ATTACHMENTS

A. Laboratory Analytical Tables
B. Soil Thematic Maps
C. Sediment Thematic Maps
D. Surface Water Thematic Maps

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Notes Utilized Throughout Tables and Attachments	
DEQ-7 Human Health Standards	Montana Department of Environmental Quality- DEQ Circular 7 Human Health Standards
DEQ-7 Chronic	Montana Department of Environmental Quality- DEQ Circular 7 Aquatic Life Standards - Chronic
DEQ-7 Acute	Montana Department of Environmental Quality- DEQ Circular 7 Aquatic Life Standards - Acute
EPA	United States Environmental Protection Agency
EPA Drinking MCL	United States Environmental Protection Agency Risk Based Screening Level Drinking Water MCL
EPA Tapwater RSL	United States Environmental Protection Agency Risk Based Screening Level Tapwater RSL
Industrial RSL	United States Environmental Protection Agency Industrial Soil Regional Screening Level
Residential RSL	United States Environmental Protection Agency Residnetial Soil Regional Screening Level
Risk SSL	United States Environmental Protection Agency Human Health Protection of Groundwater - Risk-Based Soil Screening Level
DI	Dissolved
DUP	Duplicate sample
ESV	Ecological Screening Value
ft-bls	Feet Below Land Surface
NA	No Information Available
ND	Non Detect
T	Total
µg/L	Micrograms per Liter
g/cc	Grams per cubic centimeter
mg/kg	Milligrams per kilogram
J-	Estimated Low Bias
J	Estimated value
J+	Estimated High Bias
U	Indicates that analyte was not detected at the limit reported
Notes Exclusively for Soil - Ecological Screening Values Tables	
Bold	Indicates an Exceedance of the Minimum ESV
A	Los Alamos National Laboratory (LANL) (2012) Minimum across evaluated species in source.
B	Minimum across species of birds and mammals presented in Sample et al. (1996), Appendix D.
C	Ecological Soil Screening Level (http://www.epa.gov/ecotox/ecossl/) Minimum across species evaluated in source.
D	Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants (Efroymson et al. 1997)
E	Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Soil Invertebrates (Efroymson et al. 1997)
Notes Exclusively for Sediment - Ecological Screening Values Tables	
Bold	Indicates an Exceedance of the Minimum ESV
A	USEPA Region 5 RCRA Ecological Screening Levels (USEPA 2003)
B	Ingersoll, et al. (1996); Threshold Effect Level (TEL) and Probable Effect Level (PEL) for total extraction of sediment (BT) samples from Hyalella azteca 28-day (HA28) tests.
C	MacDonald et al. (2000); consensus-based threshold effect concentration (TEC) and probable effect concentration (PEC)
D	USEPA Region 3 Freshwater Sediment Screening Benchmarks (USEPA 2006)
E	Derived based on the equilibrium partitioning (EqP) approach normalized to 1% TOC.
F	From Table 3-4 in EPA (2003); column titled "Coc, PAHi, FCVi (µg/goc)" normalized to 1% TOC and adjusted to ppm.
Notes Exclusively for Surfacewater - Ecological Screening Values Tables	
Bold	Indicates an Exceedance of the Minimum ESV
Shaded	Indicates an Exceedance of DEQ-7 Chronic
Red	Indicates an Exceedance of DEQ-7 Acute
A	MDEQ Aquatic Life Standard (MDEQ, 2012. Montana Department of Environmental Quality Circular DEQ-7)
B	EPA National Recommended Water Quality Criteria (USEPA. 2004b. National Recommended Water Quality Criteria, 2004)
C	Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota (Suter II, G.W. and Tsao, C.L. 1996. Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision)
D	Suter & Tsao, 1996. GLWQI Tier II SAV/SCVs and ORNL LCVs provided in Table 1. ORNL Population EC20s provided in Table 2.
E	USEPA Region 3 Freshwater Screening Benchmark (USEPA 2006)
F	Canadian Water Quality Guidelines [Canadian Council of Ministers of the Environment (CCME), 2008]
Notes Exclusively for Soil and Sediment - Human Health Screening Levels Tables	
Bold	Indicates an Exceedance of EPA Residential Soil RSL
Shaded	Indicates an Exceedance of EPA Industrial Soil RSL
Red	Indicates an Exceedance of EPA Protection of Groundwater Risk-Based Soil RSL
Notes Exclusively for Surfacewater - Human Health Screening Levels Tables	
Bold	Indicates an Exceedance of DEQ-7 Human Health Standards
Shaded	Indicates an Exceedance of EPA Risk Based Screening Level Drinking water MCL
Red	Indicates an Exceedance of EPA Risk Based Screening Level Tapwater RSL

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ATTACHMENT A

Laboratory Analytical Tables

A1. Summary of Volatile Organic Compounds in Soil – Human Health Screening Levels

A2. Summary of Semi-Volatile Organic Compounds in Soil – Human Health Screening Levels

A3. Summary of Metals in Soil – Human Health Screening Levels

A4. Summary of General Chemistry in Soil – Human Health Screening Levels

A5. Summary of Volatile Organic Compounds in Sediment – Human Health Screening Levels

A6. Summary of Semi-Volatile Organic Compounds in Sediment – Human Health Screening Levels

A7. Summary of Metals in Sediment – Human Health Screening Levels

A8. Summary of General Chemistry in Sediment – Human Health Screening Levels

A9. Summary of Volatile Organic Compounds in Surface Water – Human Health Screening Levels

A10. Summary of Semi-Volatile Organic Compounds in Surface Water – Human Health Screening Levels

A11. Summary of Metals in Surface Water – Human Health Screening Levels

A12. Summary of Volatile Organic Compounds in Soil – Ecological Screening Levels

A13. Summary of Volatile Organic Compounds in Soil – Ecological Screening Levels

A14. Summary of Semi-Volatile Organic Compounds in Soil – Ecological Screening Levels

A15. Summary of Metals in Soil – Ecological Screening Levels

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ATTACHMENT A

Laboratory Analytical Tables

A16. Summary of General Chemistry in Soil – Ecological Screening Levels

A17. Summary of Volatile Organic Compounds in Sediment – Ecological Screening Levels

A18. Summary of Semi-Volatile Organic Compounds in Sediment – Ecological Screening Levels

A19. Summary of Metals in Sediment – Ecological Screening Levels

A20. Summary of General Chemistry in Sediment – Ecological Screening Levels

A21. Summary of Volatile Organic Compounds in Surface Water – Ecological Screening Levels

A22. Summary of Semi-Volatile Organic Compounds in Surface Water – Ecological Screening Levels

A23. Summary of Metals in Surface Water – Ecological Screening Levels

A24. Summary of General Chemistry in Surface Water – Ecological Screening Levels

A25. Summary of Grain Size in Soil

A26. Summary of Soil Moisture Content and Bulk Density

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Table A1. Summary of Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location		CFSB-134	CFSB-135	CFSB-136	CFSB-137	CFSB-138	CFSB-138	CFSB-139	CFSB-140	CFSB-141	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-144
			Sample Date		10/31/2017	10/31/2017	10/31/2017	11/02/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017
			Sample Depth (ft bls)		0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	2 - 4	0.5 - 2	0.5 - 2	2 - 4	0.5 - 2
			Sample Type		N	N	N	N	N	FD	N	N	N	N	N	N	FD	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit															
1,1,1-Trichloroethane	810	3600	0.28	mg/kg	0.00028 U	0.00033 U	0.00033 U	0.0004 U	0.0004 U	0.00051 U	0.00029 U	0.00034 U	0.00029 U	0.00023 U	0.00023 U	0.00029 U	0.00028 U	0.00021 U	0.00025 U
1,1,2,2-Tetrachloroethane	0.6	2.7	0.00003	mg/kg	0.00026 U	0.0003 U	0.0003 U	0.00037 U	0.00037 U	0.00047 U	0.00027 U	0.00031 U	0.00027 U	0.00021 U	0.00021 U	0.00026 U	0.00026 U	0.00019 U	0.00023 U
1,1,2-Trichloro-1,2,2-trifluoroethane	670	2800	2.6	mg/kg	0.00036 U	0.00042 U	0.00042 U	0.00052 U	0.00051 U	0.00066 U	0.00038 U	0.00043 U	0.00037 U	0.00029 U	0.0003 U	0.00037 U	0.00036 U	0.00027 U	0.00033 U
1,1,2-Trichloroethane	0.15	0.63	0.000013	mg/kg	0.00021 U	0.00025 U	0.00025 U	0.00031 U	0.0003 U	0.00039 U	0.00022 U	0.00026 U	0.00022 U	0.00017 U	0.00018 U	0.00022 U	0.00022 U	0.00016 U	0.00019 U
1,1-Dichloroethane	3.6	16	0.00078	mg/kg	0.00025 U	0.00029 U	0.00029 U	0.00036 U	0.00035 U	0.00045 U	0.00026 U	0.0003 U	0.00026 U	0.0002 U	0.00021 U	0.00025 U	0.00025 U	0.00018 U	0.00022 U
1,1-Dichloroethene	23	100	0.01	mg/kg	0.00027 U	0.00032 U	0.00032 U	0.00039 U	0.00038 U	0.00049 U	0.00028 U	0.00032 U	0.00028 U	0.00022 U	0.00022 U	0.00028 U	0.00027 U	0.0002 U	0.00024 U
1,2,3-Trichlorobenzene	6.3	93	0.0021	mg/kg	0.00022 U	0.00026 U	0.00025 U	0.00031 U	0.00031 U	0.0004 U	0.00023 U	0.00026 U	0.00022 U	0.00018 U	0.00018 U	0.00022 U	0.00022 U	0.00016 UJ	0.0002 U
1,2,4-Trichlorobenzene	5.8	26	0.0012	mg/kg	0.00011 U	0.00013 U	0.00013 U	0.00016 U	0.00016 U	0.0002 U	0.00012 U	0.00013 U	0.00011 U	0.00009 U	0.000092 U	0.00011 U	0.00011 U	0.000082 UJ	0.0001 U
1,2-Dibromo-3-Chloropropane	0.0053	0.064	0.00000014	mg/kg	0.00055 U	0.00065 U	0.00065 U	0.0008 U	0.00079 U	0.001 U	0.00058 U	0.00066 U	0.00057 U	0.00045 U	0.00046 U	0.00057 U	0.00056 U	0.00041 U	0.0005 U
1,2-Dichlorobenzene	180	930	0.03	mg/kg	0.00017 U	0.0002 U	0.0002 U	0.00025 U	0.00025 U	0.00031 U	0.00018 U	0.00021 U	0.00018 U	0.00014 U	0.00014 U	0.00018 U	0.00017 U	0.00013 UJ	0.00016 U
1,2-Dichloroethane	0.46	2	0.000048	mg/kg	0.00036 U	0.00042 U	0.00042 U	0.00051 U	0.00051 U	0.00065 U	0.00037 U	0.00043 U	0.00037 U	0.00029 U	0.0003 U	0.00037 U	0.00036 U	0.00026 U	0.00032 U
1,2-Dichloropropane	1.6	6.6	0.00027	mg/kg	0.00051 U	0.0006 U	0.0006 U	0.00073 U	0.00072 U	0.00093 U	0.00053 U	0.00061 U	0.00052 U	0.00041 U	0.00042 U	0.00052 U	0.00051 U	0.00038 U	0.00046 U
1,3-Dichlorobenzene	--	--	--	mg/kg	0.00019 U	0.00022 U	0.00022 U	0.00028 U	0.00027 U	0.00035 U	0.0002 U	0.00023 U	0.0002 U	0.00016 U	0.00016 U	0.0002 U	0.00019 U	0.00014 UJ	0.00017 U
1,4-Dichlorobenzene	2.6	11	0.00046	mg/kg	0.00012 U	0.00014 U	0.00014 U	0.00017 U	0.00017 U	0.00022 U	0.00013 U	0.00014 U	0.00012 U	0.000098 U	0.0001 U	0.00012 U	0.00012 U	0.000089 UJ	0.00011 U
2-Butanone (MEK)	2700	19000	0.12	mg/kg	0.0037 J	0.0041 J	0.0043 J	0.006 J+	0.013	0.0096 J	0.0041 J	0.0043 J	0.0046 J	0.0046 J	0.0031 J+	0.0062 J	0.0035 J	0.0038 J	0.0044 J
2-Hexanone	20	130	0.00088	mg/kg	0.00094 U	0.0011 U	0.0011 U	0.0014 U	0.0013 U	0.0017 U	0.00098 U	0.0011 U	0.00097 U	0.00076 U	0.00078 U	0.00096 U	0.00094 U	0.0007 U	0.00085 U
4-Methyl-2-pentanone (MIBK)	3300	14000	0.14	mg/kg	0.0008 U	0.00094 U	0.00093 U	0.0012 U	0.0011 U	0.0015 U	0.00083 U	0.00096 U	0.00082 U	0.00065 U	0.00066 U	0.00082 U	0.0008 U	0.00059 U	0.00072 U
Acetone	6100	67000	0.29	mg/kg	0.034	0.03	0.047	0.05	0.083	0.056	0.044	0.043	0.041	0.035	0.027	0.062 J	0.027 J	0.035 J-	0.042
Benzene	1.2	5.1	0.00023	mg/kg	0.0017	0.0019	0.00085 J	0.0017	0.00076 J	0.00084 J	0.0013	0.0016	0.0018	0.00071 J	0.00069 J	0.0022 J	0.0013 J	0.00084 J	0.0014
Bromoform	19	86	0.00087	mg/kg	0.00051 U	0.0006 U	0.0006 U	0.00074 U	0.00073 U	0.00093 U	0.00053 U	0.00061 U	0.00053 U	0.00042 U	0.00042 U	0.00052 U	0.00051 U	0.00038 U	0.00046 U
Bromomethane	0.68	3	0.00019	mg/kg	0.00057 U	0.00067 U	0.00067 U	0.00082 U	0.00081 U	0.001 U	0.00059 U	0.00068 U	0.00059 U	0.00046 U	0.00047 U	0.00058 U	0.00057 U	0.00042 U	0.00052 U
Carbon disulfide	77	350	0.024	mg/kg	0.0011 J	0.0011 J	0.00054 J	0.00095 J	0.00046 U	0.00058 U	0.002	0.0023	0.0018	0.00036 J	0.00027 U	0.0028 J	0.0013 J	0.00095	0.00032 J
Carbon tetrachloride	0.65	2.9	0.00018	mg/kg	0.00022 U	0.00026 U	0.00025 U	0.00031 U	0.00031 U	0.0004 U	0.00023 U	0.00026 U	0.00022 U	0.00018 U	0.00018 U	0.00022 U	0.00022 U	0.00016 U	0.0002 U
Chlorobenzene	28	130	0.0053	mg/kg	0.00021 U	0.00025 U	0.00025 U	0.00031 U	0.0003 U	0.00039 U	0.00022 U	0.00026 U	0.00022 U	0.00017 U	0.00018 U	0.00022 U	0.00021 U	0.00016 U	0.00019 U
Chlorobromomethane	15	63	0.0021	mg/kg	0.00034 U	0.0004 U	0.0004 U	0.00049 U	0.00048 U	0.00061 U	0.00035 U	0.00041 U	0.00035 U	0.00027 U	0.00028 U	0.00035 U	0.00034 U	0.00025 U	0.00031 U
Chlorodibromomethane	8.3	39	0.00023	mg/kg	0.00023 U	0.00027 U	0.00027 U	0.00034 U	0.00033 U	0.00042 U	0.00024 U	0.00028 U	0.00024 U	0.00019 U	0.00019 U	0.00024 U	0.00023 U	0.00017 U	0.00021 U
Chloroethane	1400	5700	0.59	mg/kg	0.00063 U	0.00074 U	0.00073 U	0.00091 U	0.00089 U	0.0011 U	0.00065 U	0.00075 U	0.00065 U	0.00051 U	0.00052 U	0.00064 U	0.00063 U	0.00047 U	0.00057 U
Chloroform	0.32	1.4	0.000061	mg/kg	0.00038 U	0.00045 U	0.00045 U	0.00055 U	0.00055 U	0.0007 U	0.0004 U	0.00046 U	0.0004 U	0.00031 U	0.00032 U	0.00039 U	0.00039 U	0.00028 U	0.00035 U
Chloromethane	11	46	0.0049	mg/kg	0.00052 UJ	0.00061 UJ	0.00061 UJ	0.00076 U	0.00074 UJ	0.00095 UJ	0.00055 UJ	0.00063 UJ	0.00054 U	0.00043 U	0.00043 U	0.00054 U	0.00053 U	0.00039 U	0.00047 U
cis-1,2-Dichloroethene	16	230	0.0011	mg/kg	0.00018 U	0.00021 U	0.00021 U	0.00026 U	0.00026 U	0.00033 U	0.00019 U	0.00022 U	0.00019 U	0.00015 U	0.00015 U	0.00019 U	0.00018 U	0.00014 U	0.00017 U
cis-1,3-Dichloropropene	--	--	--	mg/kg	0.00033 U	0.00038 U	0.00038 U	0.00047 U	0.00047 U	0.0006 U	0.00034 U	0.00039 U	0.00034 U	0.00027 U	0.00027 U	0.00034 U	0.00033 U	0.00024 U	0.0003 U
Cyclohexane	650	2700	1.3	mg/kg	0.003	0.0025	0.00051 J	0.0031	0.00088 J	0.0013 J	0.0018	0.0023	0.0026	0.00086 J	0.00086 J	0.0042 J	0.0025 J	0.0012	0.0019
Dichlorobromomethane	0.29	1.3	0.000036	mg/kg	0.00031 U	0.00036 U	0.00036 U	0.00045 U	0.00044 U	0.00056 U	0.00032 U	0.00037 U	0.00032 U	0.00025 U	0.00026 U	0.00032 U	0.00031 U	0.00023 U	0.00028 U
Dichlorodifluoromethane	8.7	37	0.03	mg/kg	0.00041 U	0.00048 U	0.00048 U	0.00059 U	0.00058 U	0.00074 U	0.00042 U	0.00049 U	0.00042 U	0.00033 U	0.00034 U	0.00042 U	0.00041 U	0.0003 U	0.00037 U
Ethylbenzene	5.8	25	0.0017	mg/kg	0.00047 J	0.0006 J	0.0004 J	0.0005 J	0.00034 U	0.00044 U	0.00038 J	0.0005 J	0.00054 J	0.00019 U	0.00026 J	0.00062 J	0.00037 J	0.00033 J	0.00037 J
Ethylene Dibromide	0.036	0.16	0.0000021	mg/kg	0.00022 U	0.00025 U	0.00025 U	0.00031 U	0.00031 U	0.00039 U	0.00023 U	0.00026 U	0.00022 U	0.00018 U	0.00018 U	0.00022 U	0.00022 U	0.00016 U	0.0002 U
Isopropylbenzene	190	990	0.074	mg/kg	0.00015 U	0.00018 U	0.00018 U	0.00022 U	0.00022 U	0.00028 U	0.00016 U	0.00018 U	0.00016 U	0.00012 U	0.00013 U	0.00016 U	0.00015 U	0.00011 U	0.00014 U
Methyl acetate	7800	120000	0.41	mg/kg	0.0052 U	0.0061 U	0.011	0.0075 U	0.6 J	0.0094 UJ	0.0054 U	0.0062 U	0.0053 U	0.0042 U	0.0043 U	0.0053 U	0.0052 U	0.0038 U	0.0047 U
Methyl tert-butyl ether	47	210	0.0032	mg/kg	0.00015 U	0.00018 U	0.00018 U	0.00022 U	0.00021 U	0.00027 U	0.00016 U	0.00018 U	0.00016 U	0.00012 U	0.00012 U	0.00015 U	0.00015 U	0.00011 U	0.00014 U
Methylcyclohexane	--	--	--	mg/kg	0.0054	0.0049	0.0012 J	0.0048	0.0018	0.0023	0.0037	0.0043	0.0052	0.0016	0.0017	0.0076 J	0.0043 J	0.0022	0.0034
Methylene Chloride	35	320	0.0027	mg/kg	0.0002 U	0.00023 U	0.0027	0.00028 U	0.00045 J	0.00036 U	0.0002 U	0.00031 J	0.0002 U	0.00016 U	0.00016 U	0.0002 U	0.0002 U	0.00015 U	0.00018 U
m-Xylene & p-Xylene	56	240	--	mg/kg	0.0013	0.0019	0.0012 J	0.0013 J	0.0006 J	0.00077 J	0.0009 J	0.0012 J	0.0012	0.00071 J	0.00079 J	0.0018 J	0.00092 J	0.001	0.001 J
o-Xylene	65	280	0.019	mg/kg	0.00037 J	0.00058 J	0.00038 J	0.00041 J	0.00021 J	0.00021 U	0.00028 J	0.00038 J	0.00039 J	0.00025 J	0.00026 J	0.00063 J	0.00031 J	0.00038 J	0.00034 J

