0018 U	0.0026 U	0.0019 U	0.0017 U
P,P'-DDD	2.3	0.0016 U	0.0021 U	0.0014 U	0.0011 U	0.0019 U	0.0015 U	0.0014 U	0.0011 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U	0.0016 U	0.0012 U	0.0011 U
P,P'-DDE	2	0.0018 U	0.0023 U	0.0015 U	0.0012 U	0.0021 U	0.0017 U	0.0015 U	0.0012 U	0.0013 U	0.0012 U	0.0013 U	0.0013 U	0.0018 U	0.0013 U	0.0012 U
P,P'-DDT	1.9	0.0013 U	0.0017 U	0.0011 U	0.00083 U	0.0015 U	0.0012 U	0.0011 U	0.00083 U	0.00096 U	0.00084 U	0.0009 U	0.00089 U	0.0012 U	0.00094 U	0.00083 U
Toxaphene	0.49	0.026 U	0.047 U	0.031 U	0.024 U	0.042 U	0.023 U	0.02 U	0.023 U	0.027 U	0.024 U	0.025 U	0.025 U	0.035 U	0.027 U	0.024 U
trans-Chlordane	--	0.0027 U	0.0035 U	0.0023 U	0.0018 U	0.0031 U	0.0025 U	0.0023 U	0.0017 U	0.002 U	0.0018 U	0.0019 U	0.0019 U	0.0026 U	0.002 U	0.0018 U
PCB's (mg/kg)																
PCB-1016 (Aroclor 1016)	0.41	0.016 U	0.021 U	0.014 U	0.011 U	0.019 U	0.015 U	0.014 U	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.016 U	0.012 U	0.011 U
PCB-1221 (Aroclor 1221)	0.2	0.016 U	0.021 U	0.014 U	0.011 U	0.019 U	0.015 U	0.014 U	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.016 U	0.012 U	0.011 U
PCB-1232 (Aroclor 1232)	0.17	0.016 U	0.021 U	0.014 U	0.011 U	0.019 U	0.015 U	0.014 U	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.016 U	0.012 U	0.011 U
PCB-1242 (Aroclor 1242)	0.23	0.016 U	0.021 U	0.014 U	0.011 U	0.019 U	0.015 U	0.014 U	0.011 U	0.012 U	0.011 U	0.012 U	0.011 U	0.016 U	0.012 U	0.011 U

Preliminary - Under EPA and MDEQ Review

Table C-4
Summary of Sediment Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA		Exp Area 8 SOUTH PERCOLATION POND AREA		Exp Area 8 SOUTH PERCOLATION POND AREA		Exp Area 9 FLATHEAD RIVER AREA		Exp Area 9A BACKWATER SEEP SAMPLING AREA		Exp Area 9A BACKWATER SEEP SAMPLING AREA		Exp Area 9A BACKWATER SEEP SAMPLING AREA		Ceder Creek Reservoir Drainage Overflow		Ceder Creek Reservoir Drainage Overflow		Ceder Creek Reservoir Drainage Overflow		Ceder Creek Reservoir Drainage Overflow		Ceder Creek Reservoir Drainage Overflow		Ceder Creek Reservoir Drainage Overflow		Ceder Creek Reservoir Drainage Overflow		Flathead River		Flathead River	
Sample Water Bearing Zone		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--	
Sample Location ID		CFSDP-018		CFSDP-019		CFSDP-020		CFSDP-006		CFSDP-003		CFSDP-004		CFSDP-005		CFSDP-009		CFSDP-010		CFSDP-011		CFSDP-012		CFSDP-012-DUP		CFSDP-013		CFSDP-001		CFSDP-002	
Sample Lab IDs		200-35201-13, 460-119830-3		200-35201-14, 460-119830-4		200-35201-15, 460-119830-5		460-119996-4		200-35201-20, 460-119996-1		200-35201-21, 460-119996-2		200-35201-22, 460-119996-3		200-35201-4, 460-119741-1		200-35201-5, 460-119741-2		200-35201-6, 460-119741-3		200-35201-7, 460-119741-4		460-119741-6		200-35201-8, 460-119741-5		200-35201-16, 460-119897-1		460-119897-2	
Sample Name	CFAC Site-Specific Human Health Sediment (mg/kg)	CFSDP-018-SD		CFSDP-019-SD		CFSDP-020-SD		CFSDP-006-SD		CFSDP-003-SD		CFSDP-004-SD		CFSDP-005-SD		CFSDP-009-SO		CFSDP-010-SO		CFSDP-011-SO		CFSDP-012-SO		CFSDP-DUP1-SO		CFSDP-013-SO		CFSDP-001-SO		CFSDP-002-SO	
Sample Depth		--		--		--		--		--		--		--		0-0.5 ft		0-0.5 ft		0-0.5 ft		0-0.5 ft		0-0.5 ft		0-0.5 ft		0-0.5 ft		0-0.5 ft	
Chemical Name		9/7/2016		9/7/2016		9/7/2016		9/9/2016		9/9/2016		9/9/2016		9/9/2016		9/6/2016		9/6/2016		9/6/2016		9/6/2016		9/6/2016		9/6/2016		9/8/2016		9/8/2016	
PCB-1248 (Aroclor 1248)	0.23	0.016	U	0.021	U	0.014	U	0.011	U	0.019	U	0.015	U	0.014	U	0.011	U	0.012	U	0.011	U	0.012	U	0.011	U	0.016	U	0.012	U	0.011	U
PCB-1254 (Aroclor 1254)	0.12	0.017	U	0.022	U	0.014	U	0.011	U	0.02	U	0.016	U	0.014	U	0.011	U	0.013	U	0.011	U	0.012	U	0.012	U	0.017	U	0.013	U	0.011	U
PCB-1260 (Aroclor 1260)	0.24	0.017	U	0.022	U	0.014	U	0.011	U	0.02	U	0.016	U	0.014	U	0.011	U	0.013	U	0.011	U	0.012	U	0.012	U	0.017	U	0.013	U	0.011	U
PCB-1262 (Aroclor 1262)	--	0.017	U	0.022	U	0.014	U	0.011	U	0.02	U	0.016	U	0.014	U	0.011	U	0.013	U	0.011	U	0.012	U	0.012	U	0.017	U	0.013	U	0.011	U
PCB-1268 (Aroclor 1268)	--	0.017	U	0.022	U	0.014	U	0.011	U	0.02	U	0.016	U	0.014	U	0.011	U	0.013	U	0.011	U	0.012	U	0.012	U	0.017	U	0.013	U	0.011	U
Polychlorinated Biphenyl (PCBs)	--	0.017	U	0.022	U	0.014	U	0.011	U	0.02	U	0.016	U	0.014	U	0.011	U	0.013	U	0.011	U	0.012	U	0.012	U	0.017	U	0.013	U	0.011	U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)																																	
1,2,4,5-Tetrachlorobenzene	2.3	0.045	U	0.12	U	0.077	U	0.03	U	0.1	U	0.084	U	0.076	U	0.029	U	0.034	U	0.03	U	0.032	U	0.032	U	0.044	U	0.034	U	0.03	U
1,4-Dioxane (P-Dioxane)	5.3	0.16	U	0.42	U	0.28	U	0.11	U	0.39	UJ	0.3	UJ	0.27	UJ	0.1	U	0.12	U	0.11	U	0.11	U	0.11	U	0.16	U	0.12	U	0.11	U
2,3,4,6-Tetrachlorophenol	190	0.057	U	0.15	U	0.097	U	0.037	U	0.13	U	0.11	U	0.097	U	0.037	U	0.043	U	0.038	U	0.04	U	0.04	U	0.056	UJ	0.042	U	0.038	U
2,4,5-Trichlorophenol	630	0.06	U	0.16	U	0.1	U	0.04	U	0.14	U	0.11	U	0.1	U	0.039	U	0.046	U	0.04	U	0.042	U	0.042	U	0.059	UJ	0.045	U	0.04	U
2,4,6-Trichlorophenol	6.3	0.017	U	0.045	U	0.029	U	0.011	U	0.04	U	0.032	U	0.029	U	0.011	U	0.013	U	0.011	U	0.012	U	0.012	U	0.017	UJ	0.013	U	0.011	U
2,4-Dichlorophenol	19	0.014	U	0.037	U	0.024	U	0.0094	U	0.033	U	0.027	U	0.024	U	0.0093	U	0.011	U	0.0095	U	0.01	U	0.01	U	0.014	UJ	0.011	U	0.0094	U
2,4-Dimethylphenol	130	0.13	U	0.35	U	0.23	U	0.088	U	0.31	U	0.25	U	0.23	U	0.087	U	0.1	U	0.089	U	0.095	U	0.094	U	0.13	UJ	0.098	U	0.088	U
2,4-Dinitrophenol	13	0.46	U	1.2	U	0.78	U	0.3	U	1.1	U	0.85	U	0.78	U	0.3	UJ	0.35	U	0.31	U	0.33	U	0.32	U	0.45	UR	0.34	U	0.3	U
2,4-Dinitrotoluene	1.7	0.024	U	0.063	U	0.041	U	0.016	U	0.056	U	0.045	U	0.04	U	0.016	U	0.018	U	0.016	U	0.017	U	0.017	U	0.024	UJ	0.018	U	0.016	U
2,6-Dinitrotoluene	0.36	0.032	U	0.084	U	0.055	U	0.021	U	0.075	U	0.06	U	0.055	U	0.021	U	0.024	U	0.021	U	0.023	U	0.023	U	0.032	UJ	0.024	U	0.021	U
2-Chloronaphthalene	480	0.014	U	0.036	U	0.023	U	0.009	U	0.032	U	0.026	U	0.023	U	0.009	U	0.01	U	0.0092	U	0.0098	U	0.0097	U	0.014	UJ	0.01	U	0.009	U
2-Chlorophenol	39	0.015	U	0.04	U	0.026	U	0.01	U	0.036	U	0.029	U	0.026	U	0.01	U	0.012	U	0.01	U	0.011	U	0.011	U	0.015	UJ	0.011	U	0.01	U
2-Methylnaphthalene	24	0.013	U	0.035	U	0.023	U	0.0088	U	0.031	U	0.025	U	0.023	U	0.0087	U	0.01	U	0.012	J	0.0095	U	0.0094	U	0.013	UJ	0.0093	U	0.0088	U
2-Methylphenol (O-Cresol)	320	0.026	U	0.069	U	0.045	U	0.017	U	0.061	U	0.04	U	0.045	U	0.017	U	0.02	U	0.018	U	0.019	U	0.019	U	0.026	UJ	0.02	U	0.017	U
2-Nitroaniline	63	0.02	U	0.052	U	0.034	U	0.013	U	0.046	U	0.037	U	0.034	U	0.013	U	0.015	U	0.013	U	0.014	U	0.014	U	0.02	U	0.015	U	0.013	U
2-Nitrophenol	--	0.02	U	0.053	U	0.035	U	0.013	U	0.047	U	0.038	U	0.034	U	0.013	U	0.015	U	0.014	U	0.014	U	0.014	U	0.02	UJ	0.015	U	0.013	U
3- And 4- Methylphenol (Total)	--	0.016	U	0.042	U	0.028	U	0.011	U	0.49	J	0.22	J	0.027	U	0.011	U	0.012	U	0.011	U	0.011	U	0.011	U	0.016	UJ	0.012	U	0.011	U
3,3'-Dichlorobenzidine	1.2	0.068	U	0.18	U	0.12	U	0.044	U	0.16		0.13	U	0.11	U	0.044	U	0.051	U	0.045	U	0.048	U	0.048	U	0.067	UJ	0.05	U	0.045	U
3-Nitroaniline	--	0.018	U	0.047	U	0.031	U	0.012	U	0.042	U	0.033	U	0.03	U	0.012	U	0.014	U	0.012	U	0.013	U	0.013	U	0.018	U	0.013	U	0.012	U
4,6-Dinitro-2-Methylphenol	0.51	0.16	U	0.42	U	0.28	U	0.11	U	0.38	U	0.3	U	0.27	U	0.11	U	0.12	U	0.11	U	0.11	U	0.11	U	0.16	UJ	0.12	U	0.11	U
4-Bromophenyl Phenyl Ether	--	0.013	U	0.05	U	0.033	U	0.013	U	0.044	U	0.036	U	0.032	U	0.012	U	0.014	U	0.013	U	0.014	U	0.013	U	0.019	U	0.014	U	0.013	U
4-Chloro-3-Methylphenol	630	0.026	U	0.068	U	0.044	U	0.017	U	0.06	U	0.048	U	0.044	U	0.017	U	0.02	U	0.017	U	0.018	U	0.018	U	0.026	UJ	0.019	U	0.017	U
4-Chloroaniline	2.7	0.016	U	0.041	U	0.027	U	0.01	U	0.036	U	0.029	U	0.026	U	0.01	U	0.012	U	0.01	U	0.011	U	0.011	U	0.015	U	0.012	U	0.01	U
4-Chlorophenyl Phenyl Ether	--	0.018	U	0.047	U	0.031	U	0.012	U	0.042	U	0.034	U	0.031	U	0.012	U	0.014	U	0.012	U	0.013	U	0.013	U	0.018	UJ	0.013	U	0.012	U
4-Nitroaniline	25	0.023	U	0.06	U	0.039	U	0.015	U	0.053	U	0.043	U	0.039	U	0.015	U	0.017	U	0.015	U	0.016	U	0.016	U	0.023	UJ	0.017	U	0.015	U
4-Nitrophenol	--	0.29	U	0.76	U	0.5	U	0.19	U	0.68	U	0.54	U	0.49	U	0.19	UJ	0.22	U	0.19	U	0.21	U	0.2	U	0.29	UJ	0.22	U	0.19	U
Acenaphthene	360	0.015	U	0.038	U	0.025	U	0.0098	U	0.034	U	0.027	U	0.025	U	0.0096	U	0.043	J	0.075	J	0.046	J	0.037	J	0.014	UJ	0.011	U	0.0096	U
Acenaphthylene	--	0.016	U	0.041	U	0.027	U	0.011	U	0.036	U	0.029	U	0.026	U	0.01	U	0.012	U	0.01	U	0.011	U	0.011	U	0.015	UJ	0.012	U	0.01	U
Acetophenone	780	0.013	U	0.034	U	0.023	U	0.009	U	0.031	U	0.025	U	0.022	U	0.0086	U	0.011	J	0.0088	U	0.0094	U	0.0093	U	0.013	U	0.0098	U	0.0087	U
Anthracene	1800	0.058	U	0.15	U	0.098	U	0.038	U	0.13	U	0.11	U	0.097	U	0.038	U	0.082	J	0.14	J	0.096	J	0.083	J	0.057	UJ	0.043	U	0.038	U
Atrazine	2.4	0.027	U	0.07	U	0.046	U	0.018	U	0.063	U	0.05	U	0.046	U	0.018	U	0.02	U	0.018	U	0.019	U	0.019	U	0.027	U	0.02	U	0.018	U
Benzaldehyde	170	0.046	U	0.12	U	0.079	U	0.02	U	0.11	U	0.086	U	0.078	U	0.03	U	0.069	J	0.031	U	0.033	U	0.032	U	0.046	UJ	0.034	U	0.03	U
Benzo(A)Anthracene	1.1	0.21		0.16		0.15		0.023	U	0.12	U	0.094	U	0.086	U	0.1		0.82		0.74		0.64		0.55		0.093	J-	0.038	U	0.033	U
Benzo(A)Pyrene	0.11	0.26		0.19		0.19		0.012	U	0.1	J	0.034	U	0.031	U	0.12		1.1		0.94		0.83		0.74		0.11	J-	0.014	U	0.012	U
Benzo(B)Fluoranthene	1.1	0.37		0.27		0.28		0.016	U	0.3		0.044	U	0.04	U	0.21		1.8		1.3		1.2		1.1		0.19	J-	0.018	U	0.016	U
Benzo(G,H,I)Perylene	--	0.51	J	0.28	J	0.27	J	0.023	U	0.14	J	0.065	U	0.059	U	0.11	J	1.3		0.84		0.77		0.69		0.13	J	0.026	U	0.023	U
Benzo(K)Fluoranthene	11	0.17		0.086	J	0.11		0.017	U	0.11	J	0.049	U	0.045	U	0.069		0.47		0.49		0.45		0.45		0.051	J-	0.02	U	0.017	U
Benzyl Butyl Phthalate	290	0.019	U	0.049	U	0.032	U	0.012	U	0.043	U	0.035	U	0.032	U	0.012	U	0.014	U	0.012	U	0.031	J	0.027	J	0.018	U	0.014	U	0.012	U
Biphenyl (Diphenyl)	4.7	0.052	U	0.13	U	0.089	U	0.034	U	0.12	U	0.096	U	0.088	U	0.034	U	0.039	U	0.034	U	0.037	U	0.036	U	0.051	U	0.038	U	0.034	U
Bis(2-Chloroethoxy) Methane	19	0.019	U	0.049	U	0.032	U	0.012	U	0.044	U	0.035	U	0.032	U	0.012	U	0.014	U	0.013	U	0.013	U	0.013	U	0.019	UJ	0.014	U	0.012	U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.23	0.014	U	0.037	U	0.024	U	0.0094	U	0.033	U	0.027	U	0.024	U	0.0093	U	0.011	U	0.0095	U	0.01	U	0.01	U	0.014	UJ	0.011	U	0.0094	U
Bis(2-Chloroisopropyl) Ether	310	0.025	U	0.065	U	0.043	U	0.016	U	0.058	U	0.046	U	0.042	U	0.016	U	0.019	U	0.017	U	0.018	U	0.018	U	0.025	U	0.019	U	0.016	U
Bis(2-Ethylhexyl) Phthalate	39	0.024	U	0.062	U	0.04	U	0.015	U	0.055	U	0.044	U	0.04	U	0.015	U	0.018	U	0.016	U	0.045	J	0.031	J	0.023	U	0.032	J	0.016	U
Caprolactam	3100	0.044	U	0.11	U	0.075	U	0.029	U	0.1	U	0.081	U	0.074	U	0.028	UJ	0.033	U	0.029	U	0.031	U	0.031	U	0.043	UJ	0.032	U	0.029	U
Carbazole	--	0.052	J	0.039	U	0.029	J	0.0099	U	0.035	U	0.028	U	0.025	U	0.011	J	0.1	J	0.1	J	0.1	J	0.091	J	0.017	J-	0.011	U	0.0099	U
Chrysene	110	0.33	J	0.23	J	0.23	J	0.011	U	0.48	J	0.041	U	0.028	U	0.14	J	1.1		0.93		0.89		0.82		0.13	J-	0.012	U	0.011	U
Dibenz(A,H)Anthracene	0.11	0.084		0.082	U	0.055	J	0.021	U	0.073	U	0.059	U	0.053	U	0.021	U	0.28		0.16		0.2		0.15		0.031	U	0.023	U	0.021	U
Dibenzofuran	7.3	0.018	U	0.048	U	0.031	U	0.012	U	0.043	U	0.034	U	0.031	U	0.012	U	0.014	U	0.024	J	0.015	J	0.014	J	0.018	UJ	0.014	U	0.012	U