DRAFT

Table A1. Summary of Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-134	CFSB-135	CFSB-136	CFSB-137	CFSB-138	CFSB-138	CFSB-139	CFSB-140	CFSB-141	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-144
				Sample Date	10/31/2017	10/31/2017	10/31/2017	11/02/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017
				Sample Depth (ft bls)	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	2 - 4	0.5 - 2	0.5 - 2	2 - 4	0.5 - 2
				Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	FD	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit															
Styrene	600	3500	0.13	mg/kg	0.00015 U	0.00017 U	0.00017 U	0.00021 U	0.00021 U	0.00027 U	0.00015 U	0.00018 U	0.00015 U	0.00012 U	0.00012 U	0.00015 U	0.00015 U	0.00011 U	0.00013 U
Tetrachloroethene	8.1	39	0.0018	mg/kg	0.00017 U	0.0002 U	0.0002 U	0.00025 U	0.0004 J	0.00031 U	0.00018 U	0.00021 U	0.00018 U	0.00014 U	0.00014 U	0.00018 U	0.00017 U	0.00013 U	0.00016 U
Toluene	490	4700	0.076	mg/kg	0.0029	0.004	0.0023	0.0029	0.0012 J	0.0016 J	0.0023	0.0033	0.003	0.0014	0.0016	0.004 J	0.0023 J	0.0018	0.0024
trans-1,2-Dichloroethene	160	2300	0.011	mg/kg	0.0003 U	0.00035 U	0.00035 U	0.00043 U	0.00042 U	0.00054 U	0.00031 U	0.00036 U	0.00031 U	0.00024 U	0.00025 U	0.0003 U	0.0003 U	0.00022 U	0.00027 U
trans-1,3-Dichloropropene	--	--	--	mg/kg	0.00032 U	0.00037 U	0.00037 U	0.00046 U	0.00046 U	0.00058 U	0.00033 U	0.00038 U	0.00033 U	0.00026 U	0.00027 U	0.00033 U	0.00032 U	0.00024 U	0.00029 U
Trichloroethene	0.41	1.9	0.0001	mg/kg	0.00017 U	0.0002 U	0.0002 U	0.00025 U	0.00025 U	0.00031 U	0.00018 U	0.00021 U	0.00018 U	0.00014 U	0.00014 U	0.00018 U	0.00017 U	0.00013 U	0.00016 U
Trichlorofluoromethane	2300	35000	0.33	mg/kg	0.00049 U	0.00057 U	0.00057 U	0.00071 U	0.00069 U	0.00089 U	0.00051 U	0.00059 U	0.0005 U	0.0004 U	0.00041 U	0.0005 U	0.00049 U	0.00036 U	0.00044 U
Vinyl chloride	0.059	1.7	0.0000065	mg/kg	0.00066 U	0.00077 U	0.00077 U	0.00095 U	0.00093 U	0.0012 U	0.00068 U	0.00079 U	0.00068 U	0.00053 U	0.00054 U	0.00067 U	0.00066 U	0.00049 U	0.00059 U

Preliminary - Under EPA and MDEQ Review

Table A1. Summary of Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-144	CFSB-145	CFSB-145	CFSB-146	CFSB-146	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-151	CFSB-152	CFSB-153
				Sample Date	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017	11/07/2017	11/06/2017
				Sample Depth (ft bls)	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	0.5 - 2	0.5 - 2
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit												
1,1,1-Trichloroethane	810	3600	0.28	mg/kg	0.0003 U	0.00027 U	0.00024 U	0.00022 U	0.00022 U	0.00024 U	0.00024 U	0.00025 U	0.00027 U	0.00021 U	0.00026 U	0.00036 U
1,1,2,2-Tetrachloroethane	0.6	2.7	0.00003	mg/kg	0.00028 U	0.00024 U	0.00022 U	0.0002 U	0.0002 U	0.00022 U	0.00022 U	0.00023 U	0.00025 U	0.0002 U	0.00024 U	0.00033 UJ
1,1,2-Trichloro-1,2,2-trifluoroethane	670	2800	2.6	mg/kg	0.00039 U	0.00034 U	0.00031 U	0.00028 U	0.00028 U	0.00031 U	0.00031 U	0.00033 U	0.00035 U	0.00028 U	0.00034 U	0.00046 U
1,1,2-Trichloroethane	0.15	0.63	0.000013	mg/kg	0.00023 U	0.0002 U	0.00019 U	0.00017 U	0.00017 U	0.00018 U	0.00019 U	0.00019 U	0.0002 U	0.00016 U	0.0002 U	0.00027 U
1,1-Dichloroethane	3.6	16	0.00078	mg/kg	0.00027 U	0.00023 U	0.00022 U	0.00019 U	0.00019 U	0.00021 U	0.00022 U	0.00022 U	0.00024 U	0.00019 U	0.00023 U	0.00031 U
1,1-Dichloroethene	23	100	0.01	mg/kg	0.00029 U	0.00026 U	0.00023 U	0.00021 U	0.00021 U	0.00023 U	0.00024 U	0.00024 U	0.00026 U	0.00021 U	0.00025 U	0.00034 U
1,2,3-Trichlorobenzene	6.3	93	0.0021	mg/kg	0.00023 UJ	0.00021 U	0.00019 U	0.00017 U	0.00017 U	0.00018 U	0.00019 U	0.0002 U	0.00021 U	0.00017 U	0.0002 U	0.00028 UJ
1,2,4-Trichlorobenzene	5.8	26	0.0012	mg/kg	0.00012 UJ	0.0001 U	0.000096 U	0.000086 U	0.000086 U	0.000094 U	0.000096 U	0.0001 U	0.00011 U	0.000084 U	0.0001 U	0.00014 UJ
1,2-Dibromo-3-Chloropropane	0.0053	0.064	0.00000014	mg/kg	0.00059 U	0.00052 U	0.00048 U	0.00043 U	0.00043 U	0.00047 U	0.00048 U	0.0005 U	0.00053 U	0.00042 UJ	0.00052 UJ	0.0007 UJ
1,2-Dichlorobenzene	180	930	0.03	mg/kg	0.00019 UJ	0.00016 U	0.00015 U	0.00014 U	0.00013 U	0.00015 U	0.00015 U	0.00016 U	0.00017 U	0.00013 U	0.00016 U	0.00022 UJ
1,2-Dichloroethane	0.46	2	0.000048	mg/kg	0.00038 U	0.00034 U	0.00031 U	0.00028 U	0.00028 U	0.0003 U	0.00031 U	0.00032 U	0.00034 U	0.00027 U	0.00033 U	0.00045 U
1,2-Dichloropropane	1.6	6.6	0.00027	mg/kg	0.00054 U	0.00048 U	0.00044 U	0.0004 U	0.00039 U	0.00043 U	0.00044 U	0.00046 U	0.00049 U	0.00039 U	0.00048 U	0.00064 U
1,3-Dichlorobenzene	--	--	--	mg/kg	0.0002 UJ	0.00018 U	0.00017 U	0.00015 U	0.00015 U	0.00016 U	0.00017 U	0.00017 U	0.00018 U	0.00015 U	0.00018 U	0.00024 UJ
1,4-Dichlorobenzene	2.6	11	0.00046	mg/kg	0.00013 UJ	0.00011 U	0.0001 U	0.000094 U	0.000093 U	0.0001 U	0.0001 U	0.00011 U	0.00011 U	0.000092 U	0.00011 U	0.00074 J+
2-Butanone (MEK)	2700	19000	0.12	mg/kg	0.0036 J	0.0059	0.0039 J	0.0038 J	0.0043 J	0.0037 J	0.004 J	0.004 J	0.0026 J	0.0061	0.0077	0.0094
2-Hexanone	20	130	0.00088	mg/kg	0.001 U	0.00089 U	0.00081 U	0.00073 U	0.00072 U	0.00079 U	0.00082 U	0.00084 U	0.0009 U	0.00071 U	0.00088 U	0.0012 U
4-Methyl-2-pentanone (MIBK)	3300	14000	0.14	mg/kg	0.00086 U	0.00076 U	0.00069 U	0.00062 U	0.00062 U	0.00068 U	0.00069 U	0.00072 U	0.00076 U	0.00061 U	0.00075 U	0.001 U
Acetone	6100	67000	0.29	mg/kg	0.024 J-	0.076	0.045	0.045	0.044	0.038	0.037	0.037	0.021	0.036	0.059	0.063
Benzene	1.2	5.1	0.00023	mg/kg	0.0015	0.0012	0.002	0.00061 J	0.00058 J	0.0022	0.0023	0.0022	0.0038	0.0005 J	0.00031 J	0.0011 J
Bromoform	19	86	0.00087	mg/kg	0.00055 U	0.00048 U	0.00044 U	0.0004 U	0.00039 U	0.00043 U	0.00044 U	0.00046 U	0.00049 U	0.00039 U	0.00048 U	0.00065 U
Bromomethane	0.68	3	0.00019	mg/kg	0.00061 U	0.00054 U	0.00049 U	0.00045 U	0.00044 U	0.00048 U	0.0005 U	0.00051 U	0.00054 U	0.00043 U	0.00053 U	0.00072 U
Carbon disulfide	77	350	0.024	mg/kg	0.00034 U	0.0011	0.0014	0.00065 J	0.00037 J	0.0015	0.0013	0.0038	0.0012	0.014	0.0021	0.0034
Carbon tetrachloride	0.65	2.9	0.00018	mg/kg	0.00023 U	0.00021 U	0.00019 U	0.00017 U	0.00017 U	0.00018 U	0.00019 U	0.0002 U	0.00021 U	0.00017 U	0.0002 U	0.00028 U
Chlorobenzene	28	130	0.0053	mg/kg	0.00023 UJ	0.0002 U	0.00018 U	0.00017 U	0.00016 U	0.00018 U	0.00019 U	0.00019 U	0.0002 U	0.00016 U	0.0002 U	0.00027 U
Chlorobromomethane	15	63	0.0021	mg/kg	0.00036 U	0.00032 U	0.00029 U	0.00026 U	0.00026 U	0.00029 U	0.00029 U	0.0003 U	0.00032 U	0.00026 U	0.00032 U	0.00043 U
Chlorodibromomethane	8.3	39	0.00023	mg/kg	0.00025 U	0.00022 U	0.0002 U	0.00018 U	0.00018 U	0.0002 U	0.0002 U	0.00021 U	0.00022 U	0.00018 U	0.00022 U	0.0003 U
Chloroethane	1400	5700	0.59	mg/kg	0.00067 U	0.00059 U	0.00055 U	0.00049 U	0.00049 U	0.00053 U	0.00055 U	0.00056 U	0.0006 U	0.00048 U	0.00059 U	0.0008 U
Chloroform	0.32	1.4	0.000061	mg/kg	0.00041 U	0.00036 U	0.00033 U	0.0003 U	0.0003 U	0.00032 U	0.00033 U	0.00035 U	0.00037 U	0.00029 U	0.00036 U	0.00049 U
Chloromethane	11	46	0.0049	mg/kg	0.00056 U	0.0005 U	0.00045 U	0.00041 U	0.0004 U	0.00044 U	0.00045 U	0.00047 U	0.0005 U	0.0004 U	0.00049 U	0.00066 U
cis-1,2-Dichloroethene	16	230	0.0011	mg/kg	0.0002 U	0.00017 U	0.00016 U	0.00014 U	0.00014 U	0.00015 U	0.00016 U	0.00016 U	0.00017 U	0.00014 U	0.00017 U	0.00023 U
cis-1,3-Dichloropropene	--	--	--	mg/kg	0.00035 U	0.00031 U	0.00029 U	0.00026 U	0.00025 U	0.00028 U	0.00029 U	0.0003 U	0.00031 U	0.00025 UJ	0.00031 UJ	0.00042 U
Cyclohexane	650	2700	1.3	mg/kg	0.0025	0.0026	0.0042	0.00047 J	0.00046 J	0.0039	0.005	0.005	0.0052	0.00066 J	0.00025 U	0.00085 J
Dichlorobromomethane	0.29	1.3	0.000036	mg/kg	0.00033 U	0.00029 U	0.00027 U	0.00024 U	0.00024 U	0.00026 U	0.00027 U	0.00028 U	0.0003 U	0.00024 U	0.00029 U	0.00039 U
Dichlorodifluoromethane	8.7	37	0.03	mg/kg	0.00044 U	0.00038 U	0.00035 U	0.00032 U	0.00031 U	0.00034 U	0.00035 U	0.00037 U	0.00039 U	0.00031 U	0.00038 U	0.00052 U
Ethylbenzene	5.8	25	0.0017	mg/kg	0.00026 UJ	0.00056 J	0.00089 J	0.00019 U	0.00018 U	0.00092 J	0.0014	0.0011	0.0012	0.00019 J	0.00022 U	0.00041 J
Ethylene Dibromide	0.036	0.16	0.0000021	mg/kg	0.00023 U	0.0002 U	0.00019 U	0.00017 U	0.00017 U	0.00018 U	0.00019 U	0.00019 U	0.00021 U	0.00016 U	0.0002 U	0.00027 U
Isopropylbenzene	190	990	0.074	mg/kg	0.00016 UJ	0.00014 U	0.00013 U	0.00012 U	0.00012 U	0.00013 U	0.00016 J	0.00014 U	0.00014 U	0.00012 U	0.00014 U	0.00019 U
Methyl acetate	7800	120000	0.41	mg/kg	0.048 J-	0.0049 U	0.0045 U	0.004 U	0.004 U	0.0044 U	0.0045 U	0.0047 U	0.0049 U	0.0039 UJ	0.0048 UJ	0.0066 U
Methyl tert-butyl ether	47	210	0.0032	mg/kg	0.00016 U	0.00014 U	0.00013 U	0.00012 U	0.00012 U	0.00013 U	0.00013 U	0.00014 U	0.00014 U	0.00011 U	0.00014 U	0.00019 U
Methylcyclohexane	--	--	--	mg/kg	0.004 J-	0.0051	0.0087	0.00088 J	0.00084 J	0.0083	0.011	0.011	0.01	0.0012	0.00027 J	0.0013 J
Methylene Chloride	35	320	0.0027	mg/kg	0.00021 U	0.00019 U	0.00017 U	0.00015 U	0.00015 U	0.00017 U	0.00017 U	0.00018 U	0.00019 U	0.00015 U	0.00018 U	0.00025 U
m-Xylene & p-Xylene	56	240	--	mg/kg	0.00098 J-	0.0015	0.0025	0.00031 J	0.00025 J	0.0023	0.0037	0.0028	0.0028	0.00049 J	0.00025 J	0.00095 J
o-Xylene	65	280	0.019	mg/kg	0.00032 J-	0.00046 J	0.00082 J	0.00011 J	0.000088 U	0.00077 J	0.0012	0.00083 J	0.0009 J	0.00014 J	0.00011 U	0.00035 J

Table A1. Summary of Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-144	CFSB-145	CFSB-145	CFSB-146	CFSB-146	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-151	CFSB-152	CFSB-153
				Sample Date	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017	11/07/2017	11/06/2017
				Sample Depth (ft bls)	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	0.5 - 2	0.5 - 2
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit												
Styrene	600	3500	0.13	mg/kg	0.00016 UJ	0.00014 U	0.00013 U	0.00012 U	0.00011 U	0.00013 U	0.00013 U	0.00013 U	0.00014 U	0.00011 U	0.00014 U	0.00019 U
Tetrachloroethene	8.1	39	0.0018	mg/kg	0.00018 U	0.00016 U	0.00015 U	0.00013 U	0.00013 U	0.00015 U	0.00015 U	0.00015 U	0.00016 U	0.00013 U	0.00016 U	0.00022 U
Toluene	490	4700	0.076	mg/kg	0.0022	0.0031	0.005	0.0013	0.00099	0.005	0.0073	0.006	0.0068	0.00099	0.0007 U	0.0022
trans-1,2-Dichloroethene	160	2300	0.011	mg/kg	0.00032 U	0.00028 U	0.00026 U	0.00023 U	0.00023 U	0.00025 U	0.00026 U	0.00027 U	0.00028 U	0.00023 U	0.00028 U	0.00037 U
trans-1,3-Dichloropropene	--	--	--	mg/kg	0.00034 U	0.0003 U	0.00028 U	0.00025 U	0.00025 U	0.00027 U	0.00028 U	0.00029 U	0.00031 U	0.00024 UJ	0.0003 UJ	0.00041 U
Trichloroethene	0.41	1.9	0.0001	mg/kg	0.00019 U	0.00016 U	0.00015 U	0.00014 U	0.00013 U	0.00015 U	0.00015 U	0.00016 U	0.00017 U	0.00013 U	0.00016 U	0.00022 U
Trichlorofluoromethane	2300	35000	0.33	mg/kg	0.00052 U	0.00046 U	0.00042 U	0.00038 U	0.00038 U	0.00041 U	0.00042 U	0.00044 U	0.00047 U	0.00037 U	0.00046 U	0.00062 U
Vinyl chloride	0.059	1.7	0.0000065	mg/kg	0.0007 U	0.00062 U	0.00057 U	0.00051 U	0.00051 U	0.00056 U	0.00057 U	0.00059 U	0.00063 U	0.0005 U	0.00062 U	0.00083 U

Preliminary - Under EPA and MDEQ Review

Table A2. Summary of Semi-Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-134	CFSB-134	CFSB-135	CFSB-135	CFSB-136	CFSB-136	CFSB-137	CFSB-137	CFSB-138	CFSB-138	CFSB-138	CFSB-139	CFSB-139	CFSB-140	CFSB-140	CFSB-141
				Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017
				Sample Depth (ft bls)	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5
				Sample Type	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit																
1,1'-Biphenyl	4.7	20	0.00087	mg/kg	0.041 U	0.038 U	0.041 U	0.039 U	0.039 U	0.042 U	0.038 U	0.039 U	0.05 J	0.038 U	0.044 U	0.034 U	0.031 U	0.036 U	0.032 U	0.041 U
1,2,4,5-Tetrachlorobenzene	2.3	35	0.00079	mg/kg	0.035 U	0.033 U	0.035 U	0.034 U	0.034 U	0.037 U	0.034 U	0.034 U	0.033 U	0.033 U	0.038 U	0.03 U	0.027 U	0.031 U	0.028 U	0.036 U
1,4-Dioxane	5.3	24	0.000094	mg/kg	0.13 U	0.12 U	0.13 U	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.097 U	0.11 U	0.1 U	0.13 U
2,2'-oxybis[1-chloropropane]	310	4700	0.026	mg/kg	0.02 U	0.018 U	0.02 U	0.019 U	0.019 U	0.02 U	0.019 U	0.019 U	0.018 U	0.018 U	0.021 U	0.017 U	0.015 U	0.017 U	0.015 U	0.02 U
2,3,4,6-Tetrachlorophenol	190	2500	0.018	mg/kg	0.045 U	0.042 U	0.045 U	0.043 U	0.043 U	0.047 U	0.042 U	0.043 U	0.042 U	0.042 U	0.048 U	0.038 U	0.034 U	0.04 U	0.035 U	0.046 U
2,4,5-Trichlorophenol	630	8200	0.4	mg/kg	0.047 U	0.044 U	0.047 U	0.046 U	0.045 U	0.049 U	0.045 U	0.045 U	0.044 U	0.044 U	0.051 U	0.04 U	0.036 U	0.042 U	0.037 U	0.048 U
2,4,6-Trichlorophenol	6.3	82	0.0012	mg/kg	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.015 U	0.011 U	0.01 U	0.012 U	0.011 U	0.014 U
2,4-Dichlorophenol	19	250	0.0023	mg/kg	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.01 U	0.01 U	0.012 U	0.0095 U	0.0086 U	0.0099 U	0.0088 U	0.011 U
2,4-Dimethylphenol	130	1600	0.042	mg/kg	0.1 UJ	0.097 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.11 UJ	0.099 U	0.1 U	0.097 U	0.097 U	0.11 U	0.088 UJ	0.08 UJ	0.092 UJ	0.082 UJ	0.11 U
2,4-Dinitrophenol	13	160	0.0044	mg/kg	0.36 U	0.33 U	0.36 U	0.35 U	0.34 U	0.38 U	0.34 U	0.34 U	0.33 U	0.33 UJ	0.39 U	0.3 U	0.27 U	0.32 U	0.28 U	0.37 U
2,4-Dinitrotoluene	1.7	7.4	0.00032	mg/kg	0.019 U	0.018 U	0.019 U	0.018 U	0.018 U	0.02 U	0.018 U	0.018 U	0.017 U	0.018 U	0.02 U	0.016 U	0.014 U	0.017 U	0.015 U	0.019 U
2,6-Dinitrotoluene	0.36	1.5	0.000067	mg/kg	0.025 U	0.024 U	0.025 U	0.024 U	0.024 U	0.026 U	0.024 U	0.024 U	0.024 U	0.024 U	0.027 U	0.021 U	0.019 U	0.022 U	0.02 U	0.026 U
2-Chloronaphthalene	480	6000	0.39	mg/kg	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	0.01 U	0.012 U	0.0091 U	0.0082 U	0.0095 U	0.0085 U	0.011 U
2-Chlorophenol	39	580	0.0089	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.011 U	0.012 U	0.011 U	0.011 U	0.013 U	0.01 U	0.0092 U	0.011 U	0.0095 U	0.012 U
2-Methylnaphthalene	24	300	0.019	mg/kg	0.011 U	0.0098 U	0.011 U	0.01 U	0.01 U	0.011 U	0.039 J	0.024 J	0.48	0.03 J	0.024 J	0.0089 U	0.008 U	0.0093 U	0.0083 U	0.21 J
2-Methylphenol	320	4100	0.075	mg/kg	0.021 U	0.019 U	0.021 U	0.02 U	0.02 U	0.022 U	0.02 U	0.02 U	0.019 U	0.019 UJ	0.022 U	0.017 U	0.016 U	0.018 U	0.016 U	0.021 U
2-Nitroaniline	63	800	0.008	mg/kg	0.016 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	0.017 U	0.013 U	0.012 U	0.014 U	0.012 U	0.016 U
2-Nitrophenol	--	--	--	mg/kg	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U	0.017 U	0.015 U	0.015 U	0.015 U	0.015 U	0.017 U	0.013 U	0.012 U	0.014 U	0.013 U	0.016 U
3 & 4 Methylphenol	--	--	--	mg/kg	0.013 U	0.012 U	0.013 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 UJ	0.014 U	0.011 U	0.0097 U	0.011 U	0.0099 U	0.013 U
3,3'-Dichlorobenzidine	1.2	5.1	0.00082	mg/kg	0.053 U	0.049 U	0.053 U	0.051 U	0.051 U	0.055 U	0.05 U	0.051 U	0.049 U	0.049 U	0.057 U	0.045 U	0.04 U	0.047 U	0.042 U	0.054 U
3-Nitroaniline	--	--	--	mg/kg	0.014 U	0.013 U	0.014 U	0.014 U	0.013 U	0.015 U	0.013 U	0.013 U	0.013 U	0.013 U	0.015 U	0.012 U	0.011 U	0.012 U	0.011 U	0.014 U
4,6-Dinitro-2-methylphenol	0.51	6.6	0.00026	mg/kg	0.13 U	0.12 U	0.13 U	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.14 U	0.11 U	0.097 U	0.11 U	0.1 U	0.13 U
4-Bromophenyl phenyl ether	--	--	--	mg/kg	0.015 U	0.014 U	0.015 U	0.014 U	0.014 U	0.016 U	0.014 U	0.014 U	0.014 U	0.014 U	0.016 U	0.013 U	0.011 U	0.013 U	0.012 U	0.015 U
4-Chloro-3-methylphenol	630	8200	0.17	mg/kg	0.02 U	0.019 U	0.02 U	0.02 U	0.02 U	0.021 U	0.019 U	0.019 U	0.019 U	0.019 U	0.022 U	0.017 U	0.016 U	0.018 U	0.016 U	0.021 U
4-Chloroaniline	2.7	11	0.00016	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.011 U	0.011 U	0.013 U	0.01 U	0.0093 U	0.011 U	0.0096 U	0.012 U
4-Chlorophenyl phenyl ether	--	--	--	mg/kg	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.015 U	0.013 U	0.014 U	0.013 U	0.013 U	0.015 U	0.012 U	0.011 U	0.013 U	0.011 U	0.014 U
4-Nitroaniline	25	110	0.0016	mg/kg	0.018 U	0.017 U	0.018 U	0.017 U	0.017 U	0.019 U	0.017 U	0.017 U	0.017 U	0.017 U	0.019 U	0.015 UJ	0.014 UJ	0.016 U	0.014 UJ	0.018 U
4-Nitrophenol	--	--	--	mg/kg	0.23 U	0.21 U	0.23 U	0.22 U	0.22 U	0.24 U	0.22 UJ	0.22 UJ	0.21 UJ	0.21 UJ	0.25 UJ	0.19 U	0.17 U	0.2 U	0.18 U	0.23 UJ
Acenaphthene	360	4500	0.55	mg/kg	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.021 J	0.011 U	0.012 U	0.0097 U	0.0088 U	0.01 U	0.009 U	0.012 U
Acenaphthylene	--	--	--	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.1 J	0.011 U	0.013 U	0.01 U	0.0093 U	0.011 U	0.0096 U	0.051 J
Acetophenone	780	12000	0.058	mg/kg	0.01 U	0.0096 U	0.01 U	0.01 U	0.0099 U	0.011 U	0.0098 U	0.0099 U	0.0096 U	0.0096 U	0.011 U	0.0087 U	0.0079 U	0.0091 U	0.0081 U	0.011 U
Anthracene	1800	23000	5.8	mg/kg	0.045 U	0.042 U	0.045 U	0.044 U	0.043 U	0.047 U	0.043 U	0.043 U	0.042 U	0.042 U	0.049 U	0.038 U	0.034 U	0.04 U	0.036 U	0.046 U
Atrazine	2.4	10	0.0002	mg/kg	0.021 U	0.02 U	0.021 U	0.02 U	0.02 U	0.022 U	0.02 U	0.02 U	0.02 U	0.02 U	0.023 U	0.018 U	0.016 U	0.019 U	0.017 U	0.022 U
Benzaldehyde	170	820	0.0041	mg/kg	0.036 U	0.034 U	0.036 U	0.035 U	0.035 U	0.038 U	0.034 U	0.035 U	0.034 U	0.034 U	0.039 U	0.031 U	0.028 U	0.032 U	0.028 U	0.037 U
Benzo[a]anthracene	1.1	21	0.011	mg/kg	0.049	0.037 U	0.04 U	0.038 U	0.091	0.041 U	0.038 U	0.038 U	0.037 U	0.037 U	0.043 U	0.034 U	0.03 U	0.035 U	0.031 U	0.04 U
Benzo[a]pyrene	**0.11**	2.1	0.029	mg/kg	0.033 J	0.013 U	0.014 U	0.027 J	0.014 U	0.015 U	0.036 J	0.014 U	0.013 U	0.013 U	0.015 U	0.012 U	0.011 U	0.013 U	0.011 U	0.015 U
Benzo[b]fluoranthene	**1.1**	21	0.3	mg/kg	0.12	0.079	0.045 J	0.07	0.18	0.019 U	0.071	0.018 U	0.4	0.048 J	0.02 UJ	0.016 U	0.014 U	0.016 U	0.015 U	0.073
Benzo[g,h,i]perylene	--	--	--	mg/kg	0.052 J+	0.025 U	0.027 U	0.026 U	0.051 J+	0.029 U	0.026 U	0.026 U	0.21 J+	0.025 UJ	0.029 U	0.023 U	0.021 U	0.024 U	0.021 U	0.028 U
Benzo[k]fluoranthene	11	210	2.9	mg/kg	0.037 J	0.025 J	0.021 U	0.02 U	0.061	0.022 U	0.02 U	0.02 U	0.019 U	0.019 UJ	0.022 U	0.017 U	0.016 U	0.018 U	0.016 U	0.021 U
Bis(2-chloroethoxy)methane	19	250	0.0013	mg/kg	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	0.014 U	0.016 U	0.013 U	0.011 U	0.013 U	0.012 U	0.015 U
Bis(2-chloroethyl)ether	0.23	1	0.0000036	mg/kg	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.01 U	0.01 UJ	0.012 U	0.0095 U	0.0086 U	0.0099 U	0.0088 U	0.011 U
Bis(2-ethylhexyl) phthalate	39	160	1.3	mg/kg	0.019 U	0.017 U	0.019 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.017 U	0.017 U	0.02 U	0.016 U	0.014 U	0.016 U	0.015 U	0.019 U
Butyl benzyl phthalate	290	1200	0.24	mg/kg	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	0.014 U	0.016 U	0.012 U	0.011 U	0.013 U	0.012 U	0.015 U

Table A2. Summary of Semi-Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location		CFSB-134	CFSB-134	CFSB-135	CFSB-135	CFSB-136	CFSB-136	CFSB-137	CFSB-137	CFSB-138	CFSB-138	CFSB-138	CFSB-139	CFSB-139	CFSB-140	CFSB-140	CFSB-141
			Sample Date		10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017
			Sample Depth (ft bls)		0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5
			Sample Type		N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit																
Caprolactam	3100	40000	0.25	mg/kg	0.034 U	0.032 U	0.034 U	0.033 U	0.033 U	0.036 U	0.032 U	0.033 U	0.032 U	0.032 U	0.037 U	0.029 U	0.026 U	0.03 U	0.027 U	0.035 U
Carbazole	--	--	--	mg/kg	0.012 U	0.011 U	0.012 U	0.011 U	0.023 J	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.013 U	0.01 U	0.009 U	0.01 U	0.0093 U	0.012 U
Chrysene	110	2100	9	mg/kg	0.12 J	0.071 J	0.05 J	0.068 J	0.23 J	0.014 U	0.067 J	0.012 U	0.34 J	0.023 J-	0.014 U	0.011 U	0.0099 U	0.011 U	0.027 J	0.059 J
Dibenz(a,h)anthracene	**0.11**	2.1	0.096	mg/kg	0.025 U	0.023 U	0.025 U	0.024 U	0.024 U	0.026 U	0.023 U	0.024 U	0.069 J+	0.023 U	0.027 U	0.021 U	0.019 U	0.022 U	0.019 U	0.025 U
Dibenzofuran	7.3	100	0.015	mg/kg	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.02 J	0.013 U	0.015 U	0.012 U	0.011 U	0.013 U	0.011 U	0.015 U
Diethyl phthalate	5100	66000	0.61	mg/kg	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.015 U	0.011 U	0.01 U	0.012 U	0.011 U	0.014 U
Dimethyl phthalate	--	--	--	mg/kg	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.015 U	0.012 U	0.011 U	0.012 U	0.011 U	0.014 U
Di-n-butyl phthalate	630	8200	0.23	mg/kg	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.015 U	0.013 U	0.014 U	0.013 U	0.013 U	0.015 U	0.012 U	0.011 U	0.013 U	0.011 U	0.014 U
Di-n-octyl phthalate	63	820	5.7	mg/kg	0.024 U	0.023 U	0.024 U	0.023 U	0.023 U	0.025 U	0.023 U	0.023 U	0.022 U	0.023 U	0.026 U	0.02 U	0.018 U	0.021 U	0.019 U	0.025 U
Fluoranthene	240	3000	8.9	mg/kg	0.083 J	0.046 J	0.046 J	0.073 J	0.26 J	0.015 U	0.055 J	0.013 U	0.3 J	0.033 J	0.015 UJ	0.02 J	0.011 U	0.019 J	0.04 J	0.046 J
Fluorene	240	3000	0.54	mg/kg	0.01 U	0.0096 U	0.01 U	0.01 U	0.0099 U	0.011 U	0.0098 U	0.0099 U	0.04 J	0.0096 U	0.011 U	0.0087 U	0.0079 U	0.0091 U	0.0081 U	0.011 U
Hexachlorobenzene	0.21	0.96	0.00012	mg/kg	0.019 U	0.018 U	0.019 U	0.019 U	0.018 U	0.02 U	0.018 U	0.018 U	0.018 U	0.018 U	0.021 U	0.016 U	0.015 U	0.017 U	0.015 U	0.02 U
Hexachlorobutadiene	1.2	5.3	0.00027	mg/kg	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.012 U	0.012 U	0.014 U	0.011 U	0.01 U	0.012 U	0.011 U	0.014 U
Hexachlorocyclopentadiene	0.18	0.75	0.00013	mg/kg	0.03 UJ	0.028 UJ	0.03 UJ	0.029 UJ	0.028 UJ	0.031 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.032 UJ	0.025 UJ	0.023 UJ	0.026 UJ	0.023 UJ	0.03 UJ
Hexachloroethane	1.8	8	0.0002	mg/kg	0.017 U	0.016 U	0.017 U	0.017 U	0.017 U	0.018 U	0.016 U	0.017 U	0.016 U	0.016 UJ	0.019 U	0.015 U	0.013 U	0.015 U	0.014 U	0.018 U
Indeno[1,2,3-cd]pyrene	**1.1**	21	0.98	mg/kg	0.057 J+	0.029 U	0.032 U	0.031 U	0.054 J+	0.033 U	0.047	0.03 U	0.31	0.029 U	0.034 U	0.027 U	0.024 U	0.028 U	0.025 U	0.04 J
Isophorone	570	2400	0.026	mg/kg	0.01 U	0.0095 U	0.01 U	0.0098 U	0.0098 U	0.011 U	0.0097 U	0.0097 U	0.0095 U	0.0095 U	0.011 U	0.0086 U	0.0078 U	0.009 U	0.008 U	0.01 U
Naphthalene	3.8	17	0.00054	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.067 J	0.04 J	0.81	0.043 J-	0.037 J	0.01 U	0.0092 U	0.011 U	0.0095 U	0.36 J
Nitrobenzene	5.1	22	0.000092	mg/kg	0.015 U	0.014 U	0.015 U	0.014 U	0.014 U	0.016 U	0.014 U	0.014 U	0.014 U	0.014 U	0.016 U	0.013 U	0.011 U	0.013 U	0.012 U	0.015 U
N-Nitrosodi-n-propylamine	0.078	0.33	0.0000081	mg/kg	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U	0.017 U	0.015 U	0.015 U	0.015 U	0.015 U	0.017 U	0.013 U	0.012 U	0.014 U	0.013 U	0.016 U
N-Nitrosodiphenylamine	110	470	0.067	mg/kg	0.043 U	0.04 U	0.043 U	0.042 U	0.041 U	0.045 U	0.041 U	0.041 U	0.04 U	0.04 U	0.046 U	0.036 U	0.033 U	0.038 U	0.034 U	0.044 U
Pentachlorophenol	1	4	0.000057	mg/kg	0.058 U	0.054 U	0.058 U	0.055 U	0.055 U	0.06 U	0.055 U	0.055 U	0.053 U	0.054 U	0.062 U	0.049 U	0.044 U	0.051 U	0.045 U	0.059 U
Phenanthrene	--	--	--	mg/kg	0.029 J	0.012 U	0.013 U	0.022 J	0.046 J	0.013 U	0.012 U	0.012 U	0.16 J	0.027 J	0.014 UJ	0.011 U	0.0097 U	0.011 U	0.0099 U	0.03 J
Phenol	1900	25000	0.33	mg/kg	0.016 U	0.014 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.014 U	0.014 U	0.017 U	0.013 U	0.012 U	0.014 U	0.012 U	0.016 U
Pyrene	180	2300	1.3	mg/kg	0.087 J	0.05 J	0.045 J	0.071 J	0.26 J	0.023 U	0.037 J	0.021 U	0.26 J	0.02 UJ	0.023 U	0.018 U	0.016 U	0.019 U	0.017 U	0.03 J

Preliminary - Under Review

Table A2. Summary of Semi-Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit	CFSB-141	CFSB-142	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-143	CFSB-144	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-145	CFSB-146	CFSB-146
				Sample Date	11/01/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017
				Sample Depth (ft bls)	0.5 - 2	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2
				Sample Type	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
1,1'-Biphenyl	4.7	20	0.00087	mg/kg	0.033 U	0.031 U	0.033 U	0.033 U	0.035 U	0.033 U	0.031 U	0.03 U	0.038 U	0.037 U	0.04 UJ	0.031 U	0.03 U	0.03 U	0.032 U	0.031 U
1,2,4,5-Tetrachlorobenzene	2.3	35	0.00079	mg/kg	0.029 U	0.027 U	0.028 U	0.029 U	0.031 U	0.029 U	0.027 U	0.026 U	0.033 U	0.032 U	0.035 U	0.027 U	0.026 U	0.026 U	0.028 U	0.027 U
1,4-Dioxane	5.3	24	0.000094	mg/kg	0.1 U	0.097 U	0.1 U	0.1 U	0.11 U	0.1 U	0.098 U	0.094 U	0.12 U	0.11 U	0.12 U	0.099 U	0.094 U	0.094 U	0.1 U	0.097 U
2,2'-oxybis[1-chloropropane]	310	4700	0.026	mg/kg	0.016 U	0.015 U	0.016 U	0.016 U	0.017 U	0.016 U	0.015 U	0.014 U	0.018 U	0.018 U	0.019 U	0.015 U	0.014 U	0.014 U	0.015 U	0.015 U
2,3,4,6-Tetrachlorophenol	190	2500	0.018	mg/kg	0.037 U	0.034 U	0.036 U	0.036 U	0.039 U	0.037 U	0.035 U	0.033 U	0.041 U	0.04 U	0.044 UJ	0.035 U	0.033 U	0.033 U	0.035 U	0.034 U
2,4,5-Trichlorophenol	630	8200	0.4	mg/kg	0.039 U	0.036 U	0.038 U	0.038 U	0.041 U	0.039 U	0.036 U	0.035 U	0.044 U	0.043 U	0.046 UJ	0.037 U	0.035 U	0.035 U	0.037 U	0.036 U
2,4,6-Trichlorophenol	6.3	82	0.0012	mg/kg	0.011 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.01 U	0.01 U	0.013 U	0.012 U	0.013 UJ	0.01 U	0.0099 U	0.01 U	0.011 U	0.01 U
2,4-Dichlorophenol	19	250	0.0023	mg/kg	0.0092 U	0.0085 U	0.009 U	0.0091 U	0.0098 U	0.0092 U	0.0087 U	0.0083 U	0.01 U	0.01 U	0.011 UJ	0.0087 U	0.0083 U	0.0083 U	0.0088 U	0.0086 U
2,4-Dimethylphenol	130	1600	0.042	mg/kg	0.086 U	0.08 U	0.084 U	0.084 U	0.091 U	0.086 U	0.081 U	0.077 U	0.097 U	0.094 U	0.1 UJ	0.081 U	0.077 U	0.077 U	0.082 U	0.08 U
2,4-Dinitrophenol	13	160	0.0044	mg/kg	0.29 U	0.27 U	0.29 U	0.29 U	0.31 U	0.3 U	0.28 U	0.27 UJ	0.33 U	0.32 U	0.35 UJ	0.28 UJ	0.26 U	0.27 U	0.28 U	0.27 U
2,4-Dinitrotoluene	1.7	7.4	0.00032	mg/kg	0.015 U	0.014 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.014 U	0.017 U	0.017 U	0.018 UJ	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U
2,6-Dinitrotoluene	0.36	1.5	0.000067	mg/kg	0.021 U	0.019 U	0.02 U	0.02 U	0.022 U	0.021 U	0.02 U	0.019 U	0.023 U	0.023 U	0.025 UJ	0.02 U	0.019 U	0.019 U	0.02 U	0.019 U
2-Chloronaphthalene	480	6000	0.39	mg/kg	0.0088 U	0.0082 U	0.0087 U	0.0087 U	0.0094 U	0.0089 U	0.0083 U	0.008 U	0.01 U	0.0097 U	0.011 U	0.0084 U	0.0079 U	0.008 U	0.0085 U	0.0082 U
2-Chlorophenol	39	580	0.0089	mg/kg	0.0099 U	0.0092 U	0.0097 U	0.0097 U	0.011 U	0.0099 U	0.0093 U	0.0089 U	0.011 U	0.011 U	0.012 UJ	0.0094 U	0.0089 U	0.0089 U	0.0095 U	0.0092 U
2-Methylnaphthalene	24	300	0.019	mg/kg	0.16 J	0.008 U	0.0084 U	0.0085 U	0.0091 U	0.0086 U	0.0081 U	0.0078 U	0.0097 U	0.0095 U	0.01 UJ	0.0081 U	0.0077 U	0.0078 U	0.0083 U	0.008 U
2-Methylphenol	320	4100	0.075	mg/kg	0.017 U	0.016 U	0.017 U	0.017 U	0.018 U	0.017 U	0.016 U	0.015 U	0.019 U	0.019 U	0.02 UJ	0.016 U	0.015 U	0.015 U	0.016 U	0.016 U
2-Nitroaniline	63	800	0.008	mg/kg	0.013 U	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.012 U	0.012 U	0.015 U	0.014 U	0.015 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
2-Nitrophenol	--	--	--	mg/kg	0.013 U	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.012 U	0.012 U	0.015 U	0.014 U	0.016 UJ	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U
3 & 4 Methylphenol	--	--	--	mg/kg	0.01 U	0.0096 U	0.01 U	0.01 U	0.011 U	0.01 U	0.0098 U	0.0094 U	0.012 U	0.011 U	0.012 UJ	0.0098 U	0.0093 U	0.0094 U	0.01 U	0.0097 U
3,3'-Dichlorobenzidine	1.2	5.1	0.00082	mg/kg	0.043 U	0.04 U	0.043 U	0.043 U	0.046 U	0.044 U	0.041 U	0.039 U	0.049 U	0.048 U	0.052 U	0.041 U	0.039 U	0.039 U	0.042 U	0.04 U
3-Nitroaniline	--	--	--	mg/kg	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.01 U	0.013 U	0.013 U	0.014 U	0.011 U	0.01 U	0.01 U	0.011 U	0.011 U
4,6-Dinitro-2-methylphenol	0.51	6.6	0.00026	mg/kg	0.1 U	0.096 U	0.1 U	0.1 U	0.11 U	0.1 U	0.098 U	0.094 UJ	0.12 U	0.11 U	0.12 UJ	0.098 UJ	0.093 U	0.094 U	0.1 U	0.097 U
4-Bromophenyl phenyl ether	--	--	--	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.011 U	0.014 U	0.013 U	0.015 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U
4-Chloro-3-methylphenol	630	8200	0.17	mg/kg	0.017 U	0.016 U	0.016 U	0.016 U	0.018 U	0.017 U	0.016 U	0.015 U	0.019 U	0.018 U	0.02 UJ	0.016 U	0.015 U	0.015 U	0.016 U	0.016 U
4-Chloroaniline	2.7	11	0.00016	mg/kg	0.01 U	0.0093 U	0.0098 U	0.0099 U	0.011 U	0.01 U	0.0094 U	0.0091 U	0.011 U	0.011 U	0.012 U	0.0095 U	0.009 U	0.009 U	0.0096 U	0.0093 U
4-Chlorophenyl phenyl ether	--	--	--	mg/kg	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.014 UJ	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U
4-Nitroaniline	25	110	0.0016	mg/kg	0.015 U	0.014 U	0.014 U	0.015 U	0.016 U	0.015 U	0.014 U	0.013 U	0.017 U	0.016 U	0.018 UJ	0.014 U	0.013 U	0.013 U	0.014 U	0.014 U
4-Nitrophenol	--	--	--	mg/kg	0.19 UJ	0.17 U	0.18 U	0.18 U	0.2 U	0.19 U	0.18 U	0.17 U	0.21 U	0.21 U	0.22 U	0.18 U	0.17 U	0.17 U	0.18 U	0.17 U
Acenaphthene	360	4500	0.55	mg/kg	0.0094 U	0.0088 U	0.0092 U	0.0093 U	0.01 U	0.0095 U	0.0089 U	0.0085 U	0.011 U	0.01 U	0.011 U	0.0089 U	0.0085 U	0.0085 U	0.01 J	0.0088 U
Acenaphthylene	--	--	--	mg/kg	0.024 J	0.0093 U	0.0098 U	0.0099 U	0.011 U	0.01 U	0.0094 U	0.0091 U	0.011 U	0.011 U	0.012 UJ	0.0095 U	0.009 U	0.009 U	0.0096 U	0.0093 U
Acetophenone	780	12000	0.058	mg/kg	0.0085 U	0.0079 U	0.0083 U	0.0084 U	0.009 U	0.0085 U	0.008 U	0.0077 U	0.0096 U	0.0093 U	0.01 UJ	0.008 U	0.0076 U	0.0077 U	0.0082 U	0.0079 U
Anthracene	1800	23000	5.8	mg/kg	0.037 U	0.034 U	0.036 U	0.036 U	0.039 U	0.037 U	0.035 U	0.033 U	0.042 U	0.041 U	0.044 UJ	0.035 U	0.033 U	0.033 U	0.036 U	0.034 U
Atrazine	2.4	10	0.0002	mg/kg	0.017 U	0.016 U	0.017 U	0.017 U	0.018 U	0.017 U	0.016 U	0.016 U	0.02 U	0.019 U	0.021 U	0.016 U	0.016 U	0.016 U	0.017 U	0.016 U
Benzaldehyde	170	820	0.0041	mg/kg	0.03 U	0.028 U	0.029 U	0.029 U	0.032 U	0.03 U	0.028 U	0.027 U	0.055 J	0.033 U	0.036 U	0.028 U	0.027 U	0.027 U	0.029 U	0.028 U
Benzo[a]anthracene	1.1	21	0.011	mg/kg	0.032 U	0.038	0.069	0.05	0.11	0.046	0.031 U	0.029 U	0.037 U	0.036 U	0.039 U	0.054	0.029 U	0.029 U	0.11	0.061
Benzo[a]pyrene	**0.11**	2.1	0.029	mg/kg	0.012 U	0.062	0.093	0.069	**0.15**	0.068	0.049	0.032 J	0.013 U	0.013 U	0.11 J-	0.082	0.011 U	0.039	**0.16**	0.084
Benzo[b]fluoranthene	**1.1**	21	0.3	mg/kg	0.015 U	0.11	0.17	0.11	0.25	0.13	0.09	0.048	0.017 U	0.017 U	0.2 J-	0.13	0.014 U	0.062	0.24	0.14
Benzo[g,h,i]perylene	--	--	--	mg/kg	0.022 U	0.049 J	0.072 J	0.046 J	0.13 J	0.065 J	0.046 J	0.02 U	0.025 U	0.025 U	0.095 J	0.085 J	0.02 U	0.029 J	0.19 J	0.084 J
Benzo[k]fluoranthene	11	210	2.9	mg/kg	0.017 U	0.042	0.057	0.045	0.091	0.051	0.032 J	0.019 J	0.019 U	0.019 U	0.074 J-	0.05	0.015 U	0.015 U	0.092	0.05
Bis(2-chloroethoxy)methane	19	250	0.0013	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.011 U	0.014 U	0.013 U	0.015 UJ	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U
Bis(2-chloroethyl)ether	0.23	1	0.0000036	mg/kg	0.0092 U	0.0085 U	0.009 U	0.0091 U	0.0098 U	0.0092 U	0.0087 U	0.0083 U	0.01 U	0.01 U	0.011 UJ	0.0087 UJ	0.0083 U	0.0083 U	0.0088 U	0.0086 U
Bis(2-ethylhexyl) phthalate	39	160	1.3	mg/kg	0.015 U	0.014 U	0.015 U	0.015 U	0.016 U	0.015 U	0.014 U	0.014 U	0.017 U	0.017 U	0.018 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U
Butyl benzyl phthalate	290	1200	0.24	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.011 U	0.014 U	0.013 U	0.014 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U