Preliminary - Under EPA and MDEQ Review

Table C-4
Summary of Sediment Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 8 SOUTH PERCOLATION POND AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Exp Area 9A BACKWATER SEEP SAMPLING AREA	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Ceder Creek Reservoir Drainage Overflow	Flathead River	Flathead River
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID		CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-006	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-009	CFSDP-010	CFSDP-011	CFSDP-012	CFSDP-012-DUP	CFSDP-013	CFSDP-001	CFSDP-002
Sample Lab IDs		200-35201-13, 460-119830-3	200-35201-14, 460-119830-4	200-35201-15, 460-119830-5	460-119996-4	200-35201-20, 460-119996-1	200-35201-21, 460-119996-2	200-35201-22, 460-119996-3	200-35201-4, 460-119741-1	200-35201-5, 460-119741-2	200-35201-6, 460-119741-3	200-35201-7, 460-119741-4	460-119741-6	200-35201-8, 460-119741-5	200-35201-16, 460-119897-1	460-119897-2
Sample Name	CFAC Site-Specific Human Health Sediment (mg/kg)	CFSDP-018-SD	CFSDP-019-SD	CFSDP-020-SD	CFSDP-006-SD	CFSDP-003-SD	CFSDP-004-SD	CFSDP-005-SD	CFSDP-009-SO	CFSDP-010-SO	CFSDP-011-SO	CFSDP-012-SO	CFSDP-DUP1-SO	CFSDP-013-SO	CFSDP-001-SO	CFSDP-002-SO
Sample Depth		--	--	--	--	--	--	--	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
Chemical Name		9/7/2016	9/7/2016	9/7/2016	9/9/2016	9/9/2016	9/9/2016	9/9/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/6/2016	9/8/2016	9/8/2016
Diethyl Phthalate	5100	0.017 U	0.045 U	0.029 U	0.011 U	0.04 U	0.032 U	0.029 U	0.011 U	0.013 U	0.011 U	0.012 U	0.012 U	0.017 UJ	0.013 U	0.011 U
Dimethyl Phthalate	--	0.018 U	0.046 U	0.03 U	0.012 U	0.041 U	0.033 U	0.03 U	0.011 U	0.013 U	0.012 U	0.012 U	0.012 U	0.017 UJ	0.013 U	0.012 U
Di-N-Butyl Phthalate	630	0.018 U	0.047 U	0.031 U	0.012 U	0.042 U	0.034 U	0.031 U	0.012 U	0.013 U	0.012 U	0.039 J	0.018 J	0.018 UJ	0.013 U	0.012 U
Di-N-Octylphthalate	63	0.021 U	0.08 U	0.053 U	0.02 U	0.071 U	0.057 U	0.052 U	0.02 U	0.02 U	0.02 U	0.022 U	0.022 U	0.02 U	0.023 U	0.02 U
Fluoranthene	240	0.3 J	0.23 J	0.21 J	0.012 U	0.48 J	0.033 U	0.03 U	0.13 J	1.1	1.1	1	0.92	0.14 J-	0.013 U	0.012 U
Fluorene	240	0.013 U	0.034 U	0.023 U	0.0087 U	0.031 U	0.025 U	0.022 U	0.0086 U	0.028 J	0.053 J	0.03 J	0.024 J	0.013 UJ	0.0098 U	0.0087 U
Hexachlorobenzene	0.21	0.025 U	0.064 U	0.042 U	0.016 U	0.057 U	0.046 U	0.042 U	0.016 U	0.019 U	0.016 U	0.017 U	0.017 U	0.024 U	0.018 U	0.016 U
Hexachlorobutadiene	1.2	0.017 U	0.044 U	0.029 U	0.011 U	0.04 U	0.032 U	0.029 U	0.01 U	0.013 U	0.011 U	0.012 U	0.012 U	0.017 UJ	0.013 U	0.011 U
Hexachlorocyclopentadiene	0.18	0.038 U	0.098 U	0.065 U	0.025 U	0.088 U	0.07 U	0.064 U	0.024 U	0.029 U	0.025 U	0.027 U	0.027 U	0.037 UJ	0.028 U	0.025 U
Hexachloroethane	1.8	0.022 U	0.058 U	0.038 U	0.015 U	0.051 U	0.041 U	0.038 U	0.014 U	0.017 U	0.015 U	0.016 U	0.016 U	0.022 UJ	0.016 U	0.015 U
Indeno(1,2,3-C,D)Pyrene	1.1	0.36	0.26	0.25	0.017 U	0.2	0.075 U	0.068 U	0.12	1.3	0.95	0.87	0.76	0.11	0.03 U	0.027 U
Isophorone	570	0.013 U	0.034 U	0.022 U	0.0086 U	0.03 U	0.024 U	0.022 U	0.0085 U	0.014 J	0.012 J	0.014 J	0.011 J	0.016 J-	0.0097 U	0.0086 U
Naphthalene	3.8	0.015 U	0.04 U	0.026 U	0.01 U	0.036 U	0.029 U	0.026 U	0.01 U	0.013 J	0.02 J	0.013 J	0.011 J	0.015 UJ	0.011 U	0.01 U
Nitrobenzene	5.1	0.019 U	0.05 U	0.033 U	0.013 U	0.044 U	0.036 U	0.032 U	0.012 U	0.014 U	0.013 U	0.014 U	0.013 U	0.019 UJ	0.014 U	0.013 U
N-Nitrosodi-N-Propylamine	0.078	0.02 U	0.053 U	0.035 U	0.013 U	0.047 U	0.038 U	0.034 U	0.013 U	0.015 U	0.014 U	0.014 U	0.014 U	0.02 U	0.015 U	0.013 U
N-Nitrosodiphenylamine	110	0.055 U	0.14 U	0.094 U	0.036 U	0.13 U	0.1 U	0.09 U	0.036 U	0.042 U	0.037 U	0.039 U	0.039 U	0.054 U	0.041 U	0.036 U
Pentachlorophenol	1	0.074 U	0.19 U	0.13 U	0.048 U	0.17 U	0.14 U	0.12 U	0.048 U	0.055 U	0.049 U	0.052 U	0.052 U	0.072 UJ	0.055 U	0.048 U
Phenanthrene	--	0.13 J	0.11 J	0.11 J	0.011 U	0.087 U	0.03 U	0.027 U	0.065 J	0.53	0.69	0.55	0.49	0.067 J-	0.012 U	0.011 U
Phenol	1900	0.02 U	0.052 U	0.034 U	0.013 U	0.046 U	0.037 U	0.034 U	0.013 U	0.015 U	0.013 U	0.014 U	0.014 U	0.02 UJ	0.015 U	0.013 U
Pyrene	180	0.35 J	0.25 J	0.29 J	0.018 U	0.31 J	0.051 U	0.047 U	0.19 J	1.5	1.4	1.1	1	0.13 J	0.02 U	0.018 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening l
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

Preliminary - Under EPA and MDEQ Review

Table C-4
Summary of Sediment Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Flathead River	Flathead River	Flathead River	Flathead River	Flathead River	Flathead River	Northern Landfill Area	Northern Landfill Area	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID		CFSDP-002	CFSDP-006	CFSDP-006	CFSDP-007	CFSDP-008	CFSDP-017	CFSDP-021	CFSDP-022	CFSDP-001	CFSDP-002	CFSDP-002	CFSDP-006	CFSDP-007	CFSDP-008
Sample Lab IDs		200-35302-1	200-35201-23	460-119996-4	200-35201-17, 460-119897-3	200-35201-18, 460-119897-4	200-35201-19, 460-119897-5	200-35201-9, 460-119741-7	200-35201-10, 460-119741-8	200-35201-16, 460-119897-1	460-119897-2	200-35302-1	200-35201-23	200-35201-17, 460-119897-3	200-35201-18, 460-119897-4
Sample Name	CFAC Site-Specific Human Health Sediment (mg/kg)	CFSDP-002-SO	CFSDP-006-SO	CFSDP-006-SD	CFSDP-007-SO	CFSDP-008-SO	CFSDP-017-SO	CFSDP-021-SO	CFSDP-022-SO	CFSDP-001-SO	CFSDP-002-SO	CFSDP-002-SO	CFSDP-006-SO	CFSDP-007-SO	CFSDP-008-SO
Sample Depth		0-0.5 ft	0-0.5 ft	?-? ?	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
Chemical Name		9/16/2016	9/9/2016	9/9/2016	9/8/2016	9/8/2016	9/8/2016	9/6/2016	9/6/2016	9/8/2016	9/8/2016	9/16/2016	9/9/2016	9/8/2016	9/8/2016
GENERAL CHEMISTRY (mg/kg)															
Fluoride	310	--	--	1.23 J+	1.69	0.65 J	0.83 J	2.6	3.79	0.78 J	0.36 J	--	--	1.69	0.65 J
Cyanide	2.3	--	--	0.032 U	0.067 J	0.036 U	0.038 U	0.24	0.84	0.035 U	0.032 U	--	--	0.067 J	0.036 U
Fluoride	310	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals (mg/kg)															
Aluminum	7700	--	--	7750	8460	8140	8010	15500	34700	8420	6570	--	--	8460	8140
Antimony	3.1	--	--	0.3 UJ	0.32 UJ	0.39 UJ	0.34 UJ	0.31 UJ	0.44 UJ	0.33 UJ	0.31 UJ	--	--	0.32 UJ	0.39 UJ
Arsenic	0.68	--	--	3.7	3.9	3.5	3.6	7.6	6.2	4.3	4.4	--	--	3.9	3.5
Barium	1500	--	--	80.8	146	114	104	191	905	82.6	38	--	--	146	114
Beryllium	16	--	--	0.35 J	0.49	0.39 J	0.34 J	0.62	1.1	0.38 J	0.28 J	--	--	0.49	0.39 J
Cadmium	7.1	--	--	0.32 U	0.33 U	0.41 U	0.36 U	0.33 U	0.47 U	0.35 U	0.33 U	--	--	0.33 U	0.41 U
Calcium	--	--	--	11800	11700	13600	15200	11000	10900	17700	28000	--	--	11700	13600
Chromium, Total	--	--	--	9.6	10.5	10.2	9.8	9.1	11.3	10	7.7	--	--	10.5	10.2
Cobalt	2.3	--	--	5.4	6	5.6	5.8	5.6	4	6	4.8	--	--	6	5.6
Copper	310	--	--	9.4	12.8	9.5	10.2	12.3	32.1	11.2	11	--	--	12.8	9.5
Iron	5500	--	--	15200	15100	14300	14500	14000	12700	14500	10800	--	--	15100	14300
Lead	400	--	--	5.6	7	5.6	6	10.6	14.6	6.8	6.2	--	--	7	5.6
Magnesium	--	--	--	9590	11000	11100	10500	5690	5590	11200	9790	--	--	11000	11100
Manganese	180	--	--	234	264	219	225	234	175	286	297	--	--	264	219
Mercury	1.1	--	--	0.013 U	0.015 U	0.015 U	0.014 U	0.012 J	0.025 J	0.013 U	0.013 U	--	--	0.015 U	0.015 U
Nickel	150	--	--	11.3	13	11.6	12.1	9.8 J+	13.3 J+	12.1	9.8	--	--	13	11.6
Potassium	--	--	--	617	813	790	709	1040	1180	657	390	--	--	813	790
Selenium	39	--	--	0.28 U	0.29 U	0.36 U	0.32 U	0.29 U	0.81 J	0.31 U	0.29 U	--	--	0.29 U	0.36 U
Silver	39	--	--	0.59 U	0.62 U	0.76 U	0.67 U	0.61 U	0.86 U	0.64 U	0.6 U	--	--	0.62 U	0.76 U
Sodium	--	--	--	46.6 U	42.8 U	U	46.6 U	152	477	45.1 J	41.7 U	--	--	42.8 U	42.8 U
Thallium	0.078	--	--	0.12 U	0.13 U	0.15 U	0.14 U	0.12 U	0.17 U	0.13 U	0.12 U	--	--	0.13 U	0.15 U
Vanadium	39	--	--	25.5	22.3	20.4	20.9	11	13.3	12	7.5	--	--	22.3	20.4
Zinc	2300	--	--	38.4	38.2	37.1	37	41.6	41	38.1	35	--	--	38.2	37.1
PESTICIDES (mg/kg)															
Aldrin	0.039	--	--	0.00099 U	U	0.0012 U	0.0011 U	0.00093 U	0.0013 U	0.0011 U	0.00098 U	--	--	0.0011 U	0.0012 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.086	--	--	0.00074 U	0.00074 U	0.00087 U	0.00082 U	0.0007 U	0.00097 U	0.00089 U	0.00074 U	--	--	0.00084 U	0.00087 U
Alpha Endosulfan	--	--	--	0.0011	0.0013 U	0.0013 U	0.0013 U	0.0011 U	0.0015 U	0.0013 U	0.0011 U	--	--	0.0013 U	0.0013 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.3	--	--	0.00079 U	0.00089 U	0.00093 U	0.00088 U	0.00075 U	0.001 U	0.00089 U	0.00078 U	--	--	0.00089 U	0.00093 U
Beta Endosulfan	--	--	--	0.001 U	0.0014 U	0.0015 U	0.0014 U	0.0012 U	0.0017 U	0.0014 U	0.0013 U	--	--	0.0014 U	0.0015 U
cis-Chlordane	--	--	--	U	0.0015 U	0.0016 U	0.0015 U	0.0013 U	0.0017 U	0.0015 U	0.0013 U	--	--	0.0015 U	0.0016 U
Delta BHC (Delta Hexachlorocyclohexane)	--	--	--	0.0008 U	0.001 U	0.001 U	0.00099 U	0.00084 U	0.0012 U	0.001 U	0.00088 U	--	--	0.001 U	0.001 U
Dieldrin	0.034	--	--	0.0011 U	0.0012 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	--	--	0.0012 U	0.0012 U
Endosulfan Sulfate	--	--	--	0.00094 U	0.0011 U	0.0011 U	0.0011 U	0.0009 U	0.0012 U	0.0011 U	0.00094 U	--	--	0.0011 U	0.0011 U
Endrin	1.9	--	--	0.001 U	0.0012 U	0.0012 U	0.0011 U	0.00098 U	0.0013 U	0.0012 U	0.001 U	--	--	0.0012 U	0.0012 U
Endrin Aldehyde	--	--	--	0.001 U	0.0011 U	0.0012 U	0.0011 U	0.00095 U	0.0013 U	0.0011 U	0.001 U	--	--	0.0011 U	0.0012 U
Endrin Ketone	--	--	--	0.0011 U	0.0013 U	0.0013 U	0.0013 U	0.0011 U	0.0015 U	0.0013 U	0.0011 U	--	--	0.0013 U	0.0013 U
Gamma Bhc (Lindane)	0.57	--	--	0.00072 U	0.00082 U	0.00085 U	0.00081 U	0.00069 U	0.00095 U	0.00082 U	0.00072 U	--	--	0.00082 U	0.00085 U
Heptachlor	0.13	--	--	0.001 U	0.0012 U	0.0012 U	0.0012 U	0.00099 U	0.0014 U	0.0012 U	0.001 U	--	--	0.0012 U	0.0012 U
Heptachlor Epoxide	0.07	--	--	0.0016 U	0.0018 U	0.0019 U	0.0018 U	0.0015 U	0.0021 U	0.0018 U	0.0016 U	--	--	0.0018 U	0.0019 U
Methoxychlor	32	--	--	0.0017 U	0.0019 U	0.002 U	0.0019 U	0.0016 U	0.0022 U	0.0019 U	0.0017 U	--	--	0.0019 U	0.002 U
P,P'-DDD	2.3	--	--	0.0011 U	0.0012 U	0.0013 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	--	--	0.0012 U	0.0013 U
P,P'-DDE	2	--	--	0.0012 U	0.0013 U	0.0014 U	0.0013 U	0.0011 U	0.0015 U	0.0013 U	0.0012 U	--	--	0.0013 U	0.0014 U
P,P'-DDT	1.9	--	--	0.00083 U	0.00095 U	0.00098 U	0.00093 U	0.00079 U	0.0011 U	0.00094 U	0.00083 U	--	--	0.00095 U	0.00098 U
Toxaphene	0.49	--	--	0.024 U	0.027 U	0.028 U	0.026 U	0.022 U	0.031 U	0.027 U	0.024 U	--	--	0.027 U	0.028 U
trans-Chlordane	--	--	--	0.0018 U	0.002 U	0.0021 U	0.002 U	0.0017 U	0.0023 U	0.002 U	0.0018 U	--	--	0.002 U	0.0021 U
PCB's (mg/kg)															
PCB-1016 (Aroclor 1016)	0.41	--	--	0.011 U	0.012 U	0.013 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	--	--	0.012 U	0.013 U
PCB-1221 (Aroclor 1221)	0.2	--	--	0.011 U	0.012 U	0.013 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	--	--	0.012 U	0.013 U
PCB-1232 (Aroclor 1232)	0.17	--	--	0.011 U	0.012 U	0.013 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	--	--	0.012 U	0.013 U
PCB-1242 (Aroclor 1242)	0.23	--	--	0.011 U	0.012 U	0.013 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	--	--	0.012 U	0.013 U