Table A2. Summary of Semi-Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location		CFSB-141	CFSB-142	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-143	CFSB-144	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-145	CFSB-146	CFSB-146
			Sample Date		11/01/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017
			Sample Depth (ft bls)		0.5 - 2	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2
			Sample Type		N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit																
Caprolactam	3100	40000	0.25	mg/kg	0.028 U	0.026 U	0.027 U	0.028 U	0.03 U	0.028 U	0.026 U	0.025 U	0.032 U	0.031 U	0.034 U	0.027 U	0.025 U	0.025 U	0.027 U	0.026 U
Carbazole	--	--	--	mg/kg	0.0096 U	0.009 U	0.011 J	0.0095 U	0.015 J	0.0097 U	0.0091 U	0.0087 U	0.011 U	0.011 U	0.012 UJ	0.0094 J	0.0087 U	0.0087 U	0.016 J	0.009 U
Chrysene	110	2100	9	mg/kg	0.011 U	0.057 J	0.11 J	0.07 J	0.16 J	0.076 J	0.044 J	0.019 J	0.012 U	0.012 U	0.16 J-	0.078 J	0.012 J	0.03 J	0.15 J	0.077 J
Dibenz(a,h)anthracene	**0.11**	2.1	0.096	mg/kg	0.02 U	0.019 U	0.042	0.02 U	0.055	0.02 U	0.019 U	0.018 U	0.023 U	0.022 U	0.055	0.019 U	0.018 U	0.018 U	0.053	0.04
Dibenzofuran	7.3	100	0.015	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.014 UJ	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Diethyl phthalate	5100	66000	0.61	mg/kg	0.011 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.01 U	0.01 U	0.013 U	0.012 U	0.013 UJ	0.01 U	0.0099 U	0.01 U	0.011 U	0.01 U
Dimethyl phthalate	--	--	--	mg/kg	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.01 U	0.013 U	0.012 U	0.014 UJ	0.011 U	0.01 U	0.01 U	0.011 U	0.011 U
Di-n-butyl phthalate	630	8200	0.23	mg/kg	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.014 U	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U
Di-n-octyl phthalate	63	820	5.7	mg/kg	0.02 U	0.018 U	0.019 U	0.019 U	0.021 U	0.02 U	0.019 U	0.018 U	0.022 U	0.022 U	0.024 U	0.019 U	0.018 U	0.018 U	0.019 U	0.018 U
Fluoranthene	240	3000	8.9	mg/kg	0.012 U	0.053 J	0.1 J	0.077 J	0.14 J	0.059 J	0.033 J	0.018 J	0.013 U	0.013 U	0.081 J-	0.069 J	0.01 U	0.026 J	0.17 J	0.087 J
Fluorene	240	3000	0.54	mg/kg	0.0085 U	0.0079 U	0.0083 U	0.0084 U	0.009 U	0.0085 U	0.008 U	0.0077 U	0.0096 U	0.0093 U	0.01 UJ	0.008 U	0.0076 U	0.0077 U	0.0082 U	0.0079 U
Hexachlorobenzene	0.21	0.96	0.00012	mg/kg	0.016 U	0.015 U	0.015 U	0.016 U	0.017 U	0.016 U	0.015 U	0.014 U	0.018 U	0.017 U	0.019 U	0.015 U	0.014 U	0.014 U	0.015 U	0.015 U
Hexachlorobutadiene	1.2	5.3	0.00027	mg/kg	0.011 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.01 U	0.0099 U	0.012 U	0.012 U	0.013 U	0.01 U	0.0098 U	0.0099 U	0.011 U	0.01 U
Hexachlorocyclopentadiene	0.18	0.75	0.00013	mg/kg	0.024 UJ	0.023 UJ	0.024 UJ	0.024 UJ	0.026 UJ	0.024 UJ	0.023 UJ	0.022 UJ	0.027 UJ	0.027 UJ	0.029 UJ	0.023 UJ	0.022 UJ	0.022 UJ	0.023 UJ	0.023 UJ
Hexachloroethane	1.8	8	0.0002	mg/kg	0.014 U	0.013 U	0.014 U	0.014 U	0.015 U	0.014 U	0.013 U	0.013 U	0.016 U	0.016 U	0.017 UJ	0.014 UJ	0.013 U	0.013 U	0.014 U	0.013 U
Indeno[1,2,3-cd]pyrene	**1.1**	21	0.98	mg/kg	0.026 U	0.08	0.11	0.079	0.18	0.092	0.075	0.036	0.029 U	0.028 U	0.15	0.11	0.031 J	0.051	0.23	0.12
Isophorone	570	2400	0.026	mg/kg	0.0084 U	0.0078 U	0.0082 U	0.0082 U	0.0089 U	0.0084 U	0.0079 U	0.0076 U	0.0094 U	0.0092 U	0.01 UJ	0.0079 U	0.0075 U	0.0075 U	0.008 U	0.0078 U
Naphthalene	3.8	17	0.00054	mg/kg	0.36 J	0.0092 U	0.0097 U	0.0097 U	0.011 U	0.0099 U	0.0093 U	0.0089 U	0.011 U	0.011 U	0.012 UJ	0.0094 U	0.0089 U	0.0089 U	0.0095 U	0.0092 U
Nitrobenzene	5.1	22	0.000092	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.011 U	0.014 U	0.013 U	0.015 UJ	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U
N-Nitrosodi-n-propylamine	0.078	0.33	0.0000081	mg/kg	0.013 U	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.012 U	0.012 U	0.015 U	0.014 U	0.016 UJ	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U
N-Nitrosodiphenylamine	110	470	0.067	mg/kg	0.035 U	0.033 U	0.035 U	0.035 U	0.038 U	0.035 U	0.033 U	0.032 U	0.04 U	0.039 U	0.042 U	0.033 U	0.032 U	0.032 U	0.034 U	0.033 U
Pentachlorophenol	1	4	0.000057	mg/kg	0.047 U	0.044 U	0.046 U	0.046 U	0.05 U	0.047 U	0.044 U	0.043 U	0.053 U	0.052 U	0.056 UJ	0.045 U	0.042 U	0.043 U	0.045 U	0.044 U
Phenanthrene	--	--	--	mg/kg	0.01 U	0.025 J	0.046 J	0.031 J	0.072 J	0.03 J	0.019 J	0.0096 J	0.012 U	0.011 U	0.045 J-	0.038 J	0.0093 U	0.014 J	0.11 J	0.051 J
Phenol	1900	25000	0.33	mg/kg	0.013 U	0.012 U	0.012 U	0.013 U	0.014 U	0.013 U	0.012 U	0.012 U	0.014 U	0.014 U	0.015 UJ	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
Pyrene	180	2300	1.3	mg/kg	0.018 U	0.064 J	0.12 J	0.079 J	0.19 J	0.079 J	0.046 J	0.02 J	0.02 U	0.019 U	0.1 J	0.086 J	0.016 U	0.03 J	0.21 J	0.11 J

Preliminary - Uncontrolled Draft

Table A2. Summary of Semi-Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location		CFSB-146	CFSB-147	CFSB-147	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-148	CFSB-151	CFSB-151	CFSB-152	CFSB-152	CFSB-153	CFSB-153
			Sample Date		11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017
			Sample Depth (ft bls)		2 - 4	0 - 0.5	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
			Sample Type		N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit														
1,1'-Biphenyl	4.7	20	0.00087	mg/kg	0.031 U	0.033 U	0.032 U	0.03 U	0.03 U	0.032 U	0.03 U	0.03 U	0.048 U	0.032 U	0.052 U	0.038 U	0.51 U	0.23 U
1,2,4,5-Tetrachlorobenzene	2.3	35	0.00079	mg/kg	0.027 U	0.028 U	0.028 U	0.026 U	0.026 U	0.028 U	0.026 U	0.026 U	0.041 U	0.028 U	0.046 U	0.033 U	0.45 U	0.2 U
1,4-Dioxane	5.3	24	0.000094	mg/kg	0.097 U	0.1 U	0.1 U	0.093 U	0.094 U	0.099 U	0.093 U	0.094 U	0.15 U	0.1 U	0.16 U	0.12 U	1.6 U	0.73 U
2,2'-oxybis[1-chloropropane]	310	4700	0.026	mg/kg	0.015 U	0.016 U	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.023 U	0.015 U	0.025 U	0.018 U	0.25 U	0.11 U
2,3,4,6-Tetrachlorophenol	190	2500	0.018	mg/kg	0.034 U	0.036 U	0.035 U	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.052 U	0.035 U	0.058 U	0.042 U	0.56 U	0.26 U
2,4,5-Trichlorophenol	630	8200	0.4	mg/kg	0.036 U	0.038 U	0.037 U	0.035 U	0.035 U	0.037 U	0.035 U	0.035 U	0.055 U	0.037 U	0.061 U	0.044 U	0.6 U	0.27 U
2,4,6-Trichlorophenol	6.3	82	0.0012	mg/kg	0.01 U	0.011 U	0.011 U	0.0099 U	0.01 U	0.011 U	0.0099 U	0.01 U	0.016 U	0.011 U	0.017 U	0.013 U	0.17 U	0.077 U
2,4-Dichlorophenol	19	250	0.0023	mg/kg	0.0086 U	0.009 U	0.0089 U	0.0082 U	0.0083 U	0.0088 U	0.0082 U	0.0083 U	0.013 U	0.0089 U	0.014 U	0.01 U	0.14 U	0.064 U
2,4-Dimethylphenol	130	1600	0.042	mg/kg	0.08 U	0.084 U	0.083 U	0.077 U	0.077 U	0.082 U	0.076 U	0.077 U	0.12 UJ	0.083 UJ	0.13 UJ	0.097 UJ	1.3 U	0.6 U
2,4-Dinitrophenol	13	160	0.0044	mg/kg	0.27 U	0.29 U	0.28 U	0.26 U	0.27 U	0.28 U	0.26 U	0.27 U	0.42 U	0.28 U	0.46 U	0.33 U	4.5 U	2.1 U
2,4-Dinitrotoluene	1.7	7.4	0.00032	mg/kg	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.022 U	0.015 U	0.024 U	0.018 U	0.24 U	0.11 U
2,6-Dinitrotoluene	0.36	1.5	0.000067	mg/kg	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U	0.02 U	0.018 U	0.019 U	0.03 U	0.02 U	0.033 U	0.024 U	0.32 U	0.14 U
2-Chloronaphthalene	480	6000	0.39	mg/kg	0.0082 U	0.0087 U	0.0085 U	0.0079 U	0.008 U	0.0084 U	0.0079 U	0.008 U	0.013 U	0.0085 U	0.014 U	0.01 U	0.14 U	0.062 U
2-Chlorophenol	39	580	0.0089	mg/kg	0.0092 U	0.0097 U	0.0095 U	0.0088 U	0.0089 U	0.0094 U	0.0088 U	0.0089 U	0.014 U	0.0096 U	0.016 U	0.011 U	0.15 U	0.069 U
2-Methylnaphthalene	24	300	0.019	mg/kg	0.008 U	0.0084 U	0.0083 U	0.0077 U	0.0078 U	0.0082 U	0.0077 U	0.0077 U	0.012 U	0.0083 U	0.014 U	0.0098 U	0.13 U	0.06 U
2-Methylphenol	320	4100	0.075	mg/kg	0.016 U	0.017 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.024 U	0.016 U	0.027 U	0.019 U	0.26 U	0.12 U
2-Nitroaniline	63	800	0.008	mg/kg	0.012 U	0.013 U	0.012 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.018 U	0.012 U	0.02 U	0.015 U	0.2 U	0.09 U
2-Nitrophenol	--	--	--	mg/kg	0.012 U	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.019 U	0.013 U	0.021 U	0.015 U	0.2 U	0.091 U
3 & 4 Methylphenol	--	--	--	mg/kg	0.0097 U	0.01 U	0.01 U	0.0093 U	0.0094 U	0.0099 U	0.0092 U	0.0093 U	0.015 U	0.01 U	0.016 U	0.012 U	0.16 U	0.072 U
3,3'-Dichlorobenzidine	1.2	5.1	0.00082	mg/kg	0.041 U	0.043 U	0.042 U	0.039 U	0.039 U	0.041 U	0.039 U	0.039 U	0.062 U	0.042 U	0.068 U	0.049 U	0.67 U	0.3 U
3-Nitroaniline	--	--	--	mg/kg	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.017 U	0.011 U	0.018 U	0.013 U	0.18 U	0.081 U
4,6-Dinitro-2-methylphenol	0.51	6.6	0.00026	mg/kg	0.097 U	0.1 U	0.1 U	0.093 U	0.094 U	0.099 U	0.093 U	0.094 U	0.15 U	0.1 U	0.16 U	0.12 U	1.6 U	0.73 U
4-Bromophenyl phenyl ether	--	--	--	mg/kg	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.018 U	0.012 U	0.019 U	0.014 U	0.19 U	0.086 U
4-Chloro-3-methylphenol	630	8200	0.17	mg/kg	0.016 U	0.016 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.024 U	0.016 U	0.026 U	0.019 U	0.26 U	0.12 U
4-Chloroaniline	2.7	11	0.00016	mg/kg	0.0093 U	0.0098 U	0.0096 U	0.009 U	0.009 U	0.0096 U	0.0089 U	0.009 U	0.014 U	0.0097 U	0.016 U	0.011 U	1.9 J	0.89 J
4-Chlorophenyl phenyl ether	--	--	--	mg/kg	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.017 U	0.011 U	0.018 U	0.013 U	0.18 U	0.081 U
4-Nitroaniline	25	110	0.0016	mg/kg	0.014 U	0.014 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.021 U	0.014 U	0.023 U	0.017 U	0.23 U	0.1 U
4-Nitrophenol	--	--	--	mg/kg	0.17 U	0.18 U	0.18 U	0.17 U	0.17 U	0.18 U	0.17 U	0.17 U	0.27 U	0.18 U	0.29 U	0.21 U	2.9 U	1.3 U
Acenaphthene	360	4500	0.55	mg/kg	0.0088 U	0.0092 U	0.0091 U	0.0084 U	0.0085 U	0.009 U	0.0084 U	0.0085 U	0.013 U	0.0091 U	0.015 U	0.011 U	0.14 U	0.066 U
Acenaphthylene	--	--	--	mg/kg	0.0093 U	0.0098 U	0.0096 U	0.009 U	0.009 U	0.0096 U	0.0089 U	0.009 U	0.014 U	0.0097 U	0.016 U	0.011 U	0.15 U	0.07 U
Acetophenone	780	12000	0.058	mg/kg	0.0079 U	0.0083 U	0.0082 U	0.0076 U	0.0077 U	0.0081 U	0.0076 U	0.0076 U	0.012 U	0.0082 U	0.013 U	0.0096 U	0.13 U	0.059 U
Anthracene	1800	23000	5.8	mg/kg	0.034 U	0.036 U	0.036 U	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.053 U	0.036 U	0.058 U	0.042 U	0.57 U	0.26 U
Atrazine	2.4	10	0.0002	mg/kg	0.016 U	0.017 U	0.017 U	0.015 U	0.016 U	0.017 U	0.015 U	0.016 U	0.025 U	0.017 U	0.027 U	0.02 U	0.27 U	0.12 U
Benzaldehyde	170	820	0.0041	mg/kg	0.028 U	0.029 U	0.029 U	0.027 U	0.027 U	0.028 U	0.026 U	0.027 U	0.042 U	0.029 U	0.047 U	0.034 U	0.46 U	0.21 U
Benzo[a]anthracene	1.1	21	0.011	mg/kg	0.062	0.042	0.031 U	0.029 U	0.029 U	0.042	0.029 U	0.029 U	0.053 J	0.031 U	0.2	0.037 U	0.5 U	0.75
Benzo[a]pyrene	**0.11**	2.1	0.029	mg/kg	0.087	0.067 J	0.011 UJ	0.011 U	0.011 U	0.06	0.01 U	0.011 U	0.059	0.034 J	0.019 U	0.013 U	2.8	4
Benzo[b]fluoranthene	**1.1**	21	0.3	mg/kg	0.13	0.12 J	0.015 UJ	0.014 U	0.037	0.095	0.014 U	0.014 U	0.11	0.072	0.024 U	0.017 U	6.6	5
Benzo[g,h,i]perylene	--	--	--	mg/kg	0.091 J	0.066 J	0.022 UJ	0.02 U	0.02 U	0.021 U	0.02 U	0.02 U	0.045 J	0.035 J	0.035 U	0.025 U	2.7 J	1.3 J
Benzo[k]fluoranthene	11	210	2.9	mg/kg	0.016 U	0.036 J	0.016 UJ	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.046 J	0.027 J	0.14	0.088	0.26 U	0.12 U
Bis(2-chloroethoxy)methane	19	250	0.0013	mg/kg	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.017 U	0.012 U	0.019 U	0.014 U	0.19 U	0.085 U
Bis(2-chloroethyl)ether	0.23	1	0.0000036	mg/kg	0.0086 U	0.009 U	0.0089 U	0.0082 U	0.0083 U	0.0088 U	0.0082 U	0.0083 U	0.013 U	0.0089 U	0.014 U	0.01 U	0.14 U	0.064 U
Bis(2-ethylhexyl) phthalate	39	160	1.3	mg/kg	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.022 U	0.11 J	0.074 J	0.076 J	0.23 U	2.2 J
Butyl benzyl phthalate	290	1200	0.24	mg/kg	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.017 U	0.012 U	0.019 U	0.014 U	0.18 U	0.084 U

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Table A2. Summary of Semi-Volatile Organic Compounds in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location		CFSB-146	CFSB-147	CFSB-147	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-148	CFSB-151	CFSB-151	CFSB-152	CFSB-152	CFSB-153	CFSB-153
			Sample Date		11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017
			Sample Depth (ft bls)		2 - 4	0 - 0.5	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
			Sample Type		N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit														
Caprolactam	3100	40000	0.25	mg/kg	0.026 U	0.027 U	0.027 U	0.025 U	0.025 U	0.027 U	0.025 U	0.025 U	0.04 U	0.027 U	0.044 U	0.032 U	0.43 U	0.2 U
Carbazole	--	--	--	mg/kg	0.009 U	0.0095 U	0.0093 U	0.0086 U	0.0087 U	0.0092 U	0.0086 U	0.0087 U	0.014 U	0.0093 U	0.1 J	0.067 J	0.97 J	0.31 J
Chrysene	110	2100	9	mg/kg	0.079 J	0.056 J	0.01 UJ	0.0095 U	0.014 J	0.048 J	0.0094 U	0.0095 U	0.067 J	0.036 J	0.34 J	0.2 J	2.6 J	1.8 J
Dibenz(a,h)anthracene	**0.11**	2.1	0.096	mg/kg	0.041	0.02 U	0.02 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.029 U	0.02 U	0.032 U	0.023 U	0.31 U	**0.44**
Dibenzofuran	7.3	100	0.015	mg/kg	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.017 U	0.011 U	0.019 U	0.013 U	0.18 U	0.082 U
Diethyl phthalate	5100	66000	0.61	mg/kg	0.01 U	0.011 U	0.011 U	0.0099 U	0.01 U	0.011 U	0.0099 U	0.01 U	0.016 U	0.011 U	0.017 U	0.013 U	0.17 U	0.077 U
Dimethyl phthalate	--	--	--	mg/kg	0.011 U	0.011 U	0.011 U	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.016 U	0.011 U	0.018 U	0.013 U	0.17 U	0.079 U
Di-n-butyl phthalate	630	8200	0.23	mg/kg	0.011 U	0.011 U	0.011 U	0.01 U	0.011 U	0.011 U	0.01 U	0.01 U	0.017 U	0.011 U	0.018 U	0.013 U	0.18 U	0.081 U
Di-n-octyl phthalate	63	820	5.7	mg/kg	0.018 U	0.019 U	0.019 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.028 U	0.019 U	0.031 U	0.022 U	0.3 U	0.14 U
Fluoranthene	240	3000	8.9	mg/kg	0.089 J	0.052 J	0.011 UJ	0.01 U	0.014 J	0.053 J	0.01 U	0.01 U	0.094 J	0.047 J	0.31 J	0.19 J	1.3 J	0.86 J
Fluorene	240	3000	0.54	mg/kg	0.0079 U	0.0083 U	0.0082 U	0.0076 U	0.0077 U	0.0081 U	0.0076 U	0.0076 U	0.012 U	0.0082 U	0.013 U	0.0096 U	0.13 U	0.059 U
Hexachlorobenzene	0.21	0.96	0.00012	mg/kg	0.015 U	0.015 U	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.023 U	0.015 U	0.025 U	0.018 U	0.24 U	0.11 U
Hexachlorobutadiene	1.2	5.3	0.00027	mg/kg	0.01 U	0.011 U	0.011 U	0.0098 U	0.0099 U	0.01 U	0.0098 U	0.0099 U	0.016 U	0.011 U	0.017 U	0.012 U	0.17 U	0.077 U
Hexachlorocyclopentadiene	0.18	0.75	0.00013	mg/kg	0.023 UJ	0.024 UJ	0.023 UJ	0.022 UJ	0.022 UJ	0.023 UJ	0.022 UJ	0.022 UJ	0.035 UJ	0.023 UJ	0.038 UJ	0.028 UJ	0.37 UJ	0.17 UJ
Hexachloroethane	1.8	8	0.0002	mg/kg	0.013 U	0.014 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.02 U	0.014 U	0.022 U	0.016 U	0.22 U	0.1 U
Indeno[1,2,3-cd]pyrene	**1.1**	21	0.98	mg/kg	0.13	0.1 J	0.025 UJ	0.023 U	0.036	0.072	0.023 U	0.023 U	0.06	0.044	0.041 U	0.029 U	**3.1**	**2.2**
Isophorone	570	2400	0.026	mg/kg	0.0078 U	0.0082 U	0.0081 U	0.0075 U	0.0076 U	0.008 U	0.0074 U	0.0075 U	0.012 U	0.0081 U	0.013 U	0.0095 U	0.13 U	0.058 U
Naphthalene	3.8	17	0.00054	mg/kg	0.0092 U	0.0097 U	0.0095 U	0.0088 U	0.0089 U	0.0094 U	0.0088 U	0.0089 U	0.014 U	0.0096 U	0.016 U	0.011 U	0.15 U	0.069 U
Nitrobenzene	5.1	22	0.000092	mg/kg	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.018 U	0.012 U	0.019 U	0.014 U	0.19 U	0.086 U
N-Nitrosodi-n-propylamine	0.078	0.33	0.0000081	mg/kg	0.012 U	0.013 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.019 U	0.013 U	0.021 U	0.015 U	0.2 U	0.091 U
N-Nitrosodiphenylamine	110	470	0.067	mg/kg	0.033 U	0.035 U	0.034 U	0.032 U	0.032 U	0.034 U	0.031 U	0.032 U	0.051 U	0.034 U	0.056 U	0.04 U	0.54 U	0.25 U
Pentachlorophenol	1	4	0.000057	mg/kg	0.044 U	0.046 U	0.045 U	0.042 U	0.043 U	0.045 U	0.042 U	0.042 U	0.067 U	0.045 U	0.074 U	0.053 U	0.72 U	0.33 U
Phenanthrene	--	--	--	mg/kg	0.053 J	0.025 J	0.01 UJ	0.0093 U	0.0094 U	0.032 J	0.0092 U	0.0093 U	0.047 J	0.023 J	0.13 J	0.089 J	0.55 J	0.28 J
Phenol	1900	25000	0.33	mg/kg	0.012 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.018 U	0.012 U	0.02 U	0.014 U	0.2 U	0.089 U
Pyrene	180	2300	1.3	mg/kg	0.11 J	0.065 J	0.017 UJ	0.016 U	0.018 J	0.063 J	0.016 U	0.016 U	0.09 J	0.043 J	0.25 J	0.14 J	1.3 J	0.93 J

Preliminary - Under Review

Table A3. Summary of Metals in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location		CFSB-134	CFSB-134	CFSB-135	CFSB-135	CFSB-136	CFSB-136	CFSB-137	CFSB-137	CFSB-138	CFSB-138	CFSB-138	CFSB-139	CFSB-139	CFSB-140	CFSB-140	CFSB-141	CFSB-141
			Sample Date		10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017
			Sample Depth (ft bls)		0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
			Sample Type		N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit																	
Aluminum	**7700**	110000	3000	mg/kg	**9760**	**8640**	**9650**	**9660**	**8270**	**9080**	**9160**	**9060**	**10600**	7330	**10500**	**9490**	**9560**	**8790**	**8900**	**10800**	**8520**
Antimony	3.1	47	0.035	mg/kg	0.47 U	0.42 U	0.46 U	0.46 U	0.42 U	0.48 U	0.34 UJ	0.37 UJ	0.37 UJ	0.37 UJ	0.39 UJ	0.4 U	0.34 U	0.42 U	0.38 U	0.37 UJ	0.31 UJ
Arsenic	**0.68**	3	0.0015	mg/kg	**4.9**	**4.3**	**5.4**	**4.2**	**4.4**	**3.7**	**4.6**	**4.5**	**5.1**	**1.9**	**2.8**	**5.3**	**5.6**	**5**	**4.7**	**5.4**	**4.9**
Barium	1500	22000	16	mg/kg	194	125	153	168	153	131	159	144	236	161	98.2	162	130	190	130	212	153
Beryllium	16	230	1.9	mg/kg	0.63	0.42 J	0.45 J	0.48 J	0.36 J	0.52 J	0.49	0.45	0.55	0.37 J	0.54	0.6	0.52	0.54	0.39 J	0.6	0.46
Cadmium	7.1	98	0.069	mg/kg	0.5 U	0.45 U	0.49 U	0.49 U	0.45 U	0.5 U	0.36 U	0.39 U	0.39 U	0.39 U	0.41 U	0.43 U	0.36 U	0.44 U	0.4 U	0.39 U	0.33 U
Calcium	--	--	--	mg/kg	35100	18400	23900	20900	18700	18400	21800	20500	18000	12400	11800	23000	18900	25900	18600	29500	20400
Chromium	**0.3**	6.3	0.00067	mg/kg	**11.5**	**10.2**	**11**	**11.4**	**9.5**	**10.6**	**10.5**	**10.4**	**10.6**	**8.5**	**12.5**	**11.1**	**11.2**	**10.3**	**10.3**	**12.4**	**9.8**
Cobalt	**2.3**	35	0.027	mg/kg	**6.9**	**6.8**	**7**	**6.7**	**6**	**6.1**	**6.3**	**6.3**	**6.8**	**4.1**	**6.2**	**7**	**7**	**6.5**	**6.4**	**7.6**	**6**
Copper	**310**	4700	2.8	mg/kg	19	14.4	15.9	17.5	15.3	15.1	15.2	14.9	22.7	15.1	14.9	19	18.1	18.1	16.3	18.3	14.3
Cyanide, Free	2.3	15	0.0015	mg/kg	0.42 U	NA	0.43 U	NA	0.42 U	NA	0.4 U	NA	0.4 U	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	**2.3**	15	0.0015	mg/kg	1.6	2	1.4	1.4	1.9	**3.7**	0.96	0.52	0.16 J	2.1	**2.7**	0.071 U	0.069 U	0.077 U	0.071 U	0.14 J	0.079 J
Iron	**5500**	82000	35	mg/kg	**15200**	**15500**	**16600**	**15400**	**13000**	**14900**	**14900**	**15300**	**14900**	**9160**	**15300**	**16300**	**16800**	**14200**	**15100**	**17600**	**14600**
Lead	400	800	--	mg/kg	10.4	7.7	8.8	9.1	9.1	8.6	8.9	8.3	11.8	9	9.4	9.8	9	9.7	8.1	10.8	7.8
Magnesium	--	--	--	mg/kg	12300	12500	13300	13400	10400	12200	12000	12200	11800	8020 J	13600 J	12700	12100	12100	11500	14800	11700
Manganese	**180**	2600	2.8	mg/kg	**249**	**191**	**295**	159	**288**	153	**304**	**278**	**379**	76.4	111	**366**	**352**	**389**	**306**	**467**	**330**
Mercury	**1.1**	4.6	0.0033	mg/kg	0.02 J	0.02 J	0.018 J	0.024	0.015 J	0.021 J	0.02 J	0.015 J	0.023	0.027	0.03	0.021	0.013 J	0.023	0.012 J	0.024	0.015 J
Nickel	150	2200	2.6	mg/kg	13.9	13.1	14.1	14.2	11.5	12.6	12.9	12.8	16.4	9.2	13.4	14.2	14.3	12.9	13.1	15.3	12.2
Potassium	--	--	--	mg/kg	1080	802	1110	986	929	843	1070 J+	834 J+	1210 J+	991 J+	1020 J+	940	768	1090	835	1290 J+	802 J+
Selenium	39	580	0.052	mg/kg	0.44 U	0.39 U	0.43 U	0.43 U	0.39 U	0.44 U	0.32 U	0.34 U	0.34 U	0.65 J	0.44 J	0.37 U	0.32 U	0.39 U	0.35 U	0.35 U	0.29 U
Silver	39	580	0.08	mg/kg	0.92 U	0.82 U	0.9 U	0.9 U	0.82 U	0.93 U	0.66 U	0.72 U	0.71 U	0.72 U	0.76 U	0.79 U	0.67 U	0.81 U	0.74 U	0.73 U	0.61 U
Sodium	--	--	--	mg/kg	249	101 J	187	120 J	160	114 J	224	101 J	61 J	140	107 J	64.6 J	51.2 J	68.3 J	55.9 J	72.9 J	52 J
Thallium	**0.078**	1.2	0.0014	mg/kg	0.19 U	0.17 U	0.18 U	0.18 U	0.17 U	0.19 U	0.13 U	0.14 U	0.14 U	0.15 U	0.15 U	0.16 U	0.14 U	0.16 U	0.15 U	0.15 U	0.12 U
Vanadium	**39**	580	8.6	mg/kg	14.3	16.3	15.3	17	11.2	16.1	14.3	15.6	16.6	11	17.2	14.8	14.3	12.8	13.5	16.5	14.7
Zinc	2300	35000	37	mg/kg	48.8	43.4	51	47.8	42.2	45.2	45.1	42.1	46.7	28.8	45.7	50	46.8	48.1	44.6	56.3	39.2

Total chromium results are compared to Chromium (VI) EPA RSLs

Preliminary, Under Draft MDEQ Review

Table A3. Summary of Metals in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location		CFSB-142	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-143	CFSB-144	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-145	CFSB-146	CFSB-146	CFSB-146	CFSB-147
			Sample Date		11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017
			Sample Depth (ft bls)		0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5
			Sample Type		N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit																	
Aluminum	**7700**	110000	3000	mg/kg	7380	6540	7390	**9900**	**8860**	**8500**	6940	**9430**	**9310**	**9550**	**10600**	**8600**	**8060**	**7960**	**10100**	**9550**	**7810**
Antimony	3.1	47	0.035	mg/kg	0.29 UJ	0.3 UJ	0.3 UJ	0.32 UJ	0.32 UJ	0.27 UJ	0.27 UJ	0.34 U	0.34 U	0.36 UJ	0.37 UJ	0.34 UJ	0.34 UJ	0.35 UJ	0.36 UJ	0.36 UJ	0.38 UJ
Arsenic	**0.68**	3	0.0015	mg/kg	5.7	8.2	5	5.7	5.1	5.2	3.8	3.2	3.1	**2.4**	4.2	4.6	4.1	3.4	4	3.6	4
Barium	1500	22000	16	mg/kg	67.6	91.5	83.9	175	158	154	87.2	165	190	165	100	111	103	74.8	97.9	93.5	77.2
Beryllium	16	230	1.9	mg/kg	0.35	0.44	0.33 J	0.56	0.58	0.48	0.3 J	0.47	0.38 J	0.54	0.46	0.44	0.43	0.3 J	0.39 J	0.37 J	0.4 J
Cadmium	7.1	98	0.069	mg/kg	0.31 U	0.32 U	0.31 U	0.34 U	0.33 U	0.29 U	0.28 U	0.36 U	0.36 U	0.38 U	0.39 U	0.36 U	0.36 U	0.37 U	0.38 U	0.38 U	0.4 U
Calcium	--	--	--	mg/kg	13000	8590	16100	21600	17700	16800	19400	22300	25500	22000	11800	14400	18500	12500	16300	23700	14600
Chromium	**0.3**	6.3	0.00067	mg/kg	6.9	7.3	7.5	11	9.9	10.1	9.2	10.7	10.7	11.1	8.8	8.9	9	7.1	8.5	7.8	8.2
Cobalt	**2.3**	35	0.027	mg/kg	**4.2 J+**	**4.2 J+**	**5 J+**	**6.7 J+**	**6.3 J+**	**6.2 J+**	**5 J+**	**6.3**	**6.6**	**6.3 J+**	**5.4**	**5.4**	**5.2**	**4**	**4.9**	**4.2**	**5**
Copper	**310**	4700	2.8	mg/kg	11.3	10.6	11.1	18.4	17.5	17.9	12.2	16.3	18.2	15.8	12.4 J	12.1 J	12.4 J	17.1 J	13.3 J	13.4 J	11.3 J
Cyanide, Free	2.3	15	0.0015	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	**2.3**	15	0.0015	mg/kg	0.43	0.44	0.3	0.24 J	0.17 J	0.2 J	0.091 J	1	0.54	1.1	0.07 U	0.06 U	0.064 U	0.064 U	0.067 U	0.069 U	0.067 U
Iron	**5500**	82000	35	mg/kg	**12400**	**12700**	**11500**	**15300**	**14500**	**14400**	**12400**	**14800**	**15100**	**14800**	**13900**	**13300**	**12500**	**10300**	**12500**	**11300**	**12500**
Lead	400	800	--	mg/kg	6.3 J+	13.6 J+	10.3 J+	10.2 J+	9.1 J+	9 J+	6 J+	8.8	9.7	9.2 J+	9.6	7.9	7.1	10.1	12.9	8.4	7.3
Magnesium	--	--	--	mg/kg	9230	7770	9730	12300	11300	10900	10200	12600	13300	13900	8970	9020	9540	7600	8590	8950	8940
Manganese	**180**	2600	2.8	mg/kg	**415**	**314**	**394**	**410**	**365**	**347**	**309**	157	168	145	**329 J**	**311 J**	**282 J**	**321 J**	**350 J**	**327 J**	**257 J**
Mercury	**1.1**	4.6	0.0033	mg/kg	0.011 J+	0.014 J+	0.023 J+	0.026 J+	0.02 J+	0.02 J+	0.011 U	0.022	0.017 J	0.018 J+	0.012 J	0.017 J	0.013 J	0.021	0.021	0.02	0.014 J
Nickel	150	2200	2.6	mg/kg	9.3	10.4	10.2	15.9	13.3	13	11.4	12.7	13.3	13.2	12.6	11.1	11.4	10	10.7	9.5	11.5
Potassium	--	--	--	mg/kg	436	536	529	1270	1060	924	653	983	954	993	933	866	819	663	720	680	776
Selenium	39	580	0.052	mg/kg	0.27 U	0.28 U	0.28 U	0.3 U	0.29 U	0.26 U	0.25 U	0.32 U	0.32 U	0.34 U	0.34 U	0.31 U	0.32 U	0.33 U	0.33 U	0.34 U	0.35 U
Silver	39	580	0.08	mg/kg	0.57 U	0.59 U	0.58 U	0.63 U	0.62 U	0.54 U	0.52 U	0.67 U	0.67 U	0.7 U	0.72 U	0.66 U	0.67 U	0.69 U	0.69 U	0.71 U	0.74 U
Sodium	--	--	--	mg/kg	42.1 J	55.8 J	55.4 J	97.3	71.6 J	70.7 J	44.9 J	158	140	90 J	50 U	45.6 U	91 J	47.5 U	48.2 U	49.2 U	51.2 U
Thallium	**0.078**	1.2	0.0014	mg/kg	0.12 U	0.12 U	0.12 U	0.13 U	0.12 U	0.11 U	0.11 U	0.14 U	0.13 U	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.14 U	0.14 U	0.15 U
Vanadium	**39**	580	8.6	mg/kg	7.6 J+	11 J+	8.3 J+	17.3 J+	17.1 J+	17.4 J+	11 J+	15.2	15.4	15.2 J+	14.1	14.5	12.5	7.9	8.5	7.8	13
Zinc	2300	35000	37	mg/kg	35.4 J+	37.4 J+	33.3 J+	50.3 J+	43 J+	42.1 J+	32.7 J+	46.4	45.4	46.7 J+	42.1	37	42	35.7	41.1	34.8	35.2