Preliminary - Under EPA and MDEQ Review

Table C-4
Summary of Sediment Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Flathead River	Flathead River	Flathead River	Flathead River	Flathead River	Flathead River	Northern Landfill Area	Northern Landfill Area	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID		CFSDP-002	CFSDP-006	CFSDP-006	CFSDP-007	CFSDP-008	CFSDP-017	CFSDP-021	CFSDP-022	CFSDP-001	CFSDP-002	CFSDP-002	CFSDP-006	CFSDP-007	CFSDP-008
Sample Lab IDs		200-35302-1	200-35201-23	460-119996-4	200-35201-17, 460-119897-3	200-35201-18, 460-119897-4	200-35201-19, 460-119897-5	200-35201-9, 460-119741-7	200-35201-10, 460-119741-8	200-35201-16, 460-119897-1	460-119897-2	200-35302-1	200-35201-23	200-35201-17, 460-119897-3	200-35201-18, 460-119897-4
Sample Name	CFAC Site-Specific Human Health Sediment (mg/kg)	CFSDP-002-SO	CFSDP-006-SO	CFSDP-006-SD	CFSDP-007-SO	CFSDP-008-SO	CFSDP-017-SO	CFSDP-021-SO	CFSDP-022-SO	CFSDP-001-SO	CFSDP-002-SO	CFSDP-002-SO	CFSDP-006-SO	CFSDP-007-SO	CFSDP-008-SO
Sample Depth		0-0.5 ft	0-0.5 ft	?-? ?	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
Chemical Name		9/16/2016	9/9/2016	9/9/2016	9/8/2016	9/8/2016	9/8/2016	9/6/2016	9/6/2016	9/8/2016	9/8/2016	9/16/2016	9/9/2016	9/8/2016	9/8/2016
PCB-1248 (Aroclor 1248)	0.23	--	--	0.011 U	0.012 U	0.013 U	0.012 U	0.01 U	0.014 U	0.013 U	0.011 U	--	--	0.012 U	0.013 U
PCB-1254 (Aroclor 1254)	0.12	--	--	0.011 U	0.013 U	0.013 U	0.012 U	0.011 U	0.015 U	0.013 U	0.011 U	--	--	0.013 U	0.013 U
PCB-1260 (Aroclor 1260)	0.24	--	--	0.011 U	0.013 U	0.013 U	0.012 U	0.011 U	0.015 U	0.013 U	0.011 U	--	--	0.013 U	0.013 U
PCB-1262 (Aroclor 1262)	--	--	--	0.011 U	0.013 U	0.013 U	0.012 U	0.011 U	0.015 U	0.013 U	0.011 U	--	--	0.013 U	0.013 U
PCB-1268 (Aroclor 1268)	--	--	--	0.011 U	0.013 U	0.013 U	0.012 U	0.011 U	0.015 U	0.013 U	0.011 U	--	--	0.013 U	0.013 U
Polychlorinated Biphenyl (PCBs)	--	--	--	0.011 U	0.013 U	0.013 U	0.012 U	0.011 U	0.015 U	0.013 U	0.011 U	--	--	0.013 U	0.013 U
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)															
1,2,4,5-Tetrachlorobenzene	2.3	--	--	0.03 U	0.034 U	0.035 U	0.033 U	0.028 U	0.039 U	0.034 U	0.03 U	--	--	0.034 U	0.035 U
1,4-Dioxane (P-Dioxane)	5.3	--	--	0.11 U	0.12 U	0.13 U	0.12 U	0.1 U	0.14 U	0.12 U	0.11 U	--	--	0.12 U	0.13 U
2,3,4,6-Tetrachlorophenol	190	--	--	0.037 U	0.042 U	0.044 U	0.042 U	0.036 U	0.049 U	0.042 U	0.038 U	--	--	0.043 U	0.044 U
2,4,5-Trichlorophenol	630	--	--	0.04 U	0.045 U	0.047 U	0.044 U	0.038 U	0.052 U	0.045 U	0.04 U	--	--	0.045 U	0.047 U
2,4,6-Trichlorophenol	6.3	--	--	0.011 U	0.013 U	0.013 U	0.013 U	0.01 U	0.015 U	0.013 U	0.011 U	--	--	0.013 U	0.013 U
2,4-Dichlorophenol	19	--	--	0.0094 U	0.011 U	0.011 U	0.011 U	0.009 U	0.012 U	0.011 U	0.0094 U	--	--	0.011 U	0.011 U
2,4-Dimethylphenol	130	--	--	0.098 U	0.1 U	0.1 U	0.098 U	0.085 U	0.12 U	0.099 U	0.088 U	--	--	0.1 U	0.1 U
2,4-Dinitrophenol	13	--	--	0.3 U	0.34 U	0.36 U	0.34 U	0.29 UJ	0.4 U	0.34 U	0.3 U	--	--	0.34 U	0.36 U
2,4-Dinitrotoluene	1.7	--	--	0.016 U	0.018 U	0.019 U	0.018 U	0.015 U	0.021 U	0.018 U	0.016 U	--	--	0.018 U	0.019 U
2,6-Dinitrotoluene	0.36	--	--	0.021 U	0.024 U	0.025 U	0.024 U	0.02 U	0.028 U	0.024 U	0.021 U	--	--	0.024 U	0.025 U
2-Chloronaphthalene	480	--	--	0.009 U	0.01 U	0.011 U	0.01 U	0.0086 U	0.012 U	0.01 U	0.009 U	--	--	0.01 U	0.011 U
2-Chlorophenol	39	--	--	0.01 U	0.012 U	0.012 U	0.011 U	0.0096 U	0.013 U	0.011 U	0.01 U	--	--	0.012 U	0.012 U
2-Methylnaphthalene	24	--	--	0.0088 U	0.01 U	0.01 U	0.0098 U	0.0084 U	0.012 U	0.0093 U	0.0088 U	--	--	0.01 U	0.01 U
2-Methylphenol (O-Cresol)	320	--	--	0.017 U	0.02 U	0.02 U	0.019 U	0.017 U	0.023 U	0.01 U	0.017 U	--	--	0.02 U	0.02 U
2-Nitroaniline	63	--	--	0.013 U	0.015 U	0.015 U	0.015 U	0.013 U	0.017 U	0.015 U	0.013 U	--	--	0.015 U	0.015 U
2-Nitrophenol	--	--	--	0.013 U	0.015 U	0.016 U	0.015 U	0.013 U	0.018 U	0.015 U	0.013 U	--	--	0.015 U	0.016 U
3- And 4- Methylphenol (Total)	--	--	--	0.011 U	0.012 U	0.013 J	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	--	--	0.012 U	0.035 J
3,3'-Dichlorobenzidine	1.2	--	--	0.044 U	0.051 U	0.052 U	0.05 U	0.042 U	0.058 U	0.05 U	0.045 U	--	--	0.051 U	0.052 U
3-Nitroaniline	--	--	--	0.012 U	0.013 U	0.014 U	0.013 U	0.011 U	0.016 U	0.013 U	0.012 U	--	--	0.013 U	0.014 U
4,6-Dinitro-2-Methylphenol	0.51	--	--	0.11 U	0.12 U	0.13 U	0.12 U	0.1 U	0.14 U	0.12 U	0.11 U	--	--	0.12 U	0.13 U
4-Bromophenyl Phenyl Ether	--	--	--	0.013 U	0.014 U	0.015 U	0.014 U	0.012 U	0.016 U	0.014 U	0.013 U	--	--	0.014 U	0.015 U
4-Chloro-3-Methylphenol	630	--	--	0.017 U	0.019 U	0.02 U	0.019 U	0.016 U	0.023 U	0.019 U	0.017 U	--	--	0.019 U	0.02 U
4-Chloroaniline	2.7	--	--	0.01 U	0.012 U	0.012 U	0.011 U	0.0098 U	0.013 U	0.012 U	0.01 U	--	--	0.012 U	0.012 U
4-Chlorophenyl Phenyl Ether	--	--	--	0.012 U	0.014 U	0.014 U	0.013 U	0.011 U	0.016 U	0.013 U	0.012 U	--	--	0.014 U	0.014 U
4-Nitroaniline	25	--	--	0.015 U	0.017 U	0.018 U	0.017 U	0.014 U	0.02 U	0.017 U	0.015 U	--	--	0.017 U	0.018 U
4-Nitrophenol	--	--	--	0.19 U	0.22 U	0.23 U	0.21 U	0.18 UJ	0.25 UJ	0.22 U	0.19 U	--	--	0.22 U	0.23 U
Acenaphthene	360	--	--	0.009 U	0.011 U	0.011 U	0.011 U	0.0092 U	0.013 U	0.011 U	0.0096 U	--	--	0.011 U	0.011 U
Acenaphthylene	--	--	--	0.01 U	0.012 U	0.012 U	0.011 U	0.0098 U	0.013 U	0.012 U	0.01 U	--	--	0.012 U	0.012 U
Acetophenone	780	--	--	0.0099 U	0.01 U	0.01 U	0.0097 U	0.0083 U	0.011 U	0.0098 U	0.0087 U	--	--	0.0099 U	0.01 U
Anthracene	1800	--	--	0.038 U	0.043 U	0.045 U	0.042 U	0.036 U	0.05 U	0.043 U	0.038 U	--	--	0.043 U	0.045 U
Atrazine	2.4	--	--	0.018 U	0.02 U	0.021 U	0.02 U	0.017 U	0.023 U	0.02 U	0.018 U	--	--	0.02 U	0.021 U
Benzaldehyde	170	--	--	0.03 U	0.035 U	0.036 U	0.034 U	0.029 U	0.04 U	0.034 U	0.03 U	--	--	0.035 U	0.036 U
Benzo(A)Anthracene	1.1	--	--	0.032 U	0.038 U	0.039 U	0.037 U	0.032 U	0.074	0.038 U	0.033 U	--	--	0.038 U	0.039 U
Benzo(A)Pyrene	0.11	--	--	0.012 U	0.014 U	0.014 U	0.013 U	0.021 J	0.091	0.014 U	0.012 U	--	--	0.014 U	0.014 U
Benzo(B)Fluoranthene	1.1	--	--	0.016 U	0.018 U	0.018 U	0.017 U	0.036 J	0.15	0.018 U	0.016 U	--	--	0.018 U	0.018 U
Benzo(G,H,I)Perylene	--	--	--	0.023 U	0.026 U	0.027 U	0.026 U	0.027 J	0.1 J	0.026 U	0.023 U	--	--	0.026 U	0.027 U
Benzo(K)Fluoranthene	11	--	--	0.017 U	0.02 U	0.02 U	0.019 U	0.017 U	0.053	0.02 U	0.017 U	--	--	0.02 U	0.02 U
Benzyl Butyl Phthalate	290	--	--	0.012 U	0.014 U	0.014 U	0.014 U	0.012 U	0.016 U	0.014 U	0.012 U	--	--	0.014 U	0.014 U
Biphenyl (Diphenyl)	4.7	--	--	0.034 U	0.039 U	0.04 U	0.038 U	0.032 U	0.045 U	0.038 U	0.034 U	--	--	0.039 U	0.04 U
Bis(2-Chloroethoxy) Methane	19	--	--	0.012 U	0.014 U	0.015 U	0.014 U	0.012 U	0.016 U	0.014 U	0.012 U	--	--	0.014 U	0.015 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	0.23	--	--	0.0094 U	0.011 U	0.011 U	0.011 U	0.009 U	0.012 U	0.011 U	0.0094 U	--	--	0.011 U	0.011 U
Bis(2-Chloroisopropyl) Ether	310	--	--	0.016 U	0.019 U	0.019 U	0.018 U	0.016 U	0.022 U	0.019 U	0.016 U	--	--	0.019 U	0.019 U
Bis(2-Ethylhexyl) Phthalate	39	--	--	0.016 U	0.018 J	0.018 U	0.017 U	0.015 U	0.02 U	0.032 J	0.016 U	--	--	0.018 J	0.018 U
Caprolactam	3100	--	--	0.029 U	0.033 U	0.034 U	0.032 U	0.027 UJ	0.038 U	0.032 U	0.029 U	--	--	0.032 U	0.034 U
Carbazole	--	--	--	0.0099 U	0.011 U	0.012 U	0.011 U	0.0094 U	0.013 U	0.011 U	0.0099 U	--	--	0.011 U	0.012 U
Chrysene	110	--	--	0.011 U	0.012 U	0.013 U	0.012 U	0.019 J	0.13 J	0.012 U	0.011 U	--	--	0.012 U	0.013 U
Dibenz(A,H)Anthracene	0.11	--	--	0.021 U	0.024 U	0.024 U	0.023 U	0.02 U	0.027 U	0.023 U	0.021 U	--	--	0.024 U	0.024 U
Dibenzofuran	7.3	--	--	0.012 U	0.014 U	0.014 U	0.013 U	0.011 U	0.016 U	0.014 U	0.012 U	--	--	0.014 U	0.014 U

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Table C-4
Summary of Sediment Data Used in the Risk Assessment
Columbia Falls Aluminum Company
Columbia Falls, Montana

Sample Investigation Area		Flathead River	Flathead River	Flathead River	Flathead River	Flathead River	Flathead River	Northern Landfill Area	Northern Landfill Area	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA	Exp Area 9 FLATHEAD RIVER AREA
Sample Water Bearing Zone		--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Location ID		CFSDP-002	CFSDP-006	CFSDP-006	CFSDP-007	CFSDP-008	CFSDP-017	CFSDP-021	CFSDP-022	CFSDP-001	CFSDP-002	CFSDP-002	CFSDP-006	CFSDP-007	CFSDP-008
Sample Lab IDs		200-35302-1	200-35201-23	460-119996-4	200-35201-17, 460-119897-3	200-35201-18, 460-119897-4	200-35201-19, 460-119897-5	200-35201-9, 460-119741-7	200-35201-10, 460-119741-8	200-35201-16, 460-119897-1	460-119897-2	200-35302-1	200-35201-23	200-35201-17, 460-119897-3	200-35201-18, 460-119897-4
Sample Name	CFAC Site-Specific Human Health Sediment (mg/kg)	CFSDP-002-SO	CFSDP-006-SO	CFSDP-006-SD	CFSDP-007-SO	CFSDP-008-SO	CFSDP-017-SO	CFSDP-021-SO	CFSDP-022-SO	CFSDP-001-SO	CFSDP-002-SO	CFSDP-002-SO	CFSDP-006-SO	CFSDP-007-SO	CFSDP-008-SO
Sample Depth		0-0.5 ft	0-0.5 ft	?-? ?	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
Chemical Name		9/16/2016	9/9/2016	9/9/2016	9/8/2016	9/8/2016	9/8/2016	9/6/2016	9/6/2016	9/8/2016	9/8/2016	9/16/2016	9/9/2016	9/8/2016	9/8/2016
Diethyl Phthalate	5100	---	---	0.011 U	0.013 U	0.013 U	0.013 U	0.011 U	0.015 U	0.013 U	0.011 U	---	---	0.013 U	0.013 U
Dimethyl Phthalate	--	---	---	0.012 U	0.013 U	0.014 U	0.013 U	0.011 U	0.015 U	0.013 U	0.012 U	---	---	0.013 U	0.014 U
Di-N-Butyl Phthalate	630	---	---	0.012 U	0.014 U	0.014 U	0.013 U	0.011 U	0.016 U	0.013 U	0.012 U	---	---	0.014 U	0.014 U
Di-N-Octylphthalate	63	---	---	0.02 U	0.022 U	0.024 U	0.022 U	0.019 U	0.027 U	0.023 U	0.02 U	---	---	0.023 U	0.024 U
Fluoranthene	240	---	---	0.012 U	0.013 U	0.014 U	0.013 U	0.018 J	0.12	0.013 U	0.012 U	---	---	0.013 U	0.014 U
Fluorene	240	---	---	0.0087 U	0.0099 U	0.01 U	0.0097 U	0.0083 U	0.02	0.0098 U	0.0087 U	---	---	0.0099 U	0.01 U
Hexachlorobenzene	0.21	---	---	0.016 U	0.018 U	0.019 U	0.018 U	0.015 U	0.02 U	0.018 U	0.016 U	---	---	0.018 U	0.019 U
Hexachlorobutadiene	1.2	---	---	0.011 U	0.013 U	0.013 U	0.013 U	0.011 U	0.015 U	0.013 U	0.011 U	---	---	0.013 U	0.013 U
Hexachlorocyclopentadiene	0.18	---	---	0.025 U	0.028 U	0.029 U	0.028 U	0.024 U	0.033 U	0.028 U	0.025 U	---	---	0.028 U	0.029 U
Hexachloroethane	1.8	---	---	0.015 U	0.017 U	0.017 U	0.016 U	0.014 U	0.019 U	0.016 U	0.015 U	---	---	0.017 U	0.017 U
Indeno(1,2,3-C,D)Pyrene	1.1	---	---	0.027 U	0.03 U	0.031 U	0.03 U	0.025 J	0.093	0.03 U	0.027 U	---	---	0.03 U	0.031 U
Isophorone	570	---	---	0.0086 U	0.0097 U	0.01 U	0.0096 U	0.008 U	0.015 J	0.0097 U	0.0086 U	---	---	0.0097 U	0.01 U
Naphthalene	3.8	---	---	0.01 U	0.012 U	0.012 U	0.011 U	0.01 U	0.013 U	0.011 U	0.01 U	---	---	0.012 U	0.012 U
Nitrobenzene	5.1	---	---	0.013 U	0.014 U	0.015 U	0.014 U	0.012 U	0.016 U	0.014 U	0.013 U	---	---	0.014 U	0.015 U
N-Nitrosodi-N-Propylamine	0.078	---	---	0.013 U	0.015 U	0.016 U	0.015 U	0.013 U	0.018 U	0.015 U	0.013 U	---	---	0.015 U	0.016 U
N-Nitrosodiphenylamine	110	---	---	0.036 U	0.041 U	0.043 U	0.04 U	0.034 U	0.048 U	0.041 U	0.036 U	---	---	0.041 U	0.043 U
Pentachlorophenol	1	---	---	0.048 U	0.055 U	0.057 U	0.054 U	0.046 U	0.063 U	0.055 U	0.048 U	---	---	0.055 U	0.057 U
Phenanthrene	--	---	---	0.011 U	0.012 U	0.013 U	0.012 U	0.011 J	0.058 J	0.012 U	0.011 U	---	---	0.012 U	0.013 U
Phenol	1900	---	---	0.013 U	0.015 U	0.015 U	0.015 U	0.012 U	0.017 U	0.015 U	0.013 U	---	---	0.015 U	0.015 U
Pyrene	180	---	---	0.018 U	0.021 U	0.021 U	0.02 U	0.027 J	0.11 J	0.02 U	0.018 U	---	---	0.021 U	0.021 U

Notes:
mg/kg = milligram per kilogram
Shaded concentration exceeds screening level.
Refer to text for additional information on site-specific screening l
Data Qualifiers:
U = constituent not detected
UJ = constituent not detected at estimated deteciton limit
J = constituent detected at estimated concentration
J- = constituent detected at estimated concentration, biased low
J+ = constituent detected at estimated concentration, biased high
R = constituent detected; data rejected by validator
UR = constituent not detected; data rejected by validator