Total chromium results are compared to Chromium (VI) EPA RSLs

Preliminary, Under Qualified by MPD Review

Table A3. Summary of Metals in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location		CFSB-147	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-148	CFSB-151	CFSB-151	CFSB-152	CFSB-152	CFSB-153	CFSB-153
			Sample Date		11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017
			Sample Depth (ft bls)		0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
			Sample Type		FD	N	N	N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit												
Aluminum	**7700**	110000	3000	mg/kg	**7710**	7560	7090	**8450**	7490	**7740**	**11000**	**8100**	**10400**	5740	**16100**	**11600**
Antimony	3.1	47	0.035	mg/kg	0.35 UJ	0.34 UJ	0.35 UJ	0.37 UJ	0.34 UJ	0.35 UJ	0.42 UJ	0.27 UJ	0.5 UJ	0.3 UJ	0.67 J-	0.54 UJ
Arsenic	**0.68**	3	0.0015	mg/kg	3.6	4	4	4.5	4	3.7	**1.8**	**1.6**	3.7	**2.4**	**2.9**	**2.7**
Barium	1500	22000	16	mg/kg	82	98.6	92.5	118	85.4	132	227	152	706	172	380	260
Beryllium	16	230	1.9	mg/kg	0.38 J	0.44	0.39 J	0.46	0.47	0.52	0.36 J	0.39	0.37 J	0.19 J	0.79	0.62 J
Cadmium	7.1	98	0.069	mg/kg	0.37 U	0.36 U	0.37 U	0.39 U	0.36 U	0.37 U	0.45 U	0.28 U	1.1 J	0.32 U	2.5	1.5 J
Calcium	--	--	--	mg/kg	17700	22900	22700	13600	21300	26900	122000	26700	220000	22400	28700	24300
Chromium	**0.3**	6.3	0.00067	mg/kg	8.4	8.2	7.8	8.6	8	8.4	11.4	8.7	14	**4.5**	32.8	18
Cobalt	**2.3**	35	0.027	mg/kg	**5.1**	**5**	**4.8**	**5.5**	**4.8**	**5.3**	**6.1**	**5**	**5.3**	**6.1**	**4**	**4.3**
Copper	**310**	4700	2.8	mg/kg	10.6 J	11 J	11.1 J	13.5 J	10.7 J	12.1 J	20.9	16	206	119	**694 J**	**374 J**
Cyanide, Free	2.3	15	0.0015	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.56 U	NA
Cyanide, Total	**2.3**	15	0.0015	mg/kg	0.069 U	0.064 U	0.065 U	0.071 U	0.066 U	0.064 U	0.095 U	0.062 U	1.4	0.44	16.4	0.71
Iron	**5500**	82000	35	mg/kg	**12700**	**12400**	**12100**	**13900**	**11700**	**11800**	**14200**	**11600**	**8960**	**16300**	**10500**	**10200**
Lead	400	800	--	mg/kg	6.4	6.3	6	8.5	6.5	7	12.7	6.6	35.1	5.1	116	75.4
Magnesium	--	--	--	mg/kg	9290	9940	9520	8190	10200	11000	14800	7600	8360	3120	6830	7440
Manganese	**180**	2600	2.8	mg/kg	**268 J**	**262 J**	**260 J**	**388 J**	**261 J**	**290 J**	**226**	106	96	72.4	69.4 J	80.1 J
Mercury	**1.1**	4.6	0.0033	mg/kg	0.014 J	0.012 J	0.012 U	0.023	0.015 J	0.016 J	0.018 U	0.012 U	0.26	0.082	**1.4**	0.9
Nickel	150	2200	2.6	mg/kg	10.5	10.3	10	10.9	9.5	9.7	14.9	11.1	24.5	9.5	53.9	26.6
Potassium	--	--	--	mg/kg	735	772	681	877	775	854	882	749	1140	614	845	736
Selenium	39	580	0.052	mg/kg	0.33 U	0.32 U	0.33 U	0.34 U	0.32 U	0.33 U	0.39 U	0.25 U	1.1 J	0.28 U	1.3 J	0.61 J
Silver	39	580	0.08	mg/kg	0.69 U	0.67 U	0.68 U	0.71 U	0.67 U	0.69 U	0.82 U	0.52 U	1.7	0.59 U	23.5	4.2
Sodium	--	--	--	mg/kg	47.5 U	46.3 U	47.3 U	49.4 U	46.1 U	48 U	57.1 U	40.3 J	280	270	184	111 J
Thallium	**0.078**	1.2	0.0014	mg/kg	0.14 U	0.14 U	0.14 U	0.14 U	0.13 U	0.14 U	0.17 U	0.11 U	**0.2 J**	0.12 U	0.24 U	0.21 U
Vanadium	**39**	580	8.6	mg/kg	12.5	14.2	13.5	15.9	11.1	11.2	12.7	10	14.4	**55.7**	26.2	17.6
Zinc	2300	35000	37	mg/kg	35	33.6	33.4	47.9	32.3	32	63	41.3	225	37.1	351	266

Total chromium results are compared to Chromium (VI) EPA RSLs

Preliminary Under QA/QC Review

Table A4. Summary of General Chemistry in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-134	CFSB-134	CFSB-135	CFSB-135	CFSB-136	CFSB-136	CFSB-137	CFSB-137	CFSB-138	CFSB-138	CFSB-138	CFSB-139	CFSB-139	CFSB-140	CFSB-140	CFSB-141	CFSB-141
				Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017
				Sample Depth (ft bls)	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
				Sample Type	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit																	
Fluoride	310	4700	12	mg/kg	25.7 J+	21.7 J+	22.2 J+	22.9 J+	14.5 J+	15.4 J+	17 J+	16.7 J+	32.7 J+	19.3 J	33.5 J	15.3 J+	12 J+	12.8 J+	14.9 J+	16.4 J+	1.58 J+
pH	--	--	--	pH Units	7.9	7.8	8.1	8	7.9	7.4	7.6	8.2	8	7.5	7.5	8	8.2	8.1	8.1	7.9	8.2
Total Organic Carbon	--	--	--	mg/kg	18000	13200	12800	9990	7220	7760	18000	8140	30800	13500	20400	18800	10200	18800	13200	21300	7690

Preliminary - Under EPA and MDEQ Review

Table A4. Summary of General Chemistry in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-142	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-143	CFSB-144	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-145	CFSB-146	CFSB-146	CFSB-146	CFSB-147
				Sample Date	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017
				Sample Depth (ft bls)	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5
				Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit																	
Fluoride	310	4700	12	mg/kg	22.1 J+	17.8 J+	15.4 J+	17.1 J+	15.5 J+	14.3 J+	3.51 J+	19.5 J+	18.6 J+	21.6 J+	14.4 J+	16.9 J+	13.3 J+	14.7 J+	18.9 J+	18.4 J+	12.4 J+
pH	--	--	--	pH Units	8.1	8.2	8.3	7.9	8.4	8.4	8.8	7.9	8.3	7.7	8.8 J	8.8 J	8.2 J	8.7 J	8.3 J	8.7 J	8.6 J
Total Organic Carbon	--	--	--	mg/kg	13100	13700	10300	23000	13900	12100	5510	21200	14300	10800	6670	9760	8560	11200	12000	7640	11600

Preliminary - Under EPA and MDEQ Review

Table A4. Summary of General Chemistry in Soil – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-147	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-148	CFSB-151	CFSB-151	CFSB-151	CFSB-152	CFSB-152	CFSB-152	CFSB-153	CFSB-153	CFSB-153
				Sample Date	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017	11/08/2017
				Sample Depth (ft bls)	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4
				Sample Type	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit															
Fluoride	310	4700	12	mg/kg	10.6 J+	12.4 J+	12.1 J+	12.3 J+	18.6 J+	27.5 J+	18.3 J+	12.4 J+	NA	44.1 J+	24.7 J+	NA	30.4 J+	31.4 J+	NA
pH	--	--	--	pH Units	8.5 J	8.8 J	9 J	8.4 J	9 J	8.5 J	8.4 J	8.6 J	NA	7.8 J	8 J	NA	7.8 J	7.8 J	NA
Total Organic Carbon	--	--	--	mg/kg	10100	7840	9300	20900	6040	6780	15100	3520	NA	65700	35100	NA	97800	182000	NA

Preliminary - Under EPA and MDEQ Review

Table A5. Summary of Volatile Organic Compounds in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029
				Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/02/2017	11/02/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017
				Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit													
1,1,1-Trichloroethane	810	3600	0.28	mg/kg	0.00043 U	0.00076 U	0.00033 U	0.00071 U	0.00026 U	0.00027 U	0.00099 U	0.0019 U	0.00086 U	0.00027 U	0.00032 U	0.00031 U	0.00024 U
1,1,2,2-Tetrachloroethane	0.6	2.7	0.00003	mg/kg	0.0004 U	0.0007 U	0.0003 U	0.00065 U	0.00024 U	0.00025 U	0.00091 U	0.0017 UJ	0.00079 U	0.00025 U	0.0003 U	0.00029 U	0.00022 U
1,1,2-Trichloro-1,2,2-trifluoroethane	670	2800	2.6	mg/kg	0.00056 U	0.00099 U	0.00042 U	0.00092 U	0.00033 U	0.00035 U	0.0013 U	0.0024 U	0.0011 U	0.00035 U	0.00042 U	0.0004 U	0.00031 U
1,1,2-Trichloroethane	0.15	0.63	0.000013	mg/kg	0.00033 U	0.00058 U	0.00025 U	0.00054 U	0.0002 U	0.00021 U	0.00075 U	0.0014 UJ	0.00066 U	0.00021 U	0.00025 U	0.00024 U	0.00018 U
1,1-Dichloroethane	3.6	16	0.00078	mg/kg	0.00038 U	0.00067 U	0.00029 U	0.00063 U	0.00023 U	0.00024 U	0.00087 U	0.0017 U	0.00076 U	0.00024 U	0.00029 U	0.00028 U	0.00021 U
1,1-Dichloroethene	23	100	0.01	mg/kg	0.00042 U	0.00074 U	0.00031 U	0.00069 U	0.00025 U	0.00026 U	0.00095 U	0.0018 U	0.00083 U	0.00026 U	0.00031 U	0.0003 U	0.00023 U
1,2,3-Trichlorobenzene	6.3	93	0.0021	mg/kg	0.00034 U	0.00059 U	0.00025 U	0.00055 U	0.0002 U	0.00021 U	0.00077 U	0.0015 UJ	0.00067 U	0.00021 U	0.00025 U	0.00024 U	0.00018 U
1,2,4-Trichlorobenzene	5.8	26	0.0012	mg/kg	0.00017 U	0.0003 U	0.00013 U	0.00028 U	0.0001 U	0.00011 U	0.00039 U	0.00074 UJ	0.00034 U	0.00011 U	0.00013 U	0.00012 U	0.000094 U
1,2-Dibromo-3-Chloropropane	0.0053	0.064	0.00000014	mg/kg	0.00086 UJ	0.0015 UJ	0.00064 U	0.0014 U	0.00051 U	0.00053 U	0.0019 UJ	0.0037 UJ	0.0017 UJ	0.00054 U	0.00064 U	0.00062 U	0.00047 U
1,2-Dichlorobenzene	180	930	0.03	mg/kg	0.00027 U	0.00047 U	0.0002 U	0.00044 U	0.00016 U	0.00017 U	0.00061 U	0.0012 UJ	0.00053 U	0.00017 U	0.0002 U	0.00019 U	0.00015 U
1,2-Dichloroethane	0.46	2	0.000048	mg/kg	0.00055 U	0.00097 U	0.00041 U	0.00091 U	0.00033 U	0.00034 U	0.0013 U	0.0024 U	0.0011 U	0.00035 U	0.00041 U	0.0004 U	0.0003 U
1,2-Dichloropropane	1.6	6.6	0.00027	mg/kg	0.00079 U	0.0014 U	0.00059 U	0.0013 U	0.00047 U	0.00049 U	0.0018 U	0.0034 UJ	0.0016 U	0.0005 U	0.00059 U	0.00057 U	0.00043 U
1,3-Dichlorobenzene	--	--	--	mg/kg	0.0003 U	0.00052 U	0.00022 U	0.00049 U	0.00018 U	0.00018 U	0.00067 U	0.0013 UJ	0.00059 U	0.00019 U	0.00022 U	0.00021 U	0.00016 U
1,4-Dichlorobenzene	2.6	11	0.00046	mg/kg	0.00019 U	0.00033 U	0.00014 U	0.00031 U	0.00011 U	0.00012 U	0.00042 U	0.0008 UJ	0.00037 U	0.00012 U	0.00014 U	0.00013 U	0.0001 U
2-Butanone (MEK)	2700	19000	0.12	mg/kg	0.053	0.016	0.013	0.012 J	0.0025 J+	0.0025 J	0.08	0.03 J	0.013 J	0.0025 J	0.0033 J	0.0063 J	0.0035 J
2-Hexanone	20	130	0.00088	mg/kg	0.0015 U	0.0026 U	0.0011 U	0.0024 U	0.00086 U	0.0009 U	0.0033 U	0.0063 U	0.0029 U	0.00091 U	0.0011 U	0.001 U	0.0008 U
4-Methyl-2-pentanone (MIBK)	3300	14000	0.14	mg/kg	0.0012 U	0.0022 U	0.00093 U	0.002 U	0.00073 U	0.00077 U	0.0028 U	0.0053 U	0.0024 U	0.00078 U	0.00092 U	0.00089 U	0.00068 U
Acetone	6100	67000	0.29	mg/kg	0.17	0.15	0.053	0.089	0.02	0.021	0.29	0.15	0.075	0.018	0.033	0.06	0.03
Benzene	1.2	5.1	0.00023	mg/kg	0.0021	0.00085 U	0.002	0.0035	0.00085 J	0.00091 J	0.0011 U	0.0021 U	0.00095 U	0.0015	0.0014	0.0019	0.001
Bromoform	19	86	0.00087	mg/kg	0.00079 U	0.0014 U	0.00059 U	0.0013 U	0.00047 U	0.00049 U	0.0018 U	0.0034 U	0.0016 U	0.0005 U	0.00059 U	0.00057 U	0.00043 U
Bromomethane	0.68	3	0.00019	mg/kg	0.00088 U	0.0016 U	0.00066 U	0.0014 U	0.00052 U	0.00055 U	0.002 U	0.0038 U	0.0017 U	0.00056 U	0.00066 U	0.00064 U	0.00048 U
Carbon disulfide	77	350	0.024	mg/kg	0.011	0.0029 J	0.014	0.0048	0.00045 J	0.00058 J	0.005	0.0053 J	0.0013 J	0.0015	0.0014	0.0029	0.00076 J
Carbon tetrachloride	0.65	2.9	0.00018	mg/kg	0.00034 U	0.00059 U	0.00025 U	0.00055 U	0.0002 U	0.00021 U	0.00077 U	0.0015 U	0.00067 U	0.00021 U	0.00025 U	0.00024 U	0.00018 U
Chlorobenzene	28	130	0.0053	mg/kg	0.00033 U	0.00058 U	0.00025 U	0.00054 U	0.0002 U	0.0002 U	0.00075 U	0.0014 UJ	0.00065 U	0.00021 U	0.00025 U	0.00024 U	0.00018 U
Chlorobromomethane	15	63	0.0021	mg/kg	0.00052 U	0.00092 U	0.00039 U	0.00086 U	0.00031 U	0.00032 U	0.0012 U	0.0023 U	0.001 U	0.00033 U	0.00039 U	0.00038 U	0.00029 U
Chlorodibromomethane	8.3	39	0.00023	mg/kg	0.00036 U	0.00064 U	0.00027 U	0.00059 U	0.00021 U	0.00022 U	0.00082 U	0.0016 U	0.00071 U	0.00023 U	0.00027 U	0.00026 U	0.0002 U
Chloroethane	1400	5700	0.59	mg/kg	0.00097 U	0.0017 U	0.00073 U	0.0016 U	0.00058 U	0.0006 U	0.0022 U	0.0042 U	0.0019 U	0.00061 U	0.00072 U	0.0007 U	0.00053 U
Chloroform	0.32	1.4	0.000061	mg/kg	0.00059 U	0.001 U	0.00045 U	0.00098 U	0.00035 U	0.00037 U	0.0013 U	0.0026 U	0.0012 U	0.00037 U	0.00044 U	0.00043 U	0.00033 U
Chloromethane	11	46	0.0049	mg/kg	0.00081 U	0.0014 U	0.00061 UJ	0.0013 UJ	0.00048 U	0.0005 U	0.0018 U	0.0035 U	0.0016 U	0.00051 UJ	0.0006 UJ	0.00058 UJ	0.00044 UJ
cis-1,2-Dichloroethene	16	230	0.0011	mg/kg	0.00028 U	0.0005 U	0.00021 U	0.00046 U	0.00017 U	0.00018 U	0.00064 U	0.0012 U	0.00056 U	0.00018 U	0.00021 U	0.0002 U	0.00016 U
cis-1,3-Dichloropropene	--	--	--	mg/kg	0.00051 UJ	0.00089 UJ	0.00038 U	0.00083 U	0.0003 U	0.00032 U	0.0012 UJ	0.0022 UJ	0.001 UJ	0.00032 U	0.00038 U	0.00037 U	0.00028 U
Cyclohexane	650	2700	1.3	mg/kg	0.0046	0.00072 U	0.0033	0.0039	0.0013	0.0011 J	0.00093 U	0.0018 UJ	0.00093 J	0.0019	0.0017	0.0031	0.0014
Dichlorobromomethane	0.29	1.3	0.000036	mg/kg	0.00048 U	0.00084 U	0.00036 U	0.00079 U	0.00028 U	0.0003 U	0.0011 U	0.0021 U	0.00095 U	0.0003 U	0.00036 U	0.00035 U	0.00026 U
Dichlorodifluoromethane	8.7	37	0.03	mg/kg	0.00063 U	0.0011 U	0.00047 U	0.001 U	0.00037 U	0.00039 U	0.0014 U	0.0027 U	0.0012 U	0.0004 U	0.00047 U	0.00045 U	0.00034 U
Ethylbenzene	5.8	25	0.0017	mg/kg	0.0013 J	0.00065 U	0.00057 J	0.0016 J	0.00038 J	0.00034 J	0.00084 U	0.0016 UJ	0.00073 U	0.00061 J	0.00059 J	0.00049 J	0.00047 J
Ethylene Dibromide	0.036	0.16	0.0000021	mg/kg	0.00034 U	0.00059 U	0.00025 U	0.00055 U	0.0002 U	0.00021 U	0.00076 U	0.0014 UJ	0.00066 U	0.00021 U	0.00025 U	0.00024 U	0.00018 U
Isopropylbenzene	190	990	0.074	mg/kg	0.00023 U	0.00041 U	0.00018 U	0.00039 U	0.00014 U	0.00015 U	0.00053 U	0.001 UJ	0.00046 U	0.00015 U	0.00017 U	0.00017 U	0.00013 U
Methyl acetate	7800	120000	0.41	mg/kg	0.008 UJ	0.014 UJ	0.006 U	0.11	0.0048 U	0.005 U	0.018 UJ	0.035 UJ	0.016 UJ	0.005 U	0.006 U	0.0058 U	0.0044 U
Methyl tert-butyl ether	47	210	0.0032	mg/kg	0.00023 U	0.00041 U	0.00017 U	0.00038 U	0.00014 U	0.00014 U	0.00053 U	0.001 U	0.00046 U	0.00015 U	0.00017 U	0.00017 U	0.00013 U
Methylcyclohexane	--	--	--	mg/kg	0.0081	0.00052 U	0.0061	0.0085	0.0023	0.0021	0.00068 U	0.0013 UJ	0.0014 J	0.0038	0.0035	0.0051	0.0029
Methylene Chloride	35	320	0.0027	mg/kg	0.0003 U	0.00053 U	0.00023 U	0.0011 J	0.00018 U	0.00019 U	0.001 J	0.0013 U	0.0006 U	0.00019 U	0.00023 U	0.00022 U	0.00017 U
m-Xylene & p-Xylene	56	240	--	mg/kg	0.0033	0.00057 U	0.0016	0.0043	0.00065 J	0.00091 J	0.00074 U	0.0014 UJ	0.00077 J	0.0018	0.0013 J	0.0014	0.0014
o-Xylene	65	280	0.019	mg/kg	0.0011 J	0.00031 U	0.00045 J	0.0012 J	0.00019 J	0.00031 J	0.0004 U	0.00076 UJ	0.00035 U	0.00064 J	0.00042 J	0.00041 J	0.00044 J
Styrene	600	3500	0.13	mg/kg	0.00023 U	0.0004 U	0.00017 U	0.00038 U	0.00014 U	0.00014 U	0.00052 U	0.00099 UJ	0.00045 U	0.00014 U	0.00017 U	0.00017 U	0.00013 U
Tetrachloroethene	8.1	39	0.0018	mg/kg	0.00027 U	0.00047 U	0.0002 U	0.00044 U	0.00021 J	0.00017 U	0.0006 U	0.0012 UJ	0.00053 U	0.00017 U	0.0002 U	0.00019 U	0.00015 U

Preliminary Draft Data

Table A5. Summary of Volatile Organic Compounds in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029
				Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/02/2017	11/02/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017
				Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit													
Toluene	490	4700	0.076	mg/kg	0.0062	0.002 U	0.004	0.011	0.0019	0.0019	0.0027 J	0.005 UJ	0.0023 U	0.0036	0.0029	0.0044	0.0026
trans-1,2-Dichloroethene	160	2300	0.011	mg/kg	0.00046 U	0.00081 U	0.00034 U	0.00075 U	0.00027 U	0.00028 U	0.001 U	0.002 U	0.00091 U	0.00029 U	0.00034 U	0.00033 U	0.00025 U
trans-1,3-Dichloropropene	--	--	--	mg/kg	0.0005 UJ	0.00087 UJ	0.00037 U	0.00081 U	0.00029 U	0.00031 U	0.0011 UJ	0.0021 UJ	0.00098 UJ	0.00031 U	0.00037 U	0.00036 U	0.00027 U
Trichloroethene	0.41	1.9	0.0001	mg/kg	0.00027 U	0.00047 U	0.0002 U	0.00044 U	0.00016 U	0.00017 U	0.00061 U	0.0012 U	0.00053 U	0.00017 U	0.0002 U	0.00019 U	0.00015 U
Trichlorofluoromethane	2300	35000	0.33	mg/kg	0.00076 U	0.0013 U	0.00057 U	0.0012 U	0.00045 U	0.00047 U	0.0017 U	0.0033 U	0.0015 U	0.00048 U	0.00056 U	0.00055 U	0.00041 U
Vinyl chloride	0.059	1.7	0.0000065	mg/kg	0.001 U	0.0018 U	0.00076 U	0.0017 U	0.0006 U	0.00063 U	0.0023 U	0.0044 U	0.002 U	0.00064 U	0.00076 U	0.00073 U	0.00056 U

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Table A5. Summary of Volatile Organic Compounds in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
				Sample Date	11/03/2017	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit				
1,1,1-Trichloroethane	810	3600	0.28	mg/kg	0.00028 U	0.00027 U	0.00028 U	0.00027 U
1,1,2,2-Tetrachloroethane	0.6	2.7	0.00003	mg/kg	0.00026 U	0.00025 U	0.00026 U	0.00025 U
1,1,2-Trichloro-1,2,2-trifluoroethane	670	2800	2.6	mg/kg	0.00036 U	0.00035 U	0.00036 U	0.00036 U
1,1,2-Trichloroethane	0.15	0.63	0.000013	mg/kg	0.00021 U	0.00021 U	0.00021 U	0.00021 U
1,1-Dichloroethane	3.6	16	0.00078	mg/kg	0.00025 U	0.00024 U	0.00025 U	0.00024 U
1,1-Dichloroethene	23	100	0.01	mg/kg	0.00027 U	0.00027 U	0.00027 U	0.00027 U
1,2,3-Trichlorobenzene	6.3	93	0.0021	mg/kg	0.00022 U	0.00021 U	0.00022 U	0.00021 U
1,2,4-Trichlorobenzene	5.8	26	0.0012	mg/kg	0.00011 U	0.00011 U	0.00011 U	0.00011 U
1,2-Dibromo-3-Chloropropane	0.0053	0.064	0.00000014	mg/kg	0.00055 U	0.00054 U	0.00055 U	0.00054 U
1,2-Dichlorobenzene	180	930	0.03	mg/kg	0.00017 U	0.00017 U	0.00017 U	0.00017 U
1,2-Dichloroethane	0.46	2	0.000048	mg/kg	0.00036 U	0.00035 U	0.00036 U	0.00035 U
1,2-Dichloropropane	1.6	6.6	0.00027	mg/kg	0.00051 U	0.0005 U	0.00051 U	0.0005 U
1,3-Dichlorobenzene	--	--	--	mg/kg	0.00019 U	0.00019 U	0.00019 U	0.00019 U
1,4-Dichlorobenzene	2.6	11	0.00046	mg/kg	0.00012 U	0.00012 U	0.00012 U	0.00012 U
2-Butanone (MEK)	2700	19000	0.12	mg/kg	0.0047 J+	0.0058 J+	0.0043 J+	0.0042 J+
2-Hexanone	20	130	0.00088	mg/kg	0.00094 U	0.00092 U	0.00094 U	0.00092 U
4-Methyl-2-pentanone (MIBK)	3300	14000	0.14	mg/kg	0.0008 U	0.00078 U	0.0008 U	0.00078 U
Acetone	6100	67000	0.29	mg/kg	0.027	0.04	0.039	0.023
Benzene	1.2	5.1	0.00023	mg/kg	0.0017	0.0016	0.0011 J	0.0015
Bromoform	19	86	0.00087	mg/kg	0.00051 U	0.0005 U	0.00051 U	0.0005 U
Bromomethane	0.68	3	0.00019	mg/kg	0.00057 U	0.00056 U	0.00057 U	0.00056 U
Carbon disulfide	77	350	0.024	mg/kg	0.0022	0.0015	0.0026	0.0011 J
Carbon tetrachloride	0.65	2.9	0.00018	mg/kg	0.00022 U	0.00021 U	0.00022 U	0.00021 U
Chlorobenzene	28	130	0.0053	mg/kg	0.00021 U	0.00021 U	0.00021 U	0.00021 U
Chlorobromomethane	15	63	0.0021	mg/kg	0.00034 U	0.00033 U	0.00034 U	0.00033 U
Chlorodibromomethane	8.3	39	0.00023	mg/kg	0.00023 U	0.00023 U	0.00023 U	0.00023 U
Chloroethane	1400	5700	0.59	mg/kg	0.00063 U	0.00062 U	0.00063 U	0.00062 U
Chloroform	0.32	1.4	0.000061	mg/kg	0.00038 U	0.00038 U	0.00038 U	0.00038 U
Chloromethane	11	46	0.0049	mg/kg	0.00052 U	0.00051 U	0.00052 U	0.00051 U
cis-1,2-Dichloroethene	16	230	0.0011	mg/kg	0.00018 U	0.00018 U	0.00018 U	0.00018 U
cis-1,3-Dichloropropene	--	--	--	mg/kg	0.00033 U	0.00032 U	0.00033 U	0.00032 U
Cyclohexane	650	2700	1.3	mg/kg	0.0032	0.0026	0.0017	0.0028
Dichlorobromomethane	0.29	1.3	0.000036	mg/kg	0.00031 U	0.0003 U	0.00031 U	0.0003 U
Dichlorodifluoromethane	8.7	37	0.03	mg/kg	0.00041 U	0.0004 U	0.00041 U	0.0004 U
Ethylbenzene	5.8	25	0.0017	mg/kg	0.00053 J	0.0022	0.00038 J	0.00026 J
Ethylene Dibromide	0.036	0.16	0.0000021	mg/kg	0.00022 U	0.00021 U	0.00022 U	0.00021 U
Isopropylbenzene	190	990	0.074	mg/kg	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Methyl acetate	7800	120000	0.41	mg/kg	0.0052 U	0.0051 U	0.0052 U	0.0051 U
Methyl tert-butyl ether	47	210	0.0032	mg/kg	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Methylcyclohexane	--	--	--	mg/kg	0.006	0.0045	0.0028	0.0046
Methylene Chloride	35	320	0.0027	mg/kg	0.0002 U	0.00019 U	0.0002 U	0.00019 U
m-Xylene & p-Xylene	56	240	--	mg/kg	0.0014	0.0011 J	0.0008 J	0.00098 J
o-Xylene	65	280	0.019	mg/kg	0.00045 J	0.00034 J	0.00026 J	0.0003 J
Styrene	600	3500	0.13	mg/kg	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Tetrachloroethene	8.1	39	0.0018	mg/kg	0.00017 U	0.00017 U	0.00017 U	0.00017 U

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Table A5. Summary of Volatile Organic Compounds in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
				Sample Date	11/03/2017	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit				
Toluene	490	4700	0.076	mg/kg	0.0031	0.0053	0.0032	0.0023
trans-1,2-Dichloroethene	160	2300	0.011	mg/kg	0.0003 U	0.00029 U	0.0003 U	0.00029 U
trans-1,3-Dichloropropene	--	--	--	mg/kg	0.00032 U	0.00031 U	0.00032 U	0.00031 U
Trichloroethene	0.41	1.9	0.0001	mg/kg	0.00017 U	0.00017 U	0.00017 U	0.00017 U
Trichlorofluoromethane	2300	35000	0.33	mg/kg	0.00049 U	0.00048 U	0.00049 U	0.00048 U
Vinyl chloride	0.059	1.7	0.0000065	mg/kg	0.00066 U	0.00064 U	0.00066 U	0.00064 U

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Table A6. Summary of Semi-Volatile Organic Compounds in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029
				Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017
				Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit													
1,1'-Biphenyl	4.7	20	0.00087	mg/kg	0.05 U	0.058 U	0.044 U	0.047 U	0.039 U	0.038 U	0.1 U	0.12 U	0.086 U	0.041 U	0.046 U	0.041 U	0.035 U
1,2,4,5-Tetrachlorobenzene	2.3	35	0.00079	mg/kg	0.044 U	0.051 U	0.039 U	0.041 U	0.034 U	0.034 U	0.089 U	0.11 U	0.075 U	0.035 U	0.04 U	0.036 U	0.031 U
1,4-Dioxane	5.3	24	0.000094	mg/kg	0.16 U	0.18 U	0.14 U	0.15 U	0.12 U	0.12 U	0.32 U	0.39 U	0.27 U	0.13 U	0.14 U	0.13 U	0.11 U
2,2'-oxybis[1-chloropropane]	310	4700	0.026	mg/kg	0.024 U	0.028 U	0.021 U	0.022 U	0.019 U	0.019 U	0.049 U	0.06 U	0.041 U	0.02 U	0.022 U	0.02 U	0.017 U
2,3,4,6-Tetrachlorophenol	190	2500	0.018	mg/kg	0.055 U	0.064 U	0.049 U	0.051 U	0.043 U	0.042 U	0.11 U	0.14 UJ	0.095 U	0.045 U	0.05 U	0.045 U	0.039 U
2,4,5-Trichlorophenol	630	8200	0.4	mg/kg	0.058 U	0.068 U	0.052 U	0.054 U	0.045 U	0.045 U	0.12 U	0.15 U	0.1 U	0.047 U	0.053 U	0.048 U	0.041 U
2,4,6-Trichlorophenol	6.3	82	0.0012	mg/kg	0.017 U	0.019 U	0.015 U	0.016 U	0.013 U	0.013 U	0.034 U	0.041 U	0.029 U	0.014 U	0.015 U	0.014 U	0.012 U
2,4-Dichlorophenol	19	250	0.0023	mg/kg	0.014 U	0.016 U	0.012 U	0.013 U	0.011 U	0.011 U	0.028 U	0.034 U	0.024 U	0.011 U	0.013 U	0.011 U	0.0098 U
2,4-Dimethylphenol	130	1600	0.042	mg/kg	0.13 UJ	0.15 UJ	0.11 UJ	0.12 UJ	0.099 U	0.099 U	0.26 UJ	0.32 UJ	0.22 UJ	0.1 UJ	0.12 UJ	0.11 UJ	0.092 U
2,4-Dinitrophenol	13	160	0.0044	mg/kg	0.44 U	0.51 U	0.39 U	0.41 U	0.34 U	0.34 U	0.91 U	1.1 UJ	0.76 U	0.36 U	0.41 U	0.37 U	0.31 U
2,4-Dinitrotoluene	1.7	7.4	0.00032	mg/kg	0.023 U	0.027 U	0.021 U	0.022 U	0.018 U	0.018 U	0.048 U	0.058 U	0.04 U	0.019 U	0.021 U	0.019 U	0.016 U
2,6-Dinitrotoluene	0.36	1.5	0.000067	mg/kg	0.031 U	0.036 U	0.028 U	0.029 U	0.024 U	0.024 U	0.064 U	0.078 U	0.054 U	0.025 U	0.029 U	0.026 U	0.022 U
2-Chloronaphthalene	480	6000	0.39	mg/kg	0.013 U	0.015 U	0.012 U	0.012 U	0.01 U	0.01 U	0.027 U	0.033 U	0.023 U	0.011 U	0.012 U	0.011 U	0.0094 U
2-Chlorophenol	39	580	0.0089	mg/kg	0.015 U	0.017 U	0.013 U	0.014 U	0.011 U	0.011 U	0.031 U	0.037 UJ	0.026 U	0.012 U	0.014 U	0.012 U	0.011 U
2-Methylnaphthalene	24	300	0.019	mg/kg	0.013 U	0.015 U	0.011 U	0.012 U	0.01 U	0.0099 U	0.027 U	0.032 U	0.022 U	0.011 U	0.012 U	0.011 U	0.0092 U
2-Methylphenol	320	4100	0.075	mg/kg	0.026 U	0.03 U	0.023 U	0.024 U	0.02 U	0.02 U	0.052 U	0.064 U	0.044 U	0.021 U	0.023 U	0.021 U	0.018 U
2-Nitroaniline	63	800	0.008	mg/kg	0.019 U	0.022 U	0.017 U	0.018 U	0.015 U	0.015 U	0.04 U	0.048 U	0.033 U	0.016 U	0.018 U	0.016 U	0.014 U
2-Nitrophenol	--	--	--	mg/kg	0.02 U	0.023 U	0.017 U	0.018 U	0.015 U	0.015 U	0.04 U	0.049 UJ	0.034 U	0.016 U	0.018 U	0.016 U	0.014 U
3 & 4 Methylphenol	--	--	--	mg/kg	0.016 U	0.018 U	0.014 U	0.015 U	0.012 U	0.012 U	0.13 J	0.039 U	0.027 U	0.013 U	0.024 J	0.013 U	0.011 U
3,3'-Dichlorobenzidine	1.2	5.1	0.00082	mg/kg	0.066 U	0.076 U	0.058 U	0.061 U	0.05 U	0.05 U	0.13 U	0.16 U	0.11 U	0.053 U	0.06 U	0.054 U	0.046 U
3-Nitroaniline	--	--	--	mg/kg	0.017 U	0.02 U	0.015 U	0.016 U	0.013 U	0.013 U	0.036 U	0.043 U	0.03 U	0.014 U	0.016 U	0.014 U	0.012 U
4,6-Dinitro-2-methylphenol	0.51	6.6	0.00026	mg/kg	0.16 U	0.18 U	0.14 U	0.15 U	0.12 U	0.12 U	0.32 U	0.39 UJ	0.27 U	0.13 U	0.14 U	0.13 U	0.11 U
4-Bromophenyl phenyl ether	--	--	--	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.038 U	0.046 U	0.032 U	0.015 U	0.017 U	0.015 U	0.013 U
4-Chloro-3-methylphenol	630	8200	0.17	mg/kg	0.025 U	0.029 U	0.022 U	0.023 U	0.019 U	0.019 U	0.052 U	0.063 U	0.043 U	0.02 U	0.023 U	0.021 U	0.018 U
4-Chloroaniline	2.7	11	0.00016	mg/kg	0.015 U	0.018 U	0.013 U	0.014 U	0.012 U	0.012 U	0.031 U	0.038 U	0.026 U	0.012 U	0.014 U	0.012 U	0.011 U
4-Chlorophenyl phenyl ether	--	--	--	mg/kg	0.018 U	0.02 U	0.016 U	0.016 U	0.014 U	0.013 U	0.036 U	0.044 U	0.03 U	0.014 U	0.016 U	0.014 U	0.012 U
4-Nitroaniline	25	110	0.0016	mg/kg	0.022 U	0.026 U	0.02 U	0.021 U	0.017 U	0.017 U	0.045 U	0.055 U	0.038 U	0.018 U	0.02 UJ	0.018 U	0.016 U
4-Nitrophenol	--	--	--	mg/kg	0.28 U	0.33 U	0.25 U	0.26 U	0.22 UJ	0.22 UJ	0.58 U	0.7 U	0.48 U	0.23 U	0.26 U	0.23 U	0.2 UJ
Acenaphthene	360	4500	0.55	mg/kg	0.014 U	0.016 U	0.013 U	0.013 U	0.011 U	0.011 U	0.029 U	0.035 U	0.024 U	0.012 U	0.033 J	0.012 U	0.01 U
Acenaphthylene	--	--	--	mg/kg	0.015 U	0.018 U	0.013 U	0.014 U	0.012 U	0.012 U	0.031 U	0.038 U	0.026 U	0.012 U	0.014 U	0.012 U	0.011 U
Acetophenone	780	12000	0.058	mg/kg	0.013 U	0.015 U	0.011 U	0.012 U	0.0098 U	0.0098 U	0.026 U	0.032 U	0.022 U	0.01 U	0.012 U	0.011 U	0.0091 U
Anthracene	1800	23000	5.8	mg/kg	0.056 U	0.065 U	0.049 U	0.052 U	0.043 U	0.043 U	0.11 U	0.14 U	0.096 U	0.045 U	0.16 J	0.046 U	0.04 U
Atrazine	2.4	10	0.0002	mg/kg	0.026 U	0.03 U	0.023 U	0.024 U	0.02 U	0.02 U	0.053 U	0.065 U	0.045 U	0.021 U	0.024 U	0.021 U	0.019 U
Benzaldehyde	170	820	0.0041	mg/kg	0.045 U	0.052 U	0.04 U	0.042 U	0.034 U	0.034 U	0.092 U	0.11 U	0.077 U	0.036 U	0.041 U	0.085 J	0.032 U
Benzo[a]anthracene	**1.1**	21	0.011	mg/kg	0.083	0.2	0.079	0.046 U	0.038 U	0.038 U	0.51	0.31	0.31	0.13	**2.1**	0.084	0.035 U
Benzo[a]pyrene	**0.11**	2.1	0.029	mg/kg	0.11	**0.31**	0.016 U	0.017 U	0.038 J	0.014 UJ	**0.86**	**0.48**	**0.48**	0.014 U	**0.87**	0.055	0.071
Benzo[b]fluoranthene	**1.1**	21	0.3	mg/kg	0.2	0.55	0.17	0.082	0.11 J	0.018 UJ	**1.9**	0.76 J-	0.71	0.27	**4.1**	0.17	0.34
Benzo[g,h,i]perylene	--	--	--	mg/kg	0.12 J	0.43 J	0.048 J+	0.031 U	0.026 U	0.026 U	0.91 J	0.65 J	0.61 J	0.05 J+	1.2	0.084 J+	0.047 J
Benzo[k]fluoranthene	11	210	2.9	mg/kg	0.076	0.19	0.051 J	0.027 J	0.02 U	0.02 U	0.64	0.22 J-	0.26	0.088	1.3	0.059	0.018 U
Bis(2-chloroethoxy)methane	19	250	0.0013	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.037 U	0.045 U	0.031 U	0.015 U	0.017 U	0.015 U	0.013 U
Bis(2-chloroethyl)ether	0.23	1	0.0000036	mg/kg	0.014 U	0.016 U	0.012 U	0.013 U	0.011 U	0.011 U	0.028 U	0.034 U	0.024 U	0.011 U	0.013 U	0.011 U	0.0098 U
Bis(2-ethylhexyl) phthalate	39	160	1.3	mg/kg	0.023 U	0.027 U	0.02 U	0.021 U	0.018 U	0.018 U	0.52 J	0.057 U	0.039 U	0.019 U	0.26 J	0.019 U	0.016 U
Butyl benzyl phthalate	290	1200	0.24	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.037 U	0.045 U	0.031 U	0.015 U	0.044 J	0.015 U	0.013 U
Caprolactam	3100	40000	0.25	mg/kg	0.042 U	0.049 U	0.037 U	0.039 U	0.033 U	0.032 U	0.087 U	0.11 U	0.072 U	0.034 U	0.039 U	0.035 U	0.03 U
Carbazole	--	--	--	mg/kg	0.015 U	0.017 U	0.013 U	0.014 U	0.011 U	0.011 U	0.16 J	0.07 J	0.025 U	0.012 U	0.36 J	0.012 U	0.07 J