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APPENDIX D INCREMENTAL SAMPLING SELECTION OF COPCS

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Table D-1

Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.021	0.81	mg/kg	CFISS-033	21 / 21	0.016 - 0.016	0.81	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	16984-48-8	Fluoride	39.9	632	mg/kg	CFISS-042	21 / 21	0.35 - 0.35	632	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7429-90-5	Aluminum	14900	37100	mg/kg	CFISS-026	21 / 21	0.8 - 0.8	37100	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.11	8.6	mg/kg	CFISS-038	21 / 21	0.018 - 0.018	8.6	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-38-2	Arsenic	4.5	31.3	mg/kg	CFISS-038	21 / 21	0.034 - 0.034	31.3	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	97.2	296	mg/kg	CFISS-027	21 / 21	0.28 - 0.28	296	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-41-7	Beryllium	0.48	1.5	mg/kg	CFISS-033	21 / 21	0.014 - 0.014	1.5	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.082	1.6	mg/kg	CFISS-033	21 / 21	0.0048 - 0.0048	1.6	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	7060	45700	mg/kg	CFISS-038	21 / 21	28.5 - 28.5	45700	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	12.9	69.1	mg/kg	CFISS-027	21 / 21	0.078 - 0.078	69.1	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	5.8	13.5	mg/kg	CFISS-038	21 / 21	0.0022 - 0.0022	13.5	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-50-8	Copper	15.8	887	mg/kg	CFISS-038	21 / 21	0.13 - 0.13	887	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	15500	66700	mg/kg	CFISS-038	21 / 21	4.1 - 4.1	66700	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-92-1	Lead	12	144	mg/kg	CFISS-038	26 / 26	0.058 - 0.058	144	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	7240	11800	mg/kg	CFISS-024	21 / 21	5.2 - 5.2	11800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	387	731	mg/kg	CFISS-038	21 / 21	0.16 - 0.16	731	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-97-6	Mercury	0.013	0.049	mg/kg	CFISS-032	11 / 21	0.013 - 0.015	0.049	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	13.4	87	mg/kg	CFISS-027	21 / 21	0.05 - 0.05	87	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	9/7/7440	Potassium	873	2370	mg/kg	CFISS-027	21 / 21	6.3 - 6.3	2370	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.73	5.7	mg/kg	CFISS-027	21 / 21	0.052 - 0.052	5.7	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-22-4	Silver	0.036	1.3	mg/kg	CFISS-038	21 / 21	0.0018 - 0.0018	1.3	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	87.2	3050	mg/kg	CFISS-033	21 / 21	11.3 - 11.3	3050	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.087	0.22	mg/kg	CFISS-027	21 / 21	0.025 - 0.025	0.22	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	12.3	44.5	mg/kg	CFISS-033	21 / 21	0.048 - 0.048	44.5	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-66-6	Zinc	48.2	1720	mg/kg	CFISS-038	21 / 21	0.65 - 0.65	1720	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 21	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 21	0.00059 - 0.00059	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 21	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 21	0.00063 - 0.00063	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 21	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 21	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 21	0.0007 - 0.0007	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 21	0.00084 - 0.00084	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 21	0.00075 - 0.00075	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 21	0.00082 - 0.00082	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 21	0.0008 - 0.0008	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 21	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 21	0.00058 - 0.00058	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 21	0.00083 - 0.00083	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table D-1
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 21	0.0013 - 0.0013	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 21	0.0014 - 0.0014	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 21	0.00085 - 0.00085	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 21	0.00093 - 0.00093	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 21	0.00066 - 0.00066	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 21	0.019 - 0.019	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 21	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 21	0.0086 - 0.0086	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 21	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 21	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 21	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 21	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 21	0.0089 - 0.0089	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 21	0.0089 - 0.0089	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 21	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 21	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 21	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 21	0.024 - 0.024	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 21	0.086 - 0.086	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 21	0.03 - 0.03	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 21	0.032 - 0.032	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 21	0.0092 - 0.0092	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 21	0.0076 - 0.0076	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 21	0.071 - 0.071	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 21	0.24 - 0.24	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 21	0.013 - 0.013	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 21	0.017 - 0.017	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 21	0.0073 - 0.0073	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 21	0.0082 - 0.0082	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0075	0.46	mg/kg	CFISS-040	18 / 21	0.0071 - 0.037	0.46	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 21	0.014 - 0.014	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 21	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 21	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 21	0.036 - 0.036	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 21	0.0086 - 0.0086	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 21	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 21	0.086 - 0.086	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 21	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 21	0.014 - 0.014	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND

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Table D-1

Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 21	0.0083 - 0.0083	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 21	0.0097 - 0.0097	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 21	0.012 - 0.012	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 21	0.16 - 0.16	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.035	4.6	mg/kg	CFISS-034	21 / 21	0.0078 - 0.0078	4.6	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.01	0.033	mg/kg	CFISS-038	3 / 21	0.0083 - 0.0084	0.033	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.02	0.03	mg/kg	CFISS-028	4 / 21	0.007 - 0.0071	0.03	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	120-12-7	Anthracene	0.058	15	mg/kg	CFISS-034	21 / 21	0.031 - 0.031	15	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 21	0.014 - 0.014	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.038	0.051	mg/kg	CFISS-025	2 / 21	0.025 - 0.025	0.051	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.26	100	mg/kg	CFISS-034	21 / 21	0.027 - 0.027	100	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.34	110	mg/kg	CFISS-034	21 / 21	0.0098 - 0.0098	110	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.42	130	mg/kg	CFISS-034	21 / 21	0.013 - 0.013	130	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.42	90	mg/kg	CFISS-034	21 / 21	0.019 - 0.019	90	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.16	47	mg/kg	CFISS-034	21 / 21	0.014 - 0.014	47	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.019	0.73	mg/kg	CFISS-043	8 / 21	0.01 - 0.01	0.73	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.058	0.058	mg/kg	CFISS-026	1 / 21	0.028 - 0.056	0.058	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 21	0.01 - 0.01	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 21	0.0076 - 0.0076	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 21	0.013 - 0.013	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.047	0.27	mg/kg	CFISS-027	7 / 21	0.013 - 0.013	0.27	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 21	0.023 - 0.023	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.037	11	mg/kg	CFISS-034	21 / 21	0.008 - 0.008	11	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.36	100	mg/kg	CFISS-034	21 / 21	0.0088 - 0.0088	100	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.012	0.067	mg/kg	CFISS-029	8 / 21	0.0097 - 0.0097	0.067	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 21	0.016 - 0.016	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.095	26	mg/kg	CFISS-034	21 / 21	0.017 - 0.017	26	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.013	1.3	mg/kg	CFISS-040	21 / 21	0.0098 - 0.0098	1.3	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 21	0.0092 - 0.0092	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 21	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.46	120	mg/kg	CFISS-034	21 / 21	0.0096 - 0.0096	120	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.024	2.5	mg/kg	CFISS-040	21 / 21	0.007 - 0.007	2.5	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 21	0.013 - 0.013	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 21	0.0091 - 0.0091	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 21	0.02 - 0.02	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 21	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.38	100	mg/kg	CFISS-034	21 / 21	0.022 - 0.022	100	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.076	0.099	mg/kg	CFISS-028	2 / 21	0.0069 - 0.007	0.099	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 21	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

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Table D-1

Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 21	0.029 - 0.029	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.012	1.3	mg/kg	CFISS-040	18 / 21	0.0082 - 0.042	1.3	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 21	0.01 - 0.01	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	0.1	0.1	mg/kg	CFISS-036	1 / 21	0.039 - 0.041	0.1	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	85-01-8	Phenanthrene	0.3	52	mg/kg	CFISS-034	21 / 21	0.0086 - 0.0086	52	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.012	0.033	mg/kg	CFISS-042	4 / 21	0.011 - 0.011	0.033	NA	3.30E-01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.44	120	mg/kg	CFISS-034	21 / 21	0.015 - 0.015	120	NA	1.30E+00	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk

USEPA = US Environmental Protection Agency

RSL = Regional Screening Level

MDEQ = Montana Department of Environmental Quaility

(1) Maximum detection value

(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1×10^{-6})

USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level

MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.

c = carcinogenic basis

n = non-carcinogenic basis

dc - direct contact

(3) COPC Flag

Y = Yes

N = No

(4) Rationale for Selection or Deletion

BSL - Detections and Detection Limits Below Screening Level

BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.

ASL = Detections Above Screening Level

ASL-SSL(GW COC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.

ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded

ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level

LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set

Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA

NSL = no screening level available

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Table D-2

Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.021	1.2	mg/kg	CFISS-032	41 / 41	0.016 - 0.016	1.2	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	16984-48-8	Fluoride	39.9	946	mg/kg	CFISS-027	41 / 41	0.35 - 0.35	946	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7429-90-5	Aluminum	13200	37100	mg/kg	CFISS-026	41 / 41	0.79 - 0.79	37100	NA	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.11	8.6	mg/kg	CFISS-038	41 / 41	0.018 - 0.018	8.6	NA	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-38-2	Arsenic	4.1	31.3	mg/kg	CFISS-038	41 / 41	0.033 - 0.033	31.3	NA	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	94.7	302	mg/kg	CFISS-036	41 / 41	0.28 - 0.28	302	NA	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-41-7	Beryllium	0.48	1.5	mg/kg	CFISS-033	41 / 41	0.014 - 0.014	1.5	NA	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.082	1.6	mg/kg	CFISS-033	41 / 41	0.0047 - 0.0047	1.6	NA	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	7060	45700	mg/kg	CFISS-038	41 / 41	28.1 - 28.1	45700	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	12.9	69.1	mg/kg	CFISS-027	41 / 41	0.077 - 0.077	69.1	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	5.7	13.5	mg/kg	CFISS-038	41 / 41	0.0022 - 0.0022	13.5	NA	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-50-8	Copper	15.4	887	mg/kg	CFISS-038	41 / 41	0.12 - 0.12	887	NA	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	14800	66700	mg/kg	CFISS-038	41 / 41	4.1 - 4.1	66700	NA	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-92-1	Lead	10.3	144	mg/kg	CFISS-038	46 / 46	0.058 - 0.058	144	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	6830	11800	mg/kg	CFISS-025	41 / 41	5.1 - 5.1	11800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	363	731	mg/kg	CFISS-038	41 / 41	0.15 - 0.15	731	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-97-6	Mercury	0.013	0.058	mg/kg	CFISS-035	20 / 41	0.012 - 0.014	0.058	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	13.4	87	mg/kg	CFISS-027	41 / 41	0.05 - 0.05	87	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	9/7/7440	Potassium	873	2490	mg/kg	CFISS-028	41 / 41	6.3 - 6.3	2490	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.73	5.7	mg/kg	CFISS-027	41 / 41	0.051 - 0.051	5.7	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-22-4	Silver	0.029	1.3	mg/kg	CFISS-038	41 / 41	0.0018 - 0.0018	1.3	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	77.4	3350	mg/kg	CFISS-034	41 / 41	11.1 - 11.1	3350	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.077	0.22	mg/kg	CFISS-027	41 / 41	0.024 - 0.024	0.22	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	12.3	44.5	mg/kg	CFISS-033	41 / 41	0.047 - 0.047	44.5	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-66-6	Zinc	44.8	1720	mg/kg	CFISS-038	41 / 41	0.64 - 0.64	1720	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 21	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 21	0.00059 - 0.00059	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 21	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 21	0.00063 - 0.00063	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 21	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 21	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 21	0.0007 - 0.0007	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 21	0.00084 - 0.00084	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 21	0.00075 - 0.00075	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 21	0.00082 - 0.00082	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 21	0.0008 - 0.0008	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 21	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 21	0.00058 - 0.00058	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 21	0.00083 - 0.00083	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 21	0.0013 - 0.0013	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
Surface	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 21	0.0014 - 0.0014	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table D-2
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 21	0.00085 - 0.00085	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 21	0.00093 - 0.00093	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 21	0.00066 - 0.00066	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 21	0.019 - 0.019	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 21	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 41	0.024 - 0.024	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 41	0.085 - 0.085	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 41	0.03 - 0.03	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 41	0.032 - 0.032	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 41	0.009 - 0.009	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 41	0.0075 - 0.0075	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 41	0.07 - 0.07	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 40	0.24 - 0.24	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 41	0.013 - 0.013	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 41	0.017 - 0.017	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 41	0.0072 - 0.0072	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 41	0.0081 - 0.0081	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0075	0.46	mg/kg	CFISS-040	33 / 41	0.007 - 0.0072	0.46	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 41	0.014 - 0.014	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 41	0.01 - 0.01	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 41	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 41	0.035 - 0.035	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.017	0.017	mg/kg	CFISS-038	1 / 41	0.0084 - 0.0089	0.017	NA	No Screening Level		N	LDF
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 41	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 41	0.085 - 0.085	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 41	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 41	0.014 - 0.014	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 41	0.0082 - 0.0082	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 41	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 41	0.012 - 0.012	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
Surface	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 41	0.15 - 0.15	ND	NA	No Screening Level		N	BSL-ND
Soil	83-32-9	Acenaphthene	0.014	4.6	mg/kg	CFISS-034	41 / 41	0.0077 - 0.0077	4.6	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

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Table D-2
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
	208-96-8	Acenaphthylene	0.01	0.033	mg/kg	CFISS-038	5 / 41	0.0082 - 0.0084	0.033	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.0076	0.03	mg/kg	CFISS-028	11 / 41	0.0069 - 0.0069	0.03	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	120-12-7	Anthracene	0.036	15	mg/kg	CFISS-034	39 / 41	0.03 - 0.031	15	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 41	0.014 - 0.014	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.026	0.051	mg/kg	CFISS-025	4 / 41	0.024 - 0.024	0.051	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.12	100	mg/kg	CFISS-034	41 / 41	0.026 - 0.026	100	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.12	110	mg/kg	CFISS-034	41 / 41	0.0096 - 0.0096	110	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.17	130	mg/kg	CFISS-034	41 / 41	0.012 - 0.012	130	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.082	90	mg/kg	CFISS-034	41 / 41	0.018 - 0.018	90	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.057	47	mg/kg	CFISS-034	41 / 41	0.014 - 0.014	47	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.012	0.73	mg/kg	CFISS-043	11 / 41	0.0098 - 0.0099	0.73	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.037	0.058	mg/kg	CFISS-026	2 / 41	0.027 - 0.028	0.058	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 41	0.0099 - 0.0099	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 41	0.0075 - 0.0075	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 41	0.013 - 0.013	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.046	0.27	mg/kg	CFISS-027	10 / 41	0.012 - 0.012	0.27	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 41	0.023 - 0.023	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.016	11	mg/kg	CFISS-034	41 / 41	0.0079 - 0.0079	11	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.13	100	mg/kg	CFISS-034	41 / 41	0.0086 - 0.0086	100	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.011	0.067	mg/kg	CFISS-029	17 / 41	0.0095 - 0.0096	0.067	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 41	0.016 - 0.016	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.028	26	mg/kg	CFISS-034	40 / 41	0.017 - 0.018	26	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.013	1.3	mg/kg	CFISS-040	37 / 41	0.0096 - 0.0098	1.3	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 41	0.009 - 0.009	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 41	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.21	120	mg/kg	CFISS-034	41 / 41	0.0094 - 0.0094	120	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.0095	2.5	mg/kg	CFISS-040	41 / 41	0.0069 - 0.0069	2.5	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 41	0.013 - 0.013	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 41	0.0089 - 0.0089	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 41	0.02 - 0.02	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 41	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.096	100	mg/kg	CFISS-034	41 / 41	0.021 - 0.021	100	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.076	0.11	mg/kg	CFISS-027	4 / 41	0.0068 - 0.0068	0.11	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 41	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 41	0.029 - 0.029	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.0096	1.3	mg/kg	CFISS-040	35 / 41	0.0081 - 0.0083	1.3	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 41	0.01 - 0.01	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	0.1	0.1	mg/kg	CFISS-036	1 / 41	0.038 - 0.041	0.1	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	85-01-8	Phenanthrene	0.14	52	mg/kg	CFISS-034	41 / 41	0.0084 - 0.0084	52	NA	No Screening Level		N	NSL
Surface	108-95-2	Phenol	0.012	0.033	mg/kg	CFISS-042	7 / 41	0.01 - 0.01	0.033	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL
Soil	129-00-0	Pyrene	0.25	120	mg/kg	CFISS-034	41 / 41	0.014 - 0.014	120	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

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Table D-2

Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Main Plant Area
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table D-3
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Main Plant Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	57-12-5	Cyanide	0.021	1.2	mg/kg	CFISS-032	41 / 41	0.016 - 0.016	1.2	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	16984-48-8	Fluoride	39.9	946	mg/kg	CFISS-027	41 / 41	0.35 - 0.35	946	NA	12	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7429-90-5	Aluminum	13200	37100	mg/kg	CFISS-026	41 / 41	0.79 - 0.79	37100	NA	3000	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.11	8.6	mg/kg	CFISS-038	41 / 41	0.018 - 0.018	8.6	NA	0.035	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-38-2	Arsenic	4.1	31.3	mg/kg	CFISS-038	41 / 41	0.033 - 0.033	31.3	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	94.7	302	mg/kg	CFISS-036	41 / 41	0.28 - 0.28	302	NA	16	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-41-7	Beryllium	0.48	1.5	mg/kg	CFISS-033	41 / 41	0.014 - 0.014	1.5	NA	1.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.082	1.6	mg/kg	CFISS-033	41 / 41	0.0047 - 0.0047	1.6	NA	0.069	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	7060	45700	mg/kg	CFISS-038	41 / 41	28.1 - 28.1	45700	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	12.9	69.1	mg/kg	CFISS-027	41 / 41	0.077 - 0.077	69.1	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	5.7	13.5	mg/kg	CFISS-038	41 / 41	0.0022 - 0.0022	13.5	NA	0.027	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-50-8	Copper	15.4	887	mg/kg	CFISS-038	41 / 41	0.12 - 0.12	887	NA	2.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	14800	66700	mg/kg	CFISS-038	41 / 41	4.1 - 4.1	66700	NA	35	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-92-1	Lead	10.3	144	mg/kg	CFISS-038	46 / 46	0.058 - 0.058	144	NA	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	6830	11800	mg/kg	CFISS-025	41 / 41	5.1 - 5.1	11800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	363	731	mg/kg	CFISS-038	41 / 41	0.15 - 0.15	731	NA	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-97-6	Mercury	0.013	0.058	mg/kg	CFISS-035	20 / 41	0.012 - 0.014	0.058	NA	0.0033	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	13.4	87	mg/kg	CFISS-027	41 / 41	0.05 - 0.05	87	NA	2.6	USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	9/7/7440	Potassium	873	2490	mg/kg	CFISS-028	41 / 41	6.3 - 6.3	2490	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.73	5.7	mg/kg	CFISS-027	41 / 41	0.051 - 0.051	5.7	NA	0.052	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-22-4	Silver	0.029	1.3	mg/kg	CFISS-038	41 / 41	0.0018 - 0.0018	1.3	NA	0.08	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	77.4	3350	mg/kg	CFISS-034	41 / 41	11.1 - 11.1	3350	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.077	0.22	mg/kg	CFISS-027	41 / 41	0.024 - 0.024	0.22	NA	0.0014	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	12.3	44.5	mg/kg	CFISS-033	41 / 41	0.047 - 0.047	44.5	NA	8.6	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-66-6	Zinc	44.8	1720	mg/kg	CFISS-038	41 / 41	0.64 - 0.64	1720	NA	37	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 21	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 21	0.00059 - 0.00059	ND	NA	4.20E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 21	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 21	0.00063 - 0.00063	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 21	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 21	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 21	0.0007 - 0.0007	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 21	0.00084 - 0.00084	ND	NA	7.10E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 21	0.00075 - 0.00075	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 21	0.00082 - 0.00082	ND	NA	0.0092	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 21	0.0008 - 0.0008	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 21	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 21	0.00058 - 0.00058	ND	NA	0.00024	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 21	0.00083 - 0.00083	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND

Preliminary - Under EPA and MDEQ Review

Table D-3
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Main Plant Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 21	0.0013 - 0.0013	ND	NA	2.80E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 21	0.0014 - 0.0014	ND	NA	0.2	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 21	0.00085 - 0.00085	ND	NA	0.0075	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 21	0.00093 - 0.00093	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 21	0.00066 - 0.00066	ND	NA	0.077	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 21	0.019 - 0.019	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 21	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	0.013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 41	8.9e-005 - 8.9e-005	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	0.002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	0.0055	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 41	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 41	0.024 - 0.024	ND	NA	0.00079	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 41	0.085 - 0.085	ND	NA	9.40E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 41	0.03 - 0.03	ND	NA	0.018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 41	0.032 - 0.032	ND	NA	0.4	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 41	0.009 - 0.009	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 41	0.0075 - 0.0075	ND	NA	0.0023	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 41	0.07 - 0.07	ND	NA	0.042	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 40	0.24 - 0.24	ND	NA	0.0044	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 41	0.013 - 0.013	ND	NA	0.00032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 41	0.017 - 0.017	ND	NA	6.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 41	0.0072 - 0.0072	ND	NA	0.39	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 41	0.0081 - 0.0081	ND	NA	0.0089	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0075	0.46	mg/kg	CFISS-040	33 / 41	0.007 - 0.0072	0.46	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 41	0.014 - 0.014	ND	NA	0.075	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 41	0.01 - 0.01	ND	NA	0.008	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 41	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 41	0.035 - 0.035	ND	NA	0.00082	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.017	0.017	mg/kg	CFISS-038	1 / 41	0.0084 - 0.0089	0.017	NA	No Screening Level		N	LDF
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 41	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 41	0.085 - 0.085	ND	NA	0.00026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 41	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 41	0.014 - 0.014	ND	NA	0.17	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND

Preliminary - Under EPA and MDEQ Review

Table D-3
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Main Plant Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 41	0.0082 - 0.0082	ND	NA	0.00016	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 41	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 41	0.012 - 0.012	ND	NA	0.0016	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 41	0.15 - 0.15	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.014	4.6	mg/kg	CFISS-034	41 / 41	0.0077 - 0.0077	4.6	NA	0.55	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.01	0.033	mg/kg	CFISS-038	5 / 41	0.0082 - 0.0084	0.033	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.0076	0.03	mg/kg	CFISS-028	11 / 41	0.0069 - 0.0069	0.03	NA	0.058	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	120-12-7	Anthracene	0.036	15	mg/kg	CFISS-034	39 / 41	0.03 - 0.031	15	NA	5.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 41	0.014 - 0.014	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.026	0.051	mg/kg	CFISS-025	4 / 41	0.024 - 0.024	0.051	NA	0.0041	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.12	100	mg/kg	CFISS-034	41 / 41	0.026 - 0.026	100	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.12	110	mg/kg	CFISS-034	41 / 41	0.0096 - 0.0096	110	NA	0.029	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.17	130	mg/kg	CFISS-034	41 / 41	0.012 - 0.012	130	NA	0.3	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.082	90	mg/kg	CFISS-034	41 / 41	0.018 - 0.018	90	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.057	47	mg/kg	CFISS-034	41 / 41	0.014 - 0.014	47	NA	2.9	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.012	0.73	mg/kg	CFISS-043	11 / 41	0.0098 - 0.0099	0.73	NA	0.24	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.037	0.058	mg/kg	CFISS-026	2 / 41	0.027 - 0.028	0.058	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 41	0.0099 - 0.0099	ND	NA	0.0013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 41	0.0075 - 0.0075	ND	NA	3.60E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 41	0.013 - 0.013	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.046	0.27	mg/kg	CFISS-027	10 / 41	0.012 - 0.012	0.27	NA	1.3	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 41	0.023 - 0.023	ND	NA	0.25	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.016	11	mg/kg	CFISS-034	41 / 41	0.0079 - 0.0079	11	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.13	100	mg/kg	CFISS-034	41 / 41	0.0086 - 0.0086	100	NA	9	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.011	0.067	mg/kg	CFISS-029	17 / 41	0.0095 - 0.0096	0.067	NA	0.23	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 41	0.016 - 0.016	ND	NA	5.7	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.028	26	mg/kg	CFISS-034	40 / 41	0.017 - 0.018	26	NA	0.096	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.013	1.3	mg/kg	CFISS-040	37 / 41	0.0096 - 0.0098	1.3	NA	0.015	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 41	0.009 - 0.009	ND	NA	0.61	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 41	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.21	120	mg/kg	CFISS-034	41 / 41	0.0094 - 0.0094	120	NA	8.9	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.0095	2.5	mg/kg	CFISS-040	41 / 41	0.0069 - 0.0069	2.5	NA	0.54	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 41	0.013 - 0.013	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 41	0.0089 - 0.0089	ND	NA	0.00027	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 41	0.02 - 0.02	ND	NA	0.00013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 41	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.096	100	mg/kg	CFISS-034	41 / 41	0.021 - 0.021	100	NA	0.98	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.076	0.11	mg/kg	CFISS-027	4 / 41	0.0068 - 0.0068	0.11	NA	0.026	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 41	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND

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Table D-3

Occurrence, Distribution, and Selection of Potential Chemical of Concern (Main Plant Area, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Main Plant Area
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 41	0.029 - 0.029	ND	NA	0.067	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.0096	1.3	mg/kg	CFISS-040	35 / 41	0.0081 - 0.0083	1.3	NA	0.00054	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 41	0.01 - 0.01	ND	NA	9.20E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	0.1	0.1	mg/kg	CFISS-036	1 / 41	0.038 - 0.041	0.1	NA	5.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	85-01-8	Phenanthrene	0.14	52	mg/kg	CFISS-034	41 / 41	0.0084 - 0.0084	52	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.012	0.033	mg/kg	CFISS-042	7 / 41	0.01 - 0.01	0.033	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.25	120	mg/kg	CFISS-034	41 / 41	0.014 - 0.014	120	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table D-3
Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.15	0.31	mg/kg	CFISS-024	2 / 2	0.016 - 0.016	0.31	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	16984-48-8	Fluoride	72.9	592	mg/kg	CFISS-024	2 / 2	0.36 - 0.36	592	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7429-90-5	Aluminum	11400	22900	mg/kg	CFISS-024	2 / 2	0.82 - 0.82	22900	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.18	0.22	mg/kg	CFISS-024	2 / 2	0.019 - 0.019	0.22	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-38-2	Arsenic	4.2	6	mg/kg	CFISS-024	2 / 2	0.035 - 0.035	6	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	59.4	97.2	mg/kg	CFISS-024	2 / 2	0.29 - 0.29	97.2	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-41-7	Beryllium	0.52	0.81	mg/kg	CFISS-024	2 / 2	0.015 - 0.015	0.81	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.18	0.28	mg/kg	CFISS-024	2 / 2	0.0049 - 0.0049	0.28	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	23600	30400	mg/kg	CFISS-018	2 / 2	29.3 - 29.3	30400	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	18.5	18.6	mg/kg	CFISS-018	2 / 2	0.08 - 0.08	18.6	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	5.5	6.3	mg/kg	CFISS-024	2 / 2	0.0023 - 0.0023	6.3	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-50-8	Copper	15.8	19.6	mg/kg	CFISS-024	2 / 2	0.13 - 0.13	19.6	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	13900	16700	mg/kg	CFISS-024	2 / 2	4.3 - 4.3	16700	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-92-1	Lead	13.5	24.5	mg/kg	CFISS-024	2 / 2	0.06 - 0.06	24.5	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	11600	11800	mg/kg	CFISS-024	2 / 2	5.3 - 5.3	11800	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	341	390	mg/kg	CFISS-024	2 / 2	0.16 - 0.16	390	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-97-6	Mercury	0.017	0.039	mg/kg	CFISS-024	2 / 2	0.015 - 0.015	0.039	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	29.8	51.4	mg/kg	CFISS-024	2 / 2	0.052 - 0.052	51.4	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	9/7/7440	Potassium	825	1790	mg/kg	CFISS-024	2 / 2	6.5 - 6.5	1790	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	1.4	1.6	mg/kg	CFISS-024	2 / 2	0.053 - 0.053	1.6	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-22-4	Silver	0.046	0.047	mg/kg	CFISS-024	2 / 2	0.0019 - 0.0019	0.047	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7440-23-5	Sodium	79.9	1520	mg/kg	CFISS-024	2 / 2	11.6 - 11.6	1520	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.085	0.1	mg/kg	CFISS-024	2 / 2	0.025 - 0.025	0.1	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	13.7	21.7	mg/kg	CFISS-024	2 / 2	0.049 - 0.049	21.7	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-66-6	Zinc	48.8	77.8	mg/kg	CFISS-024	2 / 2	0.66 - 0.66	77.8	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 2	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.00059 - 0.00059	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 2	0.0009 - 0.0009	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.00063 - 0.00063	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 2	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 2	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.0007 - 0.0007	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 2	0.00084 - 0.00084	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 2	0.00075 - 0.00075	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 2	0.00082 - 0.00082	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 2	0.0008 - 0.0008	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 2	0.0009 - 0.0009	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 2	0.00058 - 0.00058	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 2	0.00083 - 0.00083	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table D-3
Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 2	0.0013 - 0.0013	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 2	0.0014 - 0.0014	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 2	0.00085 - 0.00085	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 2	0.00094 - 0.00094	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 2	0.00067 - 0.00067	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 2	0.019 - 0.019	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 2	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 2	0.0086 - 0.0086	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 2	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 2	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 2	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 2	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 2	0.0089 - 0.0089	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 2	0.0089 - 0.0089	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 2	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 2	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 2	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 2	0.025 - 0.025	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 2	0.089 - 0.089	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 2	0.031 - 0.031	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 2	0.033 - 0.033	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 2	0.0094 - 0.0094	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 2	0.0078 - 0.0078	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 2	0.073 - 0.073	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 2	0.25 - 0.25	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 2	0.013 - 0.013	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 2	0.018 - 0.018	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 2	0.0075 - 0.0075	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 2	0.0084 - 0.0084	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0096	0.052	mg/kg	CFISS-024	2 / 2	0.0073 - 0.0073	0.052	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 2	0.014 - 0.014	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 2	0.037 - 0.037	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 2	0.0088 - 0.0088	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 2	0.0098 - 0.0098	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 2	0.089 - 0.089	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 2	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 2	0.014 - 0.014	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL

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Table D-3
Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 2	0.0085 - 0.0085	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 2	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 2	0.013 - 0.013	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 2	0.16 - 0.16	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.073	0.35	mg/kg	CFISS-024	2 / 2	0.008 - 0.008	0.35	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 2	0.0085 - 0.0085	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 2	0.0072 - 0.0072	ND	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	120-12-7	Anthracene	0.13	0.57	mg/kg	CFISS-024	2 / 2	0.032 - 0.032	0.57	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 2	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 2	0.025 - 0.025	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	1.1	2.9	mg/kg	CFISS-024	2 / 2	0.028 - 0.028	2.9	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	1.3	3.5	mg/kg	CFISS-024	2 / 2	0.01 - 0.01	3.5	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	2	4.9	mg/kg	CFISS-024	2 / 2	0.013 - 0.013	4.9	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	1.9	3.8	mg/kg	CFISS-024	2 / 2	0.019 - 0.019	3.8	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.67	1.5	mg/kg	CFISS-024	2 / 2	0.014 - 0.014	1.5	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 2	0.01 - 0.01	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 2	0.028 - 0.028	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 2	0.01 - 0.01	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 2	0.0078 - 0.0078	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 2	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	ND	ND	ND	ND	0 / 2	0.013 - 0.013	ND	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 2	0.024 - 0.024	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-74-8	Carbazole	0.15	0.43	mg/kg	CFISS-024	2 / 2	0.0082 - 0.0082	0.43	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	1.5	4	mg/kg	CFISS-024	2 / 2	0.009 - 0.009	4	NA	9	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 2	0.0099 - 0.0099	ND	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 2	0.017 - 0.017	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.42	1	mg/kg	CFISS-024	2 / 2	0.017 - 0.017	1	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.023	0.14	mg/kg	CFISS-024	2 / 2	0.01 - 0.01	0.14	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 2	0.0094 - 0.0094	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 2	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	1.7	5.1	mg/kg	CFISS-024	2 / 2	0.0098 - 0.0098	5.1	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	86-73-7	Fluorene	0.041	0.22	mg/kg	CFISS-024	2 / 2	0.0072 - 0.0072	0.22	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 2	0.013 - 0.013	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 2	0.0093 - 0.0093	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 2	0.021 - 0.021	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 2	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	1.7	4	mg/kg	CFISS-024	2 / 2	0.022 - 0.022	4	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.076	0.076	mg/kg	CFISS-024	1 / 2	0.0071 - 0.014	0.076	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

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Table D-3

Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 2	0.03 - 0.03	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	0.016	0.11	mg/kg	CFISS-024	2 / 2	0.0084 - 0.0084	0.11	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 2	0.01 - 0.01	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 2	0.04 - 0.04	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.86	2.7	mg/kg	CFISS-024	2 / 2	0.0088 - 0.0088	2.7	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 2	0.011 - 0.011	ND	NA	3.30E-01	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	129-00-0	Pyrene	1.6	3.5	mg/kg	CFISS-024	2 / 2	0.015 - 0.015	3.5	NA	1.30E+00	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk

USEPA = US Environmental Protection Agency

RSL = Regional Screening Level

MDEQ = Montana Department of Environmental Quaility

(1) Maximum detection value

(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})

USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level

MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.

c = carcinogenic basis

n = non-carcinogenic basis

dc - direct contact

(3) COPC Flag

Y = Yes

N = No

(4) Rationale for Selection or Deletion

BSL - Detections and Detection Limits Below Screening Level

BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.

ASL = Detections Above Screening Level

ASL-SSL(GW COC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.

ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded

ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level

LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set

Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA

NSL = no screening level available

Preliminary - Under EPA and MDEQ Review

Table D-5
Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.017	0.31	mg/kg	CFISS-024	4 / 4	0.016 - 0.016	0.31	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	16984-48-8	Fluoride	16.6	592	mg/kg	CFISS-024	4 / 4	0.36 - 0.36	592	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7429-90-5	Aluminum	8620	22900	mg/kg	CFISS-024	4 / 4	0.81 - 0.81	22900	NA	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.092	0.22	mg/kg	CFISS-024	4 / 4	0.018 - 0.018	0.22	NA	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-38-2	Arsenic	4.2	6	mg/kg	CFISS-024	4 / 4	0.034 - 0.034	6	NA	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	59.4	123	mg/kg	CFISS-024	4 / 4	0.29 - 0.29	123	NA	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-41-7	Beryllium	0.4	0.81	mg/kg	CFISS-024	4 / 4	0.014 - 0.014	0.81	NA	1.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-43-9	Cadmium	0.081	0.28	mg/kg	CFISS-024	4 / 4	0.0048 - 0.0048	0.28	NA	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	23600	32400	mg/kg	CFISS-018	4 / 4	28.8 - 28.8	32400	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	15.9	18.6	mg/kg	CFISS-018	4 / 4	0.078 - 0.078	18.6	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	5.5	6.3	mg/kg	CFISS-024	4 / 4	0.0022 - 0.0022	6.3	NA	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-50-8	Copper	15.8	19.6	mg/kg	CFISS-024	4 / 4	0.13 - 0.13	19.6	NA	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	13900	16700	mg/kg	CFISS-024	4 / 4	4.2 - 4.2	16700	NA	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-92-1	Lead	8.6	24.5	mg/kg	CFISS-024	5 / 5	0.059 - 0.059	24.5	29.8	400	USEPA RSL Res Soil THQ=0.1, -	N	BSL
	7439-95-4	Magnesium	11600	11900	mg/kg	CFISS-018	4 / 4	5.2 - 5.2	11900	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	341	437	mg/kg	CFISS-024	4 / 4	0.16 - 0.16	437	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-97-6	Mercury	0.017	0.039	mg/kg	CFISS-024	4 / 4	0.015 - 0.015	0.039	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	15.2	51.4	mg/kg	CFISS-024	4 / 4	0.051 - 0.051	51.4	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	9/7/7440	Potassium	721	1790	mg/kg	CFISS-024	4 / 4	6.4 - 6.4	1790	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	1.4	1.6	mg/kg	CFISS-024	4 / 4	0.052 - 0.052	1.6	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-22-4	Silver	0.03	0.049	mg/kg	CFISS-024	4 / 4	0.0018 - 0.0018	0.049	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	46.1	1520	mg/kg	CFISS-024	4 / 4	11.4 - 11.4	1520	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.06	0.1	mg/kg	CFISS-024	4 / 4	0.025 - 0.025	0.1	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	8.6	21.7	mg/kg	CFISS-024	4 / 4	0.048 - 0.048	21.7	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-66-6	Zinc	48.8	77.8	mg/kg	CFISS-024	4 / 4	0.65 - 0.65	77.8	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 2	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.00059 - 0.00059	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 2	0.0009 - 0.0009	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.00063 - 0.00063	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 2	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 2	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.0007 - 0.0007	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 2	0.00084 - 0.00084	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 2	0.00075 - 0.00075	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 2	0.00082 - 0.00082	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 2	0.0008 - 0.0008	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 2	0.0009 - 0.0009	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 2	0.00058 - 0.00058	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 2	0.00083 - 0.00083	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

Preliminary Under EPA and DEQ Review

Table D-5
Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 2	0.0013 - 0.0013	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 2	0.0014 - 0.0014	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 2	0.00085 - 0.00085	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 2	0.00094 - 0.00094	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 2	0.00067 - 0.00067	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 2	0.019 - 0.019	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 2	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 4	0.025 - 0.025	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 4	0.088 - 0.088	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 4	0.031 - 0.031	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 4	0.033 - 0.033	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 4	0.0094 - 0.0094	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 4	0.0078 - 0.0078	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 4	0.072 - 0.072	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 4	0.25 - 0.25	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 4	0.013 - 0.013	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 4	0.018 - 0.018	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 4	0.0075 - 0.0075	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 4	0.0084 - 0.0084	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0096	0.052	mg/kg	CFISS-024	3 / 4	0.0073 - 0.0073	0.052	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 4	0.014 - 0.014	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 4	0.037 - 0.037	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 4	0.0088 - 0.0088	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 4	0.0098 - 0.0098	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 4	0.088 - 0.088	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 4	0.014 - 0.014	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND

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Table D-5
Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 4	0.0085 - 0.0085	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 4	0.16 - 0.16	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.008	0.35	mg/kg	CFISS-024	4 / 4	0.008 - 0.008	0.35	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 4	0.0085 - 0.0085	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 4	0.0072 - 0.0072	ND	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-12-7	Anthracene	0.13	0.57	mg/kg	CFISS-024	3 / 4	0.031 - 0.032	0.57	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 4	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 4	0.025 - 0.025	ND	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.091	2.9	mg/kg	CFISS-024	4 / 4	0.027 - 0.027	2.9	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.095	3.5	mg/kg	CFISS-024	4 / 4	0.01 - 0.01	3.5	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.15	4.9	mg/kg	CFISS-024	4 / 4	0.013 - 0.013	4.9	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.097	3.8	mg/kg	CFISS-024	4 / 4	0.019 - 0.019	3.8	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.053	1.5	mg/kg	CFISS-024	4 / 4	0.014 - 0.014	1.5	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 4	0.028 - 0.028	ND	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 4	0.0078 - 0.0078	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 4	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	ND	ND	ND	ND	0 / 4	0.013 - 0.013	ND	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 4	0.024 - 0.024	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.012	0.45	mg/kg	CFISS-024	4 / 4	0.0082 - 0.0082	0.45	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.12	4	mg/kg	CFISS-024	4 / 4	0.009 - 0.009	4	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 4	0.0099 - 0.0099	ND	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 4	0.017 - 0.017	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.027	1	mg/kg	CFISS-024	4 / 4	0.017 - 0.017	1	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.023	0.14	mg/kg	CFISS-024	3 / 4	0.01 - 0.01	0.14	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 4	0.0094 - 0.0094	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 4	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.16	5.1	mg/kg	CFISS-024	4 / 4	0.0098 - 0.0098	5.1	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.041	0.22	mg/kg	CFISS-024	3 / 4	0.0072 - 0.0072	0.22	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 4	0.013 - 0.013	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 4	0.0093 - 0.0093	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 4	0.021 - 0.021	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.1	4	mg/kg	CFISS-024	4 / 4	0.022 - 0.022	4	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.076	0.076	mg/kg	CFISS-024	1 / 4	0.0071 - 0.014	0.076	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

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Table D-5

Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: North Percolation Pond
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 4	0.03 - 0.03	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.016	0.11	mg/kg	CFISS-024	3 / 4	0.0084 - 0.0084	0.11	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 4	0.04 - 0.04	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.12	2.7	mg/kg	CFISS-024	4 / 4	0.0088 - 0.0088	2.7	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	129-00-0	Pyrene	0.19	3.8	mg/kg	CFISS-024	4 / 4	0.015 - 0.015	3.8	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table D-6
Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	57-12-5	Cyanide	0.017	0.31	mg/kg	CFISS-024	4 / 4	0.016 - 0.016	0.31	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	16984-48-8	Fluoride	16.6	592	mg/kg	CFISS-024	4 / 4	0.36 - 0.36	592	NA	12	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7429-90-5	Aluminum	8620	22900	mg/kg	CFISS-024	4 / 4	0.81 - 0.81	22900	NA	3000	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.092	0.22	mg/kg	CFISS-024	4 / 4	0.018 - 0.018	0.22	NA	0.035	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-38-2	Arsenic	4.2	6	mg/kg	CFISS-024	4 / 4	0.034 - 0.034	6	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	59.4	123	mg/kg	CFISS-024	4 / 4	0.29 - 0.29	123	NA	16	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-41-7	Beryllium	0.4	0.81	mg/kg	CFISS-024	4 / 4	0.014 - 0.014	0.81	NA	1.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7440-43-9	Cadmium	0.081	0.28	mg/kg	CFISS-024	4 / 4	0.0048 - 0.0048	0.28	NA	0.069	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	23600	32400	mg/kg	CFISS-018	4 / 4	28.8 - 28.8	32400	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	15.9	18.6	mg/kg	CFISS-018	4 / 4	0.078 - 0.078	18.6	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	5.5	6.3	mg/kg	CFISS-024	4 / 4	0.0022 - 0.0022	6.3	NA	0.027	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-50-8	Copper	15.8	19.6	mg/kg	CFISS-024	4 / 4	0.13 - 0.13	19.6	NA	2.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	13900	16700	mg/kg	CFISS-024	4 / 4	4.2 - 4.2	16700	NA	35	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-92-1	Lead	8.6	24.5	mg/kg	CFISS-024	5 / 5	0.059 - 0.059	24.5	NA	400	USEPA RSL Res Soil (THQ=0.1), -	N	BSL
	7439-95-4	Magnesium	11600	11900	mg/kg	CFISS-018	4 / 4	5.2 - 5.2	11900	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	341	437	mg/kg	CFISS-024	4 / 4	0.16 - 0.16	437	NA	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-97-6	Mercury	0.017	0.039	mg/kg	CFISS-024	4 / 4	0.015 - 0.015	0.039	NA	0.0033	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	15.2	51.4	mg/kg	CFISS-024	4 / 4	0.051 - 0.051	51.4	NA	2.6	USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	9/7/7440	Potassium	721	1790	mg/kg	CFISS-024	4 / 4	6.4 - 6.4	1790	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	1.4	1.6	mg/kg	CFISS-024	4 / 4	0.052 - 0.052	1.6	NA	0.052	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-22-4	Silver	0.03	0.049	mg/kg	CFISS-024	4 / 4	0.0018 - 0.0018	0.049	NA	0.08	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7440-23-5	Sodium	46.1	1520	mg/kg	CFISS-024	4 / 4	11.4 - 11.4	1520	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.06	0.1	mg/kg	CFISS-024	4 / 4	0.025 - 0.025	0.1	NA	0.0014	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	8.6	21.7	mg/kg	CFISS-024	4 / 4	0.048 - 0.048	21.7	NA	8.6	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-66-6	Zinc	48.8	77.8	mg/kg	CFISS-024	4 / 4	0.65 - 0.65	77.8	NA	37	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 2	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.00059 - 0.00059	ND	NA	4.20E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 2	0.0009 - 0.0009	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.00063 - 0.00063	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 2	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 2	0.0011 - 0.0011	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 2	0.0007 - 0.0007	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 2	0.00084 - 0.00084	ND	NA	7.10E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 2	0.00075 - 0.00075	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 2	0.00082 - 0.00082	ND	NA	0.0092	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 2	0.0008 - 0.0008	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 2	0.0009 - 0.0009	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 2	0.00058 - 0.00058	ND	NA	0.00024	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 2	0.00083 - 0.00083	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND

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Table D-6
Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 2	0.0013 - 0.0013	ND	NA	2.80E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 2	0.0014 - 0.0014	ND	NA	0.2	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 2	0.00085 - 0.00085	ND	NA	0.0075	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 2	0.00094 - 0.00094	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 2	0.00067 - 0.00067	ND	NA	0.077	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 2	0.019 - 0.019	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 2	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	0.013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 4	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	0.002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	0.0055	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	ND	ND	ND	ND	0 / 4	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 4	0.025 - 0.025	ND	NA	0.00079	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 4	0.088 - 0.088	ND	NA	9.40E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 4	0.031 - 0.031	ND	NA	0.018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 4	0.033 - 0.033	ND	NA	0.4	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 4	0.0094 - 0.0094	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 4	0.0078 - 0.0078	ND	NA	0.0023	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 4	0.072 - 0.072	ND	NA	0.042	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 4	0.25 - 0.25	ND	NA	0.0044	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 4	0.013 - 0.013	ND	NA	0.00032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 4	0.018 - 0.018	ND	NA	6.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 4	0.0075 - 0.0075	ND	NA	0.39	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 4	0.0084 - 0.0084	ND	NA	0.0089	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0096	0.052	mg/kg	CFISS-024	3 / 4	0.0073 - 0.0073	0.052	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 4	0.014 - 0.014	ND	NA	0.075	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.008	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 4	0.037 - 0.037	ND	NA	0.00082	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	ND	ND	ND	ND	0 / 4	0.0088 - 0.0088	ND	NA	No Screening Level		N	BSL-ND
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 4	0.0098 - 0.0098	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 4	0.088 - 0.088	ND	NA	0.00026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 4	0.014 - 0.014	ND	NA	0.17	USEPA RSL RBSSL (THQ=0.1, n	N	BSL

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Table D-6
Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 4	0.0085 - 0.0085	ND	NA	0.00016	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 4	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	0.0016	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 4	0.16 - 0.16	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.008	0.35	mg/kg	CFISS-024	4 / 4	0.008 - 0.008	0.35	NA	0.55	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	208-96-8	Acenaphthylene	ND	ND	ND	ND	0 / 4	0.0085 - 0.0085	ND	NA	No Screening Level		N	BSL-ND
	98-86-2	Acetophenone	ND	ND	ND	ND	0 / 4	0.0072 - 0.0072	ND	NA	0.058	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	120-12-7	Anthracene	0.13	0.57	mg/kg	CFISS-024	3 / 4	0.031 - 0.032	0.57	NA	5.8	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 4	0.015 - 0.015	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	ND	ND	ND	ND	0 / 4	0.025 - 0.025	ND	NA	0.0041	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	56-55-3	Benzo(A)Anthracene	0.091	2.9	mg/kg	CFISS-024	4 / 4	0.027 - 0.027	2.9	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.095	3.5	mg/kg	CFISS-024	4 / 4	0.01 - 0.01	3.5	NA	0.029	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.15	4.9	mg/kg	CFISS-024	4 / 4	0.013 - 0.013	4.9	NA	0.3	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.097	3.8	mg/kg	CFISS-024	4 / 4	0.019 - 0.019	3.8	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.053	1.5	mg/kg	CFISS-024	4 / 4	0.014 - 0.014	1.5	NA	2.9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	85-68-7	Benzyl Butyl Phthalate	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.24	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL
	92-52-4	Biphenyl (Diphenyl)	ND	ND	ND	ND	0 / 4	0.028 - 0.028	ND	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	0.0013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 4	0.0078 - 0.0078	ND	NA	3.60E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 4	0.014 - 0.014	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	ND	ND	ND	ND	0 / 4	0.013 - 0.013	ND	NA	1.3	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 4	0.024 - 0.024	ND	NA	0.25	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-74-8	Carbazole	0.012	0.45	mg/kg	CFISS-024	4 / 4	0.0082 - 0.0082	0.45	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.12	4	mg/kg	CFISS-024	4 / 4	0.009 - 0.009	4	NA	9	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	84-74-2	Di-N-Butyl Phthalate	ND	ND	ND	ND	0 / 4	0.0099 - 0.0099	ND	NA	0.23	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 4	0.017 - 0.017	ND	NA	5.7	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.027	1	mg/kg	CFISS-024	4 / 4	0.017 - 0.017	1	NA	0.096	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.023	0.14	mg/kg	CFISS-024	3 / 4	0.01 - 0.01	0.14	NA	0.015	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 4	0.0094 - 0.0094	ND	NA	0.61	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 4	0.0096 - 0.0096	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.16	5.1	mg/kg	CFISS-024	4 / 4	0.0098 - 0.0098	5.1	NA	8.9	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	86-73-7	Fluorene	0.041	0.22	mg/kg	CFISS-024	3 / 4	0.0072 - 0.0072	0.22	NA	0.54	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 4	0.013 - 0.013	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 4	0.0093 - 0.0093	ND	NA	0.00027	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 4	0.021 - 0.021	ND	NA	0.00013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 4	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.1	4	mg/kg	CFISS-024	4 / 4	0.022 - 0.022	4	NA	0.98	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.076	0.076	mg/kg	CFISS-024	1 / 4	0.0071 - 0.014	0.076	NA	0.026	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND

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Table D-6

Occurrence, Distribution, and Selection of Potential Chemical of Concern (North Percolation Pond, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: North Percolation Pond
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 4	0.03 - 0.03	ND	NA	0.067	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	91-20-3	Naphthalene	0.016	0.11	mg/kg	CFISS-024	3 / 4	0.0084 - 0.0084	0.11	NA	0.00054	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 4	0.01 - 0.01	ND	NA	9.20E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 4	0.04 - 0.04	ND	NA	5.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.12	2.7	mg/kg	CFISS-024	4 / 4	0.0088 - 0.0088	2.7	NA	No Screening Level		N	NSL
	108-95-2	Phenol	ND	ND	ND	ND	0 / 4	0.011 - 0.011	ND	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	129-00-0	Pyrene	0.19	3.8	mg/kg	CFISS-024	4 / 4	0.015 - 0.015	3.8	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1×10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table D-7
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	57-12-5	Cyanide	0.04	29	mg/kg	CFISS-002	36 / 36	0.015 - 0.015	29	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	16984-48-8	Fluoride	10.4	976	mg/kg	CFISS-002	36 / 36	0.35 - 0.35	976	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7429-90-5	Aluminum	9720	44900	mg/kg	CFISS-002	36 / 36	0.8 - 0.8	44900	25941	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.15	1	mg/kg	CFISS-022	21 / 36	0.018 - 0.33	1	0.4	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-38-2	Arsenic	4.2	12.3	mg/kg	CFISS-022	36 / 36	0.034 - 0.034	12.3	22.5	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	59.4	296	mg/kg	CFISS-027	36 / 36	0.28 - 0.28	296	429	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-41-7	Beryllium	0.4	3.7	mg/kg	CFISS-002	36 / 36	0.014 - 0.014	3.7	1.1	1.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-43-9	Cadmium	0.16	1.2	mg/kg	CFISS-022	21 / 36	0.0048 - 0.25	1.2	0.7	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	4160	44200	mg/kg	CFISS-011	36 / 36	28.5 - 28.5	44200	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	9.5	80.3	mg/kg	CFISS-008	36 / 36	0.078 - 0.078	80.3	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	4.1	9.3	mg/kg	CFISS-022	36 / 36	0.0022 - 0.0022	9.3	10	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-50-8	Copper	10.4	65.1	mg/kg	CFISS-029	36 / 36	0.13 - 0.13	65.1	165	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	11800	30400	mg/kg	CFISS-022	36 / 36	4.1 - 4.1	30400	24400	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-92-1	Lead	11.7	406	mg/kg	CFISS-006	42 / 42	0.058 - 0.058	406	29.8	400	USEPA RSL Res Soil THQ=0.1, -	Y	ASL
	7439-95-4	Magnesium	8620	12000	mg/kg	CFISS-008	36 / 36	5.2 - 5.2	12000	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	341	682	mg/kg	CFISS-004	36 / 36	0.16 - 0.16	682	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-97-6	Mercury	0.016	0.056	mg/kg	CFISS-010	28 / 36	0.011 - 0.013	0.056	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	13.9	142	mg/kg	CFISS-022	36 / 36	0.05 - 0.05	142	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	9/7/7440	Potassium	781	3080	mg/kg	CFISS-002	36 / 36	6.3 - 6.3	3080	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.45	13.3	mg/kg	CFISS-022	22 / 36	0.052 - 0.31	13.3	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-22-4	Silver	0.043	0.19	mg/kg	CFISS-020	20 / 36	0.0018 - 0.61	0.19	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	41.5	10500	mg/kg	CFISS-002	33 / 36	11.3 - 41.1	10500	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.082	0.4	mg/kg	CFISS-022	21 / 36	0.025 - 0.13	0.4	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	10.4	54.5	mg/kg	CFISS-022	36 / 36	0.048 - 0.048	54.5	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-66-6	Zinc	44.1	103	mg/kg	CFISS-021	36 / 36	0.65 - 0.65	103	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 36	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 36	0.00059 - 0.00059	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 36	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 36	0.00063 - 0.00063	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 36	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 36	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 36	0.0007 - 0.0007	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 36	0.00084 - 0.00084	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 36	0.00075 - 0.00075	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 36	0.00082 - 0.00082	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 36	0.0008 - 0.0008	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 36	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 36	0.00058 - 0.00058	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 36	0.00083 - 0.00083	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table D-7
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 36	0.0013 - 0.0013	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 36	0.0014 - 0.0014	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 36	0.00085 - 0.00085	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 36	0.00093 - 0.00093	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 36	0.00066 - 0.00066	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 36	0.019 - 0.019	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 36	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 36	0.0086 - 0.0086	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 36	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 36	0.0086 - 0.0086	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 36	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 36	0.0086 - 0.0086	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	0.06	0.21	mg/kg	CFISS-013	3 / 36	0.0089 - 0.0091	0.21	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 36	0.0089 - 0.0089	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 36	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 36	0.0089 - 0.0089	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	0.06	0.21	mg/kg	CFISS-013	3 / 36	0.0089 - 0.0091	0.21	NA	No Screening Level		N	NSL
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 36	0.024 - 0.024	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 36	0.085 - 0.085	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 36	0.03 - 0.03	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 36	0.032 - 0.032	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 36	0.009 - 0.009	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 36	0.0075 - 0.0075	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 36	0.07 - 0.07	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 36	0.24 - 0.24	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 36	0.013 - 0.013	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 36	0.017 - 0.017	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 36	0.0072 - 0.0072	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 36	0.0081 - 0.0081	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0075	3.7	mg/kg	CFISS-013	33 / 36	0.007 - 0.0074	3.7	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 36	0.014 - 0.014	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 36	0.01 - 0.01	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 36	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 36	0.035 - 0.035	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.011	0.011	mg/kg	CFISS-022	1 / 36	0.0085 - 0.0085	0.011	NA	No Screening Level		N	LDF
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 36	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 36	0.085 - 0.085	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 36	0.01 - 0.01	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 36	0.014 - 0.014	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND

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Table D-7
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Surface Soil [0 to 0.5 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 36	0.0082 - 0.0082	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 36	0.0095 - 0.0095	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 36	0.012 - 0.012	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 36	0.15 - 0.15	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.014	7.4	mg/kg	CFISS-006	36 / 36	0.0077 - 0.0077	7.4	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.013	0.79	mg/kg	CFISS-006	5 / 36	0.0082 - 0.0083	0.79	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.0071	0.03	mg/kg	CFISS-028	6 / 36	0.0069 - 0.007	0.03	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	120-12-7	Anthracene	0.049	26	mg/kg	CFISS-006	34 / 36	0.03 - 0.032	26	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 36	0.014 - 0.014	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.03	0.051	mg/kg	CFISS-025	3 / 36	0.024 - 0.025	0.051	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.25	77	mg/kg	CFISS-006	36 / 36	0.027 - 0.027	77	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.36	75	mg/kg	CFISS-006	36 / 36	0.0096 - 0.0096	75	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.53	100	mg/kg	CFISS-006	36 / 36	0.012 - 0.012	100	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.34	49	mg/kg	CFISS-006	36 / 36	0.018 - 0.018	49	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.16	36	mg/kg	CFISS-006	36 / 36	0.014 - 0.014	36	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.046	0.43	mg/kg	CFISS-021	2 / 36	0.0098 - 0.02	0.43	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.041	0.31	mg/kg	CFISS-020	3 / 36	0.027 - 0.027	0.31	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 36	0.0099 - 0.0099	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 36	0.0075 - 0.0075	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 36	0.013 - 0.013	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.018	0.81	mg/kg	CFISS-020	11 / 36	0.012 - 0.013	0.81	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 36	0.023 - 0.023	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.032	15	mg/kg	CFISS-006	36 / 36	0.0079 - 0.0079	15	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.42	88	mg/kg	CFISS-006	36 / 36	0.0087 - 0.0087	88	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.012	0.095	mg/kg	CFISS-012	12 / 36	0.0095 - 0.0096	0.095	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 36	0.016 - 0.016	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.069	13	mg/kg	CFISS-006	35 / 36	0.017 - 0.019	13	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.012	4.5	mg/kg	CFISS-006	35 / 36	0.0096 - 0.01	4.5	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 36	0.009 - 0.009	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 36	0.0092 - 0.0092	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.41	130	mg/kg	CFISS-006	36 / 36	0.0094 - 0.0094	130	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.01	7.9	mg/kg	CFISS-006	34 / 36	0.0069 - 0.0078	7.9	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 36	0.013 - 0.013	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 36	0.0089 - 0.0089	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 36	0.02 - 0.02	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 36	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.38	54	mg/kg	CFISS-006	36 / 36	0.021 - 0.021	54	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.0072	0.38	mg/kg	CFISS-013	7 / 36	0.0068 - 0.007	0.38	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 36	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

Preliminary - Under EPA and MDEQ Review

Table D-7

Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Surface Soil [0 to 0.5 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills
Exposure Medium: Surface Soil 0 to 0.5

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 36	0.029 - 0.029	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
Soil	91-20-3	Naphthalene	0.012	3	mg/kg	CFISS-013	33 / 36	0.0081 - 0.0085	3	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 36	0.01 - 0.01	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 36	0.038 - 0.038	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.18	110	mg/kg	CFISS-006	36 / 36	0.0085 - 0.0085	110	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.012	0.018	mg/kg	CFISS-022	3 / 36	0.01 - 0.01	0.018	NA	3.30E-01	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	129-00-0	Pyrene	0.58	140	mg/kg	CFISS-006	36 / 36	0.014 - 0.014	140	NA	1.30E+00	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect

THQ = target hazard quotient

TR = target risk

USEPA = US Environmental Protection Agency

RSL = Regional Screening Level

MDEQ = Montana Department of Environmental Quaility

(1) Maximum detection value

(2) Site-specific risk-based screening levels. Refer to text for further discussion.

USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1×10^{-6})

USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level

MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.

c = carcinogenic basis

n = non-carcinogenic basis

dc - direct contact

(3) COPC Flag

Y = Yes

N = No

(4) Rationale for Selection or Deletion

BSL - Detections and Detection Limits Below Screening Level

BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.

ASL = Detections Above Screening Level

ASL-SSL(GW COC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.

ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded

ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level

LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set

Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA

NSL = no screening level available

Preliminary - Under EPA and MDEQ Review

Table D-8
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface	57-12-5	Cyanide	0.017	29	mg/kg	CFISS-002	68 / 68	0.015 - 0.015	29	NA	0.0015	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
Soil	16984-48-8	Fluoride	10.4	976	mg/kg	CFISS-002	68 / 68	0.35 - 0.35	976	NA	12	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7429-90-5	Aluminum	8620	44900	mg/kg	CFISS-002	68 / 68	0.79 - 0.79	44900	NA	3000	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.092	1.9	mg/kg	CFISS-006	38 / 68	0.018 - 0.33	1.9	NA	0.035	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-38-2	Arsenic	3.4	12.3	mg/kg	CFISS-022	68 / 68	0.033 - 0.033	12.3	NA	0.0015	USEPA RSL RBSSL THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	59.4	296	mg/kg	CFISS-027	68 / 68	0.28 - 0.28	296	NA	16	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-41-7	Beryllium	0.36	3.7	mg/kg	CFISS-002	68 / 68	0.014 - 0.014	3.7	NA	1.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-43-9	Cadmium	0.054	1.2	mg/kg	CFISS-022	38 / 68	0.0047 - 0.25	1.2	NA	0.069	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	2890	44200	mg/kg	CFISS-011	68 / 68	28.1 - 28.1	44200	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	7.5	80.3	mg/kg	CFISS-008	68 / 68	0.077 - 0.077	80.3	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	4.1	9.3	mg/kg	CFISS-022	68 / 68	0.0022 - 0.0022	9.3	NA	0.027	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-50-8	Copper	10.4	721	mg/kg	CFISS-006	68 / 68	0.12 - 0.12	721	NA	2.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	10300	30400	mg/kg	CFISS-022	68 / 68	4.1 - 4.1	30400	NA	35	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-92-1	Lead	5.8	406	mg/kg	CFISS-006	74 / 74	0.058 - 0.058	406	29.8	400	USEPA RSL Res Soil THQ=0.1, -	Y	ASL
	7439-95-4	Magnesium	8090	15300	mg/kg	CFISS-002	68 / 68	5.1 - 5.1	15300	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	226	682	mg/kg	CFISS-004	68 / 68	0.15 - 0.15	682	880	2.8	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-97-6	Mercury	0.015	0.056	mg/kg	CFISS-010	58 / 68	0.011 - 0.013	0.056	NC	0.0033	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	8.3	142	mg/kg	CFISS-022	68 / 68	0.05 - 0.05	142	31.4	2.6	USEPA RSL RBSSL THQ=0.1, n	Y	Carcinogen
	9/7/7440	Potassium	704	3080	mg/kg	CFISS-002	68 / 68	6.3 - 6.3	3080	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.35	13.3	mg/kg	CFISS-022	41 / 68	0.051 - 0.31	13.3	0.7	0.052	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-22-4	Silver	0.03	0.19	mg/kg	CFISS-020	37 / 68	0.0018 - 0.61	0.19	0.3	0.08	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	41.5	10500	mg/kg	CFISS-002	61 / 68	11.1 - 37	10500	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.06	0.4	mg/kg	CFISS-022	39 / 68	0.024 - 0.13	0.4	0.41	0.0014	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	8	54.5	mg/kg	CFISS-022	68 / 68	0.047 - 0.047	54.5	52.6	8.6	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-66-6	Zinc	29.3	306	mg/kg	CFISS-007	68 / 68	0.64 - 0.64	306	118	37	USEPA RSL RBSSL THQ=0.1, n	Y	ASL-SSL(GW COC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 36	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 36	0.00059 - 0.00059	ND	NA	4.20E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 36	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 36	0.00063 - 0.00063	ND	NA	0.00015	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 36	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 36	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 36	0.0007 - 0.0007	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 36	0.00084 - 0.00084	ND	NA	7.10E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 36	0.00075 - 0.00075	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 36	0.00082 - 0.00082	ND	NA	0.0092	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 36	0.0008 - 0.0008	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 36	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 36	0.00058 - 0.00058	ND	NA	0.00024	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 36	0.00083 - 0.00083	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND

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Table D-8
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 36	0.0013 - 0.0013	ND	NA	2.80E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 36	0.0014 - 0.0014	ND	NA	0.2	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 36	0.00085 - 0.00085	ND	NA	0.0075	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 36	0.00093 - 0.00093	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 36	0.00066 - 0.00066	ND	NA	0.077	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 36	0.019 - 0.019	ND	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 36	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	0.013	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	8.00E-05	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	0.057	0.21	mg/kg	CFISS-013	6 / 68	9.2e-005 - 0.009	0.21	NA	0.002	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 68	9.2e-005 - 9.2e-005	ND	NA	0.0055	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 68	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 68	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	0.057	0.21	mg/kg	CFISS-013	6 / 68	9.2e-005 - 0.009	0.21	NA	No Screening Level		N	NSL
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 68	0.023 - 0.023	ND	NA	0.00079	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 68	0.084 - 0.084	ND	NA	9.40E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 68	0.03 - 0.03	ND	NA	0.018	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 68	0.031 - 0.031	ND	NA	0.4	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 68	0.0089 - 0.0089	ND	NA	0.0012	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 68	0.0074 - 0.0074	ND	NA	0.0023	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 68	0.069 - 0.069	ND	NA	0.042	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 67	0.24 - 0.24	ND	NA	0.0044	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 68	0.012 - 0.012	ND	NA	0.00032	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 68	0.017 - 0.017	ND	NA	6.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 68	0.0071 - 0.0071	ND	NA	0.39	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 68	0.008 - 0.008	ND	NA	0.0089	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0074	3.7	mg/kg	CFISS-013	55 / 68	0.0069 - 0.007	3.7	NA	0.019	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 68	0.014 - 0.014	ND	NA	0.075	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 68	0.01 - 0.01	ND	NA	0.008	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 68	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 68	0.035 - 0.035	ND	NA	0.00082	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.011	0.011	mg/kg	CFISS-022	1 / 68	0.0084 - 0.0085	0.011	NA	No Screening Level		N	LDF
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 68	0.0093 - 0.0093	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 68	0.084 - 0.084	ND	NA	0.00026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 68	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 68	0.014 - 0.014	ND	NA	0.17	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND

Preliminary - Under EPA and MDEQ Review

Table D-8
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Surface Soil [0 to 2 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 68	0.0081 - 0.0081	ND	NA	0.00016	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 68	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 68	0.012 - 0.012	ND	NA	0.0016	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 68	0.15 - 0.15	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.008	25	mg/kg	CFISS-012	61 / 68	0.0076 - 0.0076	25	NA	0.55	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.013	0.79	mg/kg	CFISS-006	7 / 68	0.0081 - 0.0083	0.79	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.0071	0.03	mg/kg	CFISS-028	14 / 68	0.0069 - 0.0069	0.03	NA	0.058	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	120-12-7	Anthracene	0.033	34	mg/kg	CFISS-012	56 / 68	0.03 - 0.03	34	NA	5.8	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 68	0.014 - 0.014	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.026	0.051	mg/kg	CFISS-025	5 / 68	0.024 - 0.024	0.051	NA	0.0041	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.047	77	mg/kg	CFISS-006	65 / 68	0.026 - 0.026	77	NA	0.011	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.018	75	mg/kg	CFISS-006	66 / 68	0.0095 - 0.01	75	NA	0.018	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc***	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.019	100	mg/kg	CFISS-006	68 / 68	0.012 - 0.012	100	NA	0.18	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.025	49	mg/kg	CFISS-006	66 / 68	0.018 - 0.019	49	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.015	36	mg/kg	CFISS-006	66 / 68	0.014 - 0.015	36	NA	1.8	MDEQ RBSL Res SurfSoil (DTW <10 ft), c, dc	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.0099	0.43	mg/kg	CFISS-021	6 / 68	0.0097 - 0.0097	0.43	NA	0.24	USEPA RSL RBSSL THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.041	0.31	mg/kg	CFISS-020	3 / 68	0.027 - 0.027	0.31	NA	0.00087	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 68	0.0098 - 0.0098	ND	NA	0.0013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 68	0.0074 - 0.0074	ND	NA	3.60E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 68	0.013 - 0.013	ND	NA	0.026	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.014	0.81	mg/kg	CFISS-020	16 / 68	0.012 - 0.012	0.81	NA	1.3	USEPA RSL RBSSL THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 68	0.023 - 0.023	ND	NA	0.25	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.012	21	mg/kg	CFISS-012	62 / 68	0.0078 - 0.0078	21	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.013	88	mg/kg	CFISS-006	68 / 68	0.0086 - 0.0086	88	NA	9	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.011	0.095	mg/kg	CFISS-012	21 / 68	0.0094 - 0.0095	0.095	NA	0.23	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 68	0.016 - 0.016	ND	NA	5.7	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.024	13	mg/kg	CFISS-006	60 / 68	0.016 - 0.016	13	NA	0.096	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.011	9.2	mg/kg	CFISS-012	57 / 68	0.0095 - 0.0096	9.2	NA	0.015	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 68	0.0089 - 0.0089	ND	NA	0.61	USEPA RSL RBSSL THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 68	0.0091 - 0.0091	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.014	130	mg/kg	CFISS-006	68 / 68	0.0093 - 0.0093	130	NA	8.9	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.01	20	mg/kg	CFISS-012	58 / 68	0.0069 - 0.0069	20	NA	0.54	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 68	0.013 - 0.013	ND	NA	0.00012	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 68	0.0088 - 0.0088	ND	NA	0.00027	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 68	0.02 - 0.02	ND	NA	0.00013	USEPA RSL RBSSL THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 68	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.048	54	mg/kg	CFISS-006	65 / 68	0.021 - 0.021	54	NA	0.98	USEPA RSL RBSSL THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.0072	1.5	mg/kg	CFISS-012	13 / 68	0.0068 - 0.0068	1.5	NA	0.026	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 68	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND

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Table D-8

Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Surface Soil [0 to 2 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Central Landfills
Exposure Medium: Surface Soil 0-2 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Surface Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 68	0.029 - 0.029	ND	NA	0.067	USEPA RSL RBSSL THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.01	5.6	mg/kg	CFISS-012	55 / 68	0.008 - 0.008	5.6	NA	0.00054	USEPA RSL RBSSL THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 68	0.0099 - 0.0099	ND	NA	9.20E-05	USEPA RSL RBSSL THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 68	0.038 - 0.038	ND	NA	5.70E-05	USEPA RSL RBSSL THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.011	120	mg/kg	CFISS-012	67 / 68	0.0084 - 0.01	120	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.012	0.018	mg/kg	CFISS-022	5 / 68	0.01 - 0.01	0.018	NA	0.33	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly
	129-00-0	Pyrene	0.017	140	mg/kg	CFISS-006	67 / 68	0.014 - 0.017	140	NA	1.3	USEPA RSL RBSSL THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1 x 10^{-5})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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Table D-9
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Central Landfills
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	57-12-5	Cyanide	0.017	29	mg/kg	CFISS-002	68 / 68	0.015 - 0.015	29	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	16984-48-8	Fluoride	10.4	976	mg/kg	CFISS-002	68 / 68	0.35 - 0.35	976	NA	12	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7429-90-5	Aluminum	8620	44900	mg/kg	CFISS-002	68 / 68	0.79 - 0.79	44900	NA	3000	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-36-0	Antimony	0.092	1.9	mg/kg	CFISS-006	38 / 68	0.018 - 0.33	1.9	NA	0.035	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-38-2	Arsenic	3.4	12.3	mg/kg	CFISS-022	68 / 68	0.033 - 0.033	12.3	NA	0.0015	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	7440-39-3	Barium	59.4	296	mg/kg	CFISS-027	68 / 68	0.28 - 0.28	296	NA	16	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-41-7	Beryllium	0.36	3.7	mg/kg	CFISS-002	68 / 68	0.014 - 0.014	3.7	NA	1.9	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-43-9	Cadmium	0.054	1.2	mg/kg	CFISS-022	38 / 68	0.0047 - 0.25	1.2	NA	0.069	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-70-2	Calcium	2890	44200	mg/kg	CFISS-011	68 / 68	28.1 - 28.1	44200	NA	No Screening Level		N	NSL
	7440-47-3	Chromium, Total	7.5	80.3	mg/kg	CFISS-008	68 / 68	0.077 - 0.077	80.3	NA	No Screening Level		N	NSL
	7440-48-4	Cobalt	4.1	9.3	mg/kg	CFISS-022	68 / 68	0.0022 - 0.0022	9.3	NA	0.027	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-50-8	Copper	10.4	721	mg/kg	CFISS-006	68 / 68	0.12 - 0.12	721	NA	2.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7439-89-6	Iron	10300	30400	mg/kg	CFISS-022	68 / 68	4.1 - 4.1	30400	NA	35	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-92-1	Lead	5.8	406	mg/kg	CFISS-006	74 / 74	0.058 - 0.058	406	NA	400	USEPA RSL Res Soil (THQ=0.1), -	Y	ASL
	7439-95-4	Magnesium	8090	15300	mg/kg	CFISS-002	68 / 68	5.1 - 5.1	15300	NA	No Screening Level		N	NSL
	7439-96-5	Manganese	226	682	mg/kg	CFISS-004	68 / 68	0.15 - 0.15	682	NA	2.8	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7439-97-6	Mercury	0.015	0.056	mg/kg	CFISS-010	58 / 68	0.011 - 0.013	0.056	NA	0.0033	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-02-0	Nickel	8.3	142	mg/kg	CFISS-022	68 / 68	0.05 - 0.05	142	NA	2.6	USEPA RSL RBSSL (THQ=0.1, n	Y	Carcinogen
	9/7/7440	Potassium	704	3080	mg/kg	CFISS-002	68 / 68	6.3 - 6.3	3080	NA	No Screening Level		N	NSL
	7782-49-2	Selenium	0.35	13.3	mg/kg	CFISS-022	41 / 68	0.051 - 0.31	13.3	NA	0.052	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-22-4	Silver	0.03	0.19	mg/kg	CFISS-020	37 / 68	0.0018 - 0.61	0.19	NA	0.08	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-23-5	Sodium	41.5	10500	mg/kg	CFISS-002	61 / 68	11.1 - 37	10500	NA	No Screening Level		N	NSL
	7440-28-0	Thallium	0.06	0.4	mg/kg	CFISS-022	39 / 68	0.024 - 0.13	0.4	NA	0.0014	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	7440-62-2	Vanadium	8	54.5	mg/kg	CFISS-022	68 / 68	0.047 - 0.047	54.5	NA	8.6	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	7440-66-6	Zinc	29.3	306	mg/kg	CFISS-007	68 / 68	0.64 - 0.64	306	NA	37	USEPA RSL RBSSL (THQ=0.1, n	Y	ASL-SSL(GW COC)
	309-00-2	Aldrin	ND	ND	ND	ND	0 / 36	0.00078 - 0.00078	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	319-84-6	Alpha Bhc (Alpha Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 36	0.00059 - 0.00059	ND	NA	4.20E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	959-98-8	Alpha Endosulfan	ND	ND	ND	ND	0 / 36	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	319-85-7	Beta Bhc (Beta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 36	0.00063 - 0.00063	ND	NA	0.00015	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	33213-65-9	Beta Endosulfan	ND	ND	ND	ND	0 / 36	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	5103-71-9	cis-Chlordane	ND	ND	ND	ND	0 / 36	0.001 - 0.001	ND	NA	No Screening Level		N	BSL-ND
	319-86-8	Delta BHC (Delta Hexachlorocyclohexane)	ND	ND	ND	ND	0 / 36	0.0007 - 0.0007	ND	NA	No Screening Level		N	BSL-ND
	60-57-1	Dieldrin	ND	ND	ND	ND	0 / 36	0.00084 - 0.00084	ND	NA	7.10E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	1031-07-8	Endosulfan Sulfate	ND	ND	ND	ND	0 / 36	0.00075 - 0.00075	ND	NA	No Screening Level		N	BSL-ND
	72-20-8	Endrin	ND	ND	ND	ND	0 / 36	0.00082 - 0.00082	ND	NA	0.0092	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	7421-93-4	Endrin Aldehyde	ND	ND	ND	ND	0 / 36	0.0008 - 0.0008	ND	NA	No Screening Level		N	BSL-ND
	53494-70-5	Endrin Ketone	ND	ND	ND	ND	0 / 36	0.00089 - 0.00089	ND	NA	No Screening Level		N	BSL-ND
	58-89-9	Gamma Bhc (Lindane)	ND	ND	ND	ND	0 / 36	0.00058 - 0.00058	ND	NA	0.00024	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	76-44-8	Heptachlor	ND	ND	ND	ND	0 / 36	0.00083 - 0.00083	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND

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Table D-9
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Central Landfills
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	1024-57-3	Heptachlor Epoxide	ND	ND	ND	ND	0 / 36	0.0013 - 0.0013	ND	NA	2.80E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	72-43-5	Methoxychlor	ND	ND	ND	ND	0 / 36	0.0014 - 0.0014	ND	NA	0.2	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	72-54-8	P,P'-DDD	ND	ND	ND	ND	0 / 36	0.00085 - 0.00085	ND	NA	0.0075	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	72-55-9	P,P'-DDE	ND	ND	ND	ND	0 / 36	0.00093 - 0.00093	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL
	50-29-3	P,P'-DDT	ND	ND	ND	ND	0 / 36	0.00066 - 0.00066	ND	NA	0.077	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	8001-35-2	Toxaphene	ND	ND	ND	ND	0 / 36	0.019 - 0.019	ND	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	5103-74-2	trans-Chlordane	ND	ND	ND	ND	0 / 36	0.0014 - 0.0014	ND	NA	No Screening Level		N	BSL-ND
	12674-11-2	PCB-1016 (Aroclor 1016)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	0.013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	11104-28-2	PCB-1221 (Aroclor 1221)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11141-16-5	PCB-1232 (Aroclor 1232)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	8.00E-05	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	53469-21-9	PCB-1242 (Aroclor 1242)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	12672-29-6	PCB-1248 (Aroclor 1248)	ND	ND	ND	ND	0 / 68	8.9e-005 - 8.9e-005	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	11097-69-1	PCB-1254 (Aroclor 1254)	0.057	0.21	mg/kg	CFISS-013	6 / 68	9.2e-005 - 0.009	0.21	NA	0.002	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	11096-82-5	PCB-1260 (Aroclor 1260)	ND	ND	ND	ND	0 / 68	9.2e-005 - 9.2e-005	ND	NA	0.0055	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	37324-23-5	PCB-1262 (Aroclor 1262)	ND	ND	ND	ND	0 / 68	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	11100-14-4	PCB-1268 (Aroclor 1268)	ND	ND	ND	ND	0 / 68	9.2e-005 - 9.2e-005	ND	NA	No Screening Level		N	BSL-ND
	1336-36-3	Polychlorinated Biphenyl (PCBs)	0.057	0.21	mg/kg	CFISS-013	6 / 68	9.2e-005 - 0.009	0.21	NA	No Screening Level		N	NSL
	95-94-3	1,2,4,5-Tetrachlorobenzene	ND	ND	ND	ND	0 / 68	0.023 - 0.023	ND	NA	0.00079	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	123-91-1	1,4-Dioxane (P-Dioxane)	ND	ND	ND	ND	0 / 68	0.084 - 0.084	ND	NA	9.40E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	58-90-2	2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	0 / 68	0.03 - 0.03	ND	NA	0.018	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	ND	0 / 68	0.031 - 0.031	ND	NA	0.4	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	ND	0 / 68	0.0089 - 0.0089	ND	NA	0.0012	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	120-83-2	2,4-Dichlorophenol	ND	ND	ND	ND	0 / 68	0.0074 - 0.0074	ND	NA	0.0023	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	105-67-9	2,4-Dimethylphenol	ND	ND	ND	ND	0 / 68	0.069 - 0.069	ND	NA	0.042	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	51-28-5	2,4-Dinitrophenol	ND	ND	ND	ND	0 / 67	0.24 - 0.24	ND	NA	0.0044	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	121-14-2	2,4-Dinitrotoluene	ND	ND	ND	ND	0 / 68	0.012 - 0.012	ND	NA	0.00032	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	606-20-2	2,6-Dinitrotoluene	ND	ND	ND	ND	0 / 68	0.017 - 0.017	ND	NA	6.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	91-58-7	2-Chloronaphthalene	ND	ND	ND	ND	0 / 68	0.0071 - 0.0071	ND	NA	0.39	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	95-57-8	2-Chlorophenol	ND	ND	ND	ND	0 / 68	0.008 - 0.008	ND	NA	0.0089	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	91-57-6	2-Methylnaphthalene	0.0074	3.7	mg/kg	CFISS-013	55 / 68	0.0069 - 0.007	3.7	NA	0.019	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	95-48-7	2-Methylphenol (O-Cresol)	ND	ND	ND	ND	0 / 68	0.014 - 0.014	ND	NA	0.075	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-74-4	2-Nitroaniline	ND	ND	ND	ND	0 / 68	0.01 - 0.01	ND	NA	0.008	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	88-75-5	2-Nitrophenol	ND	ND	ND	ND	0 / 68	0.011 - 0.011	ND	NA	No Screening Level		N	BSL-ND
	91-94-1	3,3'-Dichlorobenzidine	ND	ND	ND	ND	0 / 68	0.035 - 0.035	ND	NA	0.00082	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	MEPH3MEPH4	3- And 4- Methylphenol (Total)	0.011	0.011	mg/kg	CFISS-022	1 / 68	0.0084 - 0.0085	0.011	NA	No Screening Level		N	LDF
	99-09-2	3-Nitroaniline	ND	ND	ND	ND	0 / 68	0.0093 - 0.0093	ND	NA	No Screening Level		N	BSL-ND
	534-52-1	4,6-Dinitro-2-Methylphenol	ND	ND	ND	ND	0 / 68	0.084 - 0.084	ND	NA	0.00026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	101-55-3	4-Bromophenyl Phenyl Ether	ND	ND	ND	ND	0 / 68	0.0099 - 0.0099	ND	NA	No Screening Level		N	BSL-ND
	59-50-7	4-Chloro-3-Methylphenol	ND	ND	ND	ND	0 / 68	0.014 - 0.014	ND	NA	0.17	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND

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Table D-9
Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Subsurface Soil [0 to 12 ft-bgs])
Columbia Falls Aluminium Facility
Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Central Landfills
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	106-47-8	4-Chloroaniline	ND	ND	ND	ND	0 / 68	0.0081 - 0.0081	ND	NA	0.00016	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	7005-72-3	4-Chlorophenyl Phenyl Ether	ND	ND	ND	ND	0 / 68	0.0094 - 0.0094	ND	NA	No Screening Level		N	BSL-ND
	100-01-6	4-Nitroaniline	ND	ND	ND	ND	0 / 68	0.012 - 0.012	ND	NA	0.0016	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	100-02-7	4-Nitrophenol	ND	ND	ND	ND	0 / 68	0.15 - 0.15	ND	NA	No Screening Level		N	BSL-ND
	83-32-9	Acenaphthene	0.008	25	mg/kg	CFISS-012	61 / 68	0.0076 - 0.0076	25	NA	0.55	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	208-96-8	Acenaphthylene	0.013	0.79	mg/kg	CFISS-006	7 / 68	0.0081 - 0.0083	0.79	NA	No Screening Level		N	NSL
	98-86-2	Acetophenone	0.0071	0.03	mg/kg	CFISS-028	14 / 68	0.0069 - 0.0069	0.03	NA	0.058	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	120-12-7	Anthracene	0.033	34	mg/kg	CFISS-012	56 / 68	0.03 - 0.03	34	NA	5.8	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	1912-24-9	Atrazine	ND	ND	ND	ND	0 / 68	0.014 - 0.014	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	100-52-7	Benzaldehyde	0.026	0.051	mg/kg	CFISS-025	5 / 68	0.024 - 0.024	0.051	NA	0.0041	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	56-55-3	Benzo(A)Anthracene	0.047	77	mg/kg	CFISS-006	65 / 68	0.026 - 0.026	77	NA	0.011	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	50-32-8	Benzo(A)Pyrene	0.018	75	mg/kg	CFISS-006	66 / 68	0.0095 - 0.01	75	NA	0.029	USEPA RSL RBSSL (THQ=0.1, c*	Y	Carcinogen
	205-99-2	Benzo(B)Fluoranthene	0.019	100	mg/kg	CFISS-006	68 / 68	0.012 - 0.012	100	NA	0.3	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	191-24-2	Benzo(G,H,I)Perylene	0.025	49	mg/kg	CFISS-006	66 / 68	0.018 - 0.019	49	NA	No Screening Level		N	NSL
	207-08-9	Benzo(K)Fluoranthene	0.015	36	mg/kg	CFISS-006	66 / 68	0.014 - 0.015	36	NA	2.9	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	85-68-7	Benzyl Butyl Phthalate	0.0099	0.43	mg/kg	CFISS-021	6 / 68	0.0097 - 0.0097	0.43	NA	0.24	USEPA RSL RBSSL (THQ=0.1, c*	N	ASL-SSLOnly
	92-52-4	Biphenyl (Diphenyl)	0.041	0.31	mg/kg	CFISS-020	3 / 68	0.027 - 0.027	0.31	NA	0.00087	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	111-91-1	Bis(2-Chloroethoxy) Methane	ND	ND	ND	ND	0 / 68	0.0098 - 0.0098	ND	NA	0.0013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	111-44-4	Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND	ND	ND	ND	0 / 68	0.0074 - 0.0074	ND	NA	3.60E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	108-60-1	Bis(2-Chloroisopropyl) Ether	ND	ND	ND	ND	0 / 68	0.013 - 0.013	ND	NA	0.026	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	117-81-7	Bis(2-Ethylhexyl) Phthalate	0.014	0.81	mg/kg	CFISS-020	16 / 68	0.012 - 0.012	0.81	NA	1.3	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL
	105-60-2	Caprolactam	ND	ND	ND	ND	0 / 68	0.023 - 0.023	ND	NA	0.25	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	86-74-8	Carbazole	0.012	21	mg/kg	CFISS-012	62 / 68	0.0078 - 0.0078	21	NA	No Screening Level		N	NSL
	218-01-9	Chrysene	0.013	88	mg/kg	CFISS-006	68 / 68	0.0086 - 0.0086	88	NA	9	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	84-74-2	Di-N-Butyl Phthalate	0.011	0.095	mg/kg	CFISS-012	21 / 68	0.0094 - 0.0095	0.095	NA	0.23	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	117-84-0	Di-N-Octylphthalate	ND	ND	ND	ND	0 / 68	0.016 - 0.016	ND	NA	5.7	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	53-70-3	Dibenz(A,H)Anthracene	0.024	13	mg/kg	CFISS-006	60 / 68	0.016 - 0.016	13	NA	0.096	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	132-64-9	Dibenzofuran	0.011	9.2	mg/kg	CFISS-012	57 / 68	0.0095 - 0.0096	9.2	NA	0.015	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	84-66-2	Diethyl Phthalate	ND	ND	ND	ND	0 / 68	0.0089 - 0.0089	ND	NA	0.61	USEPA RSL RBSSL (THQ=0.1, n	N	BSL
	131-11-3	Dimethyl Phthalate	ND	ND	ND	ND	0 / 68	0.0091 - 0.0091	ND	NA	No Screening Level		N	BSL-ND
	206-44-0	Fluoranthene	0.014	130	mg/kg	CFISS-006	68 / 68	0.0093 - 0.0093	130	NA	8.9	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	86-73-7	Fluorene	0.01	20	mg/kg	CFISS-012	58 / 68	0.0069 - 0.0069	20	NA	0.54	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	118-74-1	Hexachlorobenzene	ND	ND	ND	ND	0 / 68	0.013 - 0.013	ND	NA	0.00012	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	87-68-3	Hexachlorobutadiene	ND	ND	ND	ND	0 / 68	0.0088 - 0.0088	ND	NA	0.00027	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	77-47-4	Hexachlorocyclopentadiene	ND	ND	ND	ND	0 / 68	0.02 - 0.02	ND	NA	0.00013	USEPA RSL RBSSL (THQ=0.1, n	N	BSL-ND
	67-72-1	Hexachloroethane	ND	ND	ND	ND	0 / 68	0.012 - 0.012	ND	NA	0.0002	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	193-39-5	Indeno(1,2,3-C,D)Pyrene	0.048	54	mg/kg	CFISS-006	65 / 68	0.021 - 0.021	54	NA	0.98	USEPA RSL RBSSL (THQ=0.1, c	Y	Carcinogen
	78-59-1	Isophorone	0.0072	1.5	mg/kg	CFISS-012	13 / 68	0.0068 - 0.0068	1.5	NA	0.026	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	621-64-7	N-Nitrosodi-N-Propylamine	ND	ND	ND	ND	0 / 68	0.011 - 0.011	ND	NA	8.10E-06	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND

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Table D-9

Occurrence, Distribution, and Selection of Potential Chemical of Concern (Central Landfills, Subsurface Soil [0 to 12 ft-bgs])

Columbia Falls Aluminium Facility

Columbia Falls, Montana

Scenario Timeframe: Future
Medium: Central Landfills
Exposure Medium: Subsurface Soil 0-12 Feet

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N) (3)	Rationale for Selection or Deletion (4)
Soil	86-30-6	N-Nitrosodiphenylamine	ND	ND	ND	ND	0 / 68	0.029 - 0.029	ND	NA	0.067	USEPA RSL RBSSL (THQ=0.1, c	N	BSL-ND
	91-20-3	Naphthalene	0.01	5.6	mg/kg	CFISS-012	55 / 68	0.008 - 0.008	5.6	NA	0.00054	USEPA RSL RBSSL (THQ=0.1, c**	N	ASL-SSLOnly
	98-95-3	Nitrobenzene	ND	ND	ND	ND	0 / 68	0.0099 - 0.0099	ND	NA	9.20E-05	USEPA RSL RBSSL (THQ=0.1, c**	N	BSL-ND
	87-86-5	Pentachlorophenol	ND	ND	ND	ND	0 / 68	0.038 - 0.038	ND	NA	5.70E-05	USEPA RSL RBSSL (THQ=0.1, c*	N	BSL-ND
	85-01-8	Phenanthrene	0.011	120	mg/kg	CFISS-012	67 / 68	0.0084 - 0.01	120	NA	No Screening Level		N	NSL
	108-95-2	Phenol	0.012	0.018	mg/kg	CFISS-022	5 / 68	0.01 - 0.01	0.018	NA	0.33	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly
	129-00-0	Pyrene	0.017	140	mg/kg	CFISS-006	67 / 68	0.014 - 0.017	140	NA	1.3	USEPA RSL RBSSL (THQ=0.1, n	N	ASL-SSLOnly

Footnotes:

ND - Non-detect
THQ = target hazard quotient
TR = target risk
USEPA = US Environmental Protection Agency
RSL = Regional Screening Level
MDEQ = Montana Department of Environmental Quaility
(1) Maximum detection value
(2) Site-specific risk-based screening levels. Refer to text for further discussion.
USEPA RSL Res Soil = USEPA RSL, Residential Soil (June 2017, THQ = 0.1, TR = 1×10^{-6})
USEPA RSL RBSSL = USEPA Regional Screening Level Risk-Based Soil Screening Level
MDEQ RBSL Res SurfSoil (DTW <10 ft) = MDEQ Risk-Based Screening Level for Residential Surface Soil, Depth to Water less than 10 ft.
c = carcinogenic basis
n = non-carcinogenic basis
dc - direct contact
(3) COPC Flag
Y = Yes
N = No
(4) Rationale for Selection or Deletion
BSL - Detections and Detection Limits Below Screening Level
BSL-ND - Detections below screening level, but detection limits either exceed screening level or no screening level available. Refer to text for further discussion of uncertainty.
ASL = Detections Above Screening Level
ASL-SSL(GW COC) = Detections exceed soil screening level and constituent a groundwater constituent of concern.
ASL-SSLOnly - Detectoin exceed soil screening level, constituent not a groundwater constituent of concern, and direct contact risk based level not exceeded
ASL-DCOnly - Detection exceed soil screening level, constituent not a groundwater constituent of concern, but detection exceeds direct contact risk-based screening level
LDF = Low Detection Frequency - 20 or more samples and detected in less than 5 % of sample set
Carcinogen - constituent identified as either Group A or Carcinogenic To Humans by USEPA
NSL = no screening level available

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APPENDIX E RAGS PART D EXAMPLE TABLE 3 THROUGH TABLE 7

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Table 3
Exposure Point Concentration Summary
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Shallow Soil

Exposure Point	CAS Number	Constituent of Potential Concern	Units	Arithmetic Mean	95% UCL Distribution		Maximum Concentration	Exposure Point Concentration			
								Value	Units	Statistic	Rationale

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Table 4A
Exposure Equations and Assumptions - Current Scenario: Soil
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe: Current
Medium: Soil
Exposure Medium: Outdoor Soil and Airborne Particulate

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Parameter Value	Units (a)	Rationale/Reference (b)	Intake Equation/Model Name
Ingestion									Chronic Daily Intake (CDI) (mg/kg-day) = (CS x IRSa x EF x ED x CFsoil) / (AT x BW)
Dermal									Dermal Absorbed Dose (DAD) (mg/kg-day) = (DA-event x EF x ED x EV x SA) / (AT x BW) where Absorbed Dose per Event (DA-event) (mg/cm2-event) = CS x CF x AF x ABS-d
Inhalation									CA = (CS / PEF) x 1000 ug/mg CDI = (CA x ET x EF x ED x CFday) / (AT)

(a) mg/d = milligrams per day; yr = year; kg = kilogram; cm2/day = square centimeter per day; mg/cm2 = milligrams per square centimeter; hr/day = hours per day
(b) See Report References for complete reference citations

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Table 4B
Chemical Specific Parameters
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Chemical	CAS Number	Kp (cm/hr)	FA (unitless)	B (unitless)	τ_{event} (hr/event)	t* (hr)	Reference (b)	Dermal Absorption Factor (unitless)	Reference (b)	VF	Henry's Law Constant (unitless)

(a) NA - not applicable
(b) See Report References for complete reference citations

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Table 5A
Non-Cancer Toxicity Data (Oral/Dermal)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

COC	CAS No.	Surrogate	Chronic Oral RfD Value (mg/kg-day)	Oral to Dermal Adjustment Factor	Chronic Oral to Dermal Adjustment Factor Source	Adjusted Dermal RfD Value (mg/kg-day)	Chronic Primary Target Organ	Source	Source Date

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Table 5B
Non-Cancer Toxicity Data (Inhalation)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

COC	CAS No.	Surrogate	Chronic Inhalation RfC Value (mg/m3)	Primary Target Organ	Source	Source Date

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Table 6A
Cancer Toxicity Data (Oral/Dermal)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

COC	CAS No.	Surrogate	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Oral to Dermal Adjustment Factor	Oral to Dermal Adjustment Factor Source	Adjusted Dermal Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	Weight of Evidence/Cancer Guideline Description	Source	Source Date

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Table 6B
Cancer Toxicity Data (Inhalation)
Columbia Falls Aluminum Facility
Columbia Falls, Montana

COC	CAS No.	Surrogate	Inhalation Unit Risk (µg/m3)-1	Weight of Evidence/ Cancer Guideline Description (b)	Source (c)	Source Date

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Table 7
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Columbia Falls Aluminum Facility
Columbia Falls, Montana

Scenario Timeframe:	Current
Receptor Population:	Employee (Indoor)
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Cas Number	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
						Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Quotient
								Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total														
		Exposure Point Total															
	Exposure Medium Total																
Medium Total																	

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