Preliminary Unpublished Data

Table A6. Summary of Semi-Volatile Organic Compounds in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029
				Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017
				Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit													
Chrysene	110	2100	9	mg/kg	0.14 J	0.34 J	0.21 J	0.071 J	0.13 J	0.012 UJ	1.4	0.52 J	0.47 J	0.3 J	4.9	0.18 J	0.5
Dibenz(a,h)anthracene	**0.11**	2.1	0.096	mg/kg	0.031 U	**0.14**	0.027 U	0.028 U	0.024 U	0.023 U	**0.28**	0.076 U	**0.19**	0.025 U	**0.41**	0.025 U	0.044
Dibenzofuran	7.3	100	0.015	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.036 U	0.044 U	0.03 U	0.014 U	0.021 J	0.015 U	0.013 U
Diethyl phthalate	5100	66000	0.61	mg/kg	0.017 U	0.019 U	0.015 U	0.016 U	0.013 U	0.013 U	0.034 U	0.041 U	0.029 U	0.014 U	0.015 U	0.014 U	0.012 U
Dimethyl phthalate	--	--	--	mg/kg	0.017 U	0.02 U	0.015 U	0.016 U	0.013 U	0.013 U	0.035 U	0.042 U	0.029 U	0.014 U	0.016 U	0.014 U	0.012 U
Di-n-butyl phthalate	630	8200	0.23	mg/kg	0.018 U	0.02 U	0.016 U	0.016 U	0.014 U	0.013 U	0.036 U	0.044 U	0.03 U	0.014 U	0.016 U	0.014 U	0.012 U
Di-n-octyl phthalate	63	820	5.7	mg/kg	0.03 U	0.035 U	0.026 U	0.028 U	0.023 U	0.023 U	0.061 U	0.074 UJ	0.051 U	0.024 U	0.084 J	0.025 U	0.021 U
Fluoranthene	240	3000	8.9	mg/kg	0.12 J	0.28 J	0.27 J	0.099 J	0.14 J	0.013 UJ	1 J	0.41 J	0.44 J	0.37 J	6.5	0.17 J	0.94
Fluorene	240	3000	0.54	mg/kg	0.013 U	0.015 U	0.011 U	0.012 U	0.0098 U	0.0098 U	0.026 U	0.032 U	0.022 U	0.01 U	0.03 J	0.011 U	0.0091 U
Hexachlorobenzene	0.21	0.96	0.00012	mg/kg	0.024 U	0.028 U	0.021 U	0.022 U	0.018 U	0.018 U	0.049 U	0.059 U	0.041 U	0.019 U	0.022 U	0.02 U	0.017 U
Hexachlorobutadiene	1.2	5.3	0.00027	mg/kg	0.017 U	0.019 U	0.015 U	0.015 U	0.013 U	0.013 U	0.034 U	0.041 U	0.028 U	0.013 U	0.015 U	0.014 U	0.012 U
Hexachlorocyclopentadiene	0.18	0.75	0.00013	mg/kg	0.037 UJ	0.042 UJ	0.032 UJ	0.034 UJ	0.028 UJ	0.028 UJ	0.075 UJ	0.091 R	0.063 UJ	0.03 UJ	0.033 UJ	0.03 UJ	0.026 UJ
Hexachloroethane	1.8	8	0.0002	mg/kg	0.022 U	0.025 U	0.019 U	0.02 U	0.017 U	0.016 U	0.044 U	0.053 UJ	0.037 U	0.017 U	0.02 U	0.018 U	0.015 U
Indeno[1,2,3-cd]pyrene	**1.1**	21	0.98	mg/kg	0.14	0.57	0.052 J+	0.036 U	0.052 J	0.03 UJ	**1.2**	0.82	0.8	0.032 U	**1.5**	0.092 J+	0.11
Isophorone	570	2400	0.026	mg/kg	0.013 U	0.015 U	0.011 U	0.012 U	0.0097 U	0.0097 U	0.026 U	0.031 U	0.022 U	0.01 U	0.012 U	0.01 U	0.0089 U
Naphthalene	3.8	17	0.00054	mg/kg	0.015 U	0.017 U	0.013 U	0.014 U	0.016 J	0.011 U	0.031 U	0.037 UJ	0.026 U	0.012 U	0.019 J	0.012 U	0.011 U
Nitrobenzene	5.1	22	0.000092	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.038 U	0.046 UJ	0.032 U	0.015 U	0.017 U	0.015 U	0.013 U
N-Nitrosodi-n-propylamine	0.078	0.33	0.0000081	mg/kg	0.02 U	0.023 U	0.017 U	0.018 U	0.015 U	0.015 U	0.04 U	0.049 U	0.034 U	0.016 U	0.018 U	0.016 U	0.014 U
N-Nitrosodiphenylamine	110	470	0.067	mg/kg	0.053 U	0.062 U	0.047 U	0.05 U	0.041 U	0.041 U	0.11 U	0.13 U	0.091 U	0.043 U	0.049 U	0.044 U	0.038 U
Pentachlorophenol	1	4	0.000057	mg/kg	0.071 U	0.082 U	0.063 U	0.066 U	0.055 U	0.055 U	0.15 U	0.18 UJ	0.12 U	0.058 U	0.065 U	0.058 U	0.05 U
Phenanthrene	--	--	--	mg/kg	0.062 J	0.15 J	0.044 J	0.024 J	0.022 J	0.012 UJ	0.24 J	0.22 J	0.23 J	0.053 J	1	0.05 J	0.14 J
Phenol	1900	25000	0.33	mg/kg	0.019 U	0.022 U	0.017 U	0.018 U	0.015 U	0.015 U	0.039 U	0.048 U	0.033 U	0.016 U	0.018 U	0.016 U	0.014 U
Pyrene	180	2300	1.3	mg/kg	0.14 J	0.26 J	0.27 J	0.09 J	0.1 J	0.02 UJ	0.055 U	0.35 J-	0.42 J	0.39 J	6.8	0.18 J	0.52

Preliminary - Under Review

Table A6. Summary of Semi-Volatile Organic Compounds in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
				Sample Date	11/03/2017	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit				
1,1'-Biphenyl	4.7	20	0.00087	mg/kg	0.041 U	0.042 U	0.04 U	0.044 U
1,2,4,5-Tetrachlorobenzene	2.3	35	0.00079	mg/kg	0.036 U	0.037 U	0.035 U	0.038 U
1,4-Dioxane	5.3	24	0.000094	mg/kg	0.13 U	0.13 U	0.12 U	0.14 U
2,2'-oxybis[1-chloropropane]	310	4700	0.026	mg/kg	0.02 U	0.02 U	0.019 U	0.021 U
2,3,4,6-Tetrachlorophenol	190	2500	0.018	mg/kg	0.045 U	0.047 U	0.044 U	0.049 U
2,4,5-Trichlorophenol	630	8200	0.4	mg/kg	0.048 U	0.049 U	0.046 U	0.051 U
2,4,6-Trichlorophenol	6.3	82	0.0012	mg/kg	0.014 U	0.014 U	0.013 U	0.015 U
2,4-Dichlorophenol	19	250	0.0023	mg/kg	0.011 U	0.012 U	0.011 U	0.012 U
2,4-Dimethylphenol	130	1600	0.042	mg/kg	0.11 U	0.11 U	0.1 U	0.11 U
2,4-Dinitrophenol	13	160	0.0044	mg/kg	0.36 U	0.37 U	0.35 U	0.39 U
2,4-Dinitrotoluene	1.7	7.4	0.00032	mg/kg	0.019 U	0.02 U	0.018 U	0.02 U
2,6-Dinitrotoluene	0.36	1.5	0.000067	mg/kg	0.026 U	0.026 U	0.025 U	0.028 U
2-Chloronaphthalene	480	6000	0.39	mg/kg	0.011 U	0.011 U	0.011 U	0.012 U
2-Chlorophenol	39	580	0.0089	mg/kg	0.012 U	0.013 U	0.012 U	0.013 U
2-Methylnaphthalene	24	300	0.019	mg/kg	0.011 U	0.011 U	0.01 U	0.011 U
2-Methylphenol	320	4100	0.075	mg/kg	0.021 U	0.022 U	0.02 U	0.023 U
2-Nitroaniline	63	800	0.008	mg/kg	0.016 U	0.016 U	0.015 U	0.017 U
2-Nitrophenol	--	--	--	mg/kg	0.016 U	0.017 U	0.016 U	0.017 U
3 & 4 Methylphenol	--	--	--	mg/kg	0.013 U	0.013 U	0.012 U	0.014 U
3,3'-Dichlorobenzidine	1.2	5.1	0.00082	mg/kg	0.053 U	0.055 U	0.052 U	0.058 U
3-Nitroaniline	--	--	--	mg/kg	0.014 U	0.015 U	0.014 U	0.015 U
4,6-Dinitro-2-methylphenol	0.51	6.6	0.00026	mg/kg	0.13 U	0.13 U	0.12 U	0.14 U
4-Bromophenyl phenyl ether	--	--	--	mg/kg	0.015 U	0.016 U	0.015 U	0.016 U
4-Chloro-3-methylphenol	630	8200	0.17	mg/kg	0.021 U	0.021 U	0.02 U	0.022 U
4-Chloroaniline	2.7	11	0.00016	mg/kg	0.012 U	0.013 U	0.012 U	0.013 U
4-Chlorophenyl phenyl ether	--	--	--	mg/kg	0.014 U	0.015 U	0.014 U	0.015 U
4-Nitroaniline	25	110	0.0016	mg/kg	0.018 U	0.019 U	0.018 U	0.02 U
4-Nitrophenol	--	--	--	mg/kg	0.23 U	0.24 U	0.22 U	0.25 U
Acenaphthene	360	4500	0.55	mg/kg	0.012 U	0.012 U	0.011 U	0.013 U
Acenaphthylene	--	--	--	mg/kg	0.012 U	0.013 U	0.012 U	0.013 U
Acetophenone	780	12000	0.058	mg/kg	0.01 U	0.011 U	0.01 U	0.011 U
Anthracene	1800	23000	5.8	mg/kg	0.046 U	0.047 U	0.044 U	0.049 U
Atrazine	2.4	10	0.0002	mg/kg	0.021 U	0.022 U	0.021 U	0.023 U
Benzaldehyde	170	820	0.0041	mg/kg	0.037 U	0.038 U	0.036 U	0.039 U
Benzo[a]anthracene	**1.1**	21	0.011	mg/kg	0.066	0.041 U	0.039 U	0.043 U
Benzo[a]pyrene	**0.11**	2.1	0.029	mg/kg	0.091	0.015 U	0.014 U	0.08
Benzo[b]fluoranthene	**1.1**	21	0.3	mg/kg	0.16	0.053	0.042 J	0.2
Benzo[g,h,i]perylene	--	--	--	mg/kg	0.084 J	0.028 U	0.027 U	0.075 J
Benzo[k]fluoranthene	11	210	2.9	mg/kg	0.054	0.022 U	0.02 U	0.023 U
Bis(2-chloroethoxy)methane	19	250	0.0013	mg/kg	0.015 U	0.015 U	0.015 U	0.016 U
Bis(2-chloroethyl)ether	0.23	1	0.0000036	mg/kg	0.011 U	0.012 U	0.011 U	0.012 U
Bis(2-ethylhexyl) phthalate	39	160	1.3	mg/kg	0.019 U	0.019 U	0.018 U	0.02 U
Butyl benzyl phthalate	290	1200	0.24	mg/kg	0.015 U	0.015 U	0.014 U	0.016 U
Caprolactam	3100	40000	0.25	mg/kg	0.034 U	0.036 U	0.034 U	0.037 U
Carbazole	--	--	--	mg/kg	0.012 U	0.012 U	0.012 U	0.013 U

Preliminary Draft MDEQ Review

Table A6. Summary of Semi-Volatile Organic Compounds in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
				Sample Date	11/03/2017	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit				
Chrysene	110	2100	9	mg/kg	0.11 J	0.028 J	0.019 J	0.1 J
Dibenz(a,h)anthracene	**0.11**	2.1	0.096	mg/kg	0.05	0.026 U	0.024 U	0.027 U
Dibenzofuran	7.3	100	0.015	mg/kg	0.014 U	0.015 U	0.014 U	0.016 U
Diethyl phthalate	5100	66000	0.61	mg/kg	0.014 U	0.014 U	0.013 U	0.015 U
Dimethyl phthalate	--	--	--	mg/kg	0.014 U	0.014 U	0.014 U	0.015 U
Di-n-butyl phthalate	630	8200	0.23	mg/kg	0.024 J	0.015 U	0.014 U	0.015 U
Di-n-octyl phthalate	63	820	5.7	mg/kg	0.024 U	0.025 U	0.024 U	0.026 U
Fluoranthene	240	3000	8.9	mg/kg	0.082 J	0.028 J	0.025 J	0.024 J
Fluorene	240	3000	0.54	mg/kg	0.01 U	0.011 U	0.01 U	0.011 U
Hexachlorobenzene	0.21	0.96	0.00012	mg/kg	0.019 U	0.02 U	0.019 U	0.021 U
Hexachlorobutadiene	1.2	5.3	0.00027	mg/kg	0.013 U	0.014 U	0.013 U	0.015 U
Hexachlorocyclopentadiene	0.18	0.75	0.00013	mg/kg	0.03 UJ	0.031 UJ	0.029 UJ	0.032 UJ
Hexachloroethane	1.8	8	0.0002	mg/kg	0.018 U	0.018 U	0.017 U	0.019 U
Indeno[1,2,3-cd]pyrene	**1.1**	21	0.98	mg/kg	0.12	0.033 U	0.031 U	0.12
Isophorone	570	2400	0.026	mg/kg	0.01 U	0.011 U	0.01 U	0.011 U
Naphthalene	3.8	17	0.00054	mg/kg	0.012 U	0.013 U	0.012 U	0.013 U
Nitrobenzene	5.1	22	0.000092	mg/kg	0.015 U	0.016 U	0.015 U	0.016 U
N-Nitrosodi-n-propylamine	0.078	0.33	0.0000081	mg/kg	0.016 U	0.017 U	0.016 U	0.017 U
N-Nitrosodiphenylamine	110	470	0.067	mg/kg	0.043 U	0.045 U	0.042 U	0.047 U
Pentachlorophenol	1	4	0.000057	mg/kg	0.058 U	0.06 U	0.056 U	0.063 U
Phenanthrene	--	--	--	mg/kg	0.044 J	0.014 J	0.012 U	0.014 U
Phenol	1900	25000	0.33	mg/kg	0.016 U	0.016 U	0.015 U	0.017 U
Pyrene	180	2300	1.3	mg/kg	0.098 J	0.031 J	0.027 J	0.035 J

Preliminary - Under MDEQ Review

Table A7. Summary of Metals in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029	CFSDP-030
				Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017
				Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit														
Aluminum	**7700**	110000	3000	mg/kg	**13300**	**9310**	**8590**	**8030**	**8440**	**9000**	5470	**8000**	**12900**	**9110**	**8790**	**7810**	**8150**	**8090**
Antimony	3.1	47	0.035	mg/kg	0.48 UJ	0.52 UJ	0.49 U	0.52 U	0.37 UJ	0.34 UJ	0.99 UJ	1.1 UJ	0.82 UJ	0.44 U	0.51 U	0.47 U	0.32 UJ	0.39 UJ
Arsenic	**0.68**	3	0.0015	mg/kg	**2.5**	**1.2 J**	**3.3**	**5.2**	**3.4**	**3.9**	**1.9 J**	**1.3 J**	**1.9 J**	**3.7**	**4.1**	**4.1**	**5.2**	**2.6**
Barium	1500	22000	16	mg/kg	234	693	147	128	55.7	49	762	969	744	72.9	97.8	143	83.9	126
Beryllium	16	230	1.9	mg/kg	0.67	0.34 J	0.48 J	0.44 J	0.29 J	0.41	0.3 U	0.32 U	0.61 J	0.35 J	0.57 J	0.49 J	0.42	0.47
Cadmium	7.1	98	0.069	mg/kg	0.51 U	0.55 U	0.52 U	0.55 U	0.39 U	0.35 U	1 U	1.1 U	0.86 U	0.47 U	0.54 U	0.5 U	0.34 U	0.41 U
Calcium	--	--	--	mg/kg	42800	181000	24500	18900	11700	9640	261000	302000	165000	16800	16200	20000	15100	17000
Chromium	**0.3**	6.3	0.00067	mg/kg	**13.9**	**8**	**10.1**	**9.5**	**9.3**	**9.9**	**8.7**	**8.6**	**12.1**	**9.7**	**10.2**	**9.2**	**9.3**	**9.2**
Cobalt	**2.3**	35	0.027	mg/kg	**7.2**	**4.1**	**6**	**5.7**	**5.5**	**5.8**	2 J	**3.6 J**	**6.2**	**5.6**	**6.4**	**5.8**	**5.7**	**5.7 J+**
Copper	310	4700	2.8	mg/kg	32.7	31.8	15.4	14.8	9	9.1	131	143	67.8	11.7	13.7	15.3	10	14.9
Cyanide, Free	2.3	15	0.0015	mg/kg	NA	0.89 J	0.48 U	0.5 U	0.42 U	0.42 U	NA	NA	NA	NA	0.45 U	NA	NA	0.45 U
Cyanide, Total	**2.3**	15	0.0015	mg/kg	0.1 U	0.13 U	0.44	1.1	0.35	0.3	**8.5**	0.64 J	0.69 J	0.82	1.2	1.9	0.8	1.7
Iron	**5500**	82000	35	mg/kg	**15300**	**7780**	**13800**	**13900**	**14700**	**15700**	2660	3940	**10200**	**14700**	**15600**	**12900**	**15200**	**12900**
Lead	400	800	--	mg/kg	10.7	8.9	8.3	9	6.1	6.1	22.3	13.4	12.5	7.1	9.2	8.1	7	7.7 J+
Magnesium	--	--	--	mg/kg	16200	8080	12100	10600	10200	10400	4440	6080	12100	10700	11400	10700	10400	11000
Manganese	**180**	2600	2.8	mg/kg	153	91.3	**202**	**209**	169	167	20.5	38.4	107	166	180	**231**	**244**	137
Mercury	1.1	4.6	0.0033	mg/kg	0.022 J	0.023 J	0.019 J	0.017 U	0.014 U	0.08	0.28	0.093	0.031 U	0.015 U	0.018 U	0.027	0.026	0.015 J+
Nickel	150	2200	2.6	mg/kg	18.6	14.4	12.3	11.8	11.6	12.2	17.8	20.3	25	13.1	12.7	11.5	11.5	11.6
Potassium	--	--	--	mg/kg	1790	892	977	848	584 J+	568 J+	411	665	1470	668	741	910	591 J+	815
Selenium	39	580	0.052	mg/kg	0.45 U	0.48 U	0.46 U	0.48 U	0.34 U	0.31 U	0.97 J	0.98 U	0.76 U	0.41 U	0.48 U	0.44 U	0.3 U	0.36 U
Silver	39	580	0.08	mg/kg	0.94 U	1 U	0.96 U	1 U	0.72 U	0.65 U	1.9 U	2.1 U	1.6 U	0.86 U	1 U	0.93 U	0.62 U	0.76 U
Sodium	--	--	--	mg/kg	86.6 J	126 J	124 J	122 J	55.6 J	53 J	268 J	429	141 J	99.7 J	83.9 J	198	55.2 J	101 J
Thallium	**0.078**	1.2	0.0014	mg/kg	0.19 U	0.2 U	0.19 U	0.2 U	0.15 U	0.13 U	0.39 U	0.42 U	0.32 U	0.17 U	0.2 U	0.19 U	**0.18 J**	0.15 U
Vanadium	39	580	8.6	mg/kg	19.4	13	13.4	12.6	10	9.4	6.2	6.1 J	13.6	17.5	15.4	12	11.8	13.4 J+
Zinc	2300	35000	37	mg/kg	56.4	45.8	43.4	41.4	39.6	41.9	174	140	67	52.1	45.2	41.9	39.1	37.2 J+

Total chromium results are compared to Chromium (VI) EPA RSLs

Preliminary - Under EPA and MDEQ Review

Table A7. Summary of Metals in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSDP-031	CFSDP-032	CFSDP-033
				Sample Date	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit			
Aluminum	**7700**	110000	3000	mg/kg	**9130**	**8980**	**11800**
Antimony	3.1	47	0.035	mg/kg	0.37 U	0.36 U	0.39 U
Arsenic	**0.68**	3	0.0015	mg/kg	**3.9**	**3.3**	**3.7**
Barium	1500	22000	16	mg/kg	136	85.7	208
Beryllium	16	230	1.9	mg/kg	0.39 J	0.27 J	0.51
Cadmium	7.1	98	0.069	mg/kg	0.39 U	0.38 U	0.42 U
Calcium	--	--	--	mg/kg	17300	14700	16900
Chromium	**0.3**	6.3	0.00067	mg/kg	**10.1**	**9.8**	**13.3**
Cobalt	**2.3**	35	0.027	mg/kg	**6.2**	**5.9**	**7.7**
Copper	310	4700	2.8	mg/kg	15.3	10.6	20.7
Cyanide, Free	2.3	15	0.0015	mg/kg	NA	NA	NA
Cyanide, Total	**2.3**	15	0.0015	mg/kg	0.41	0.58	1.2
Iron	**5500**	82000	35	mg/kg	**15000**	**15400**	**18300**
Lead	400	800	--	mg/kg	8	6.9	11.6
Magnesium	--	--	--	mg/kg	12100	11400	15000
Manganese	**180**	2600	2.8	mg/kg	**208**	153	177
Mercury	1.1	4.6	0.0033	mg/kg	0.016 J	0.015 U	0.019 J
Nickel	150	2200	2.6	mg/kg	12.7	11.8	16.1
Potassium	--	--	--	mg/kg	877	702	1140
Selenium	39	580	0.052	mg/kg	0.34 U	0.33 U	0.37 U
Silver	39	580	0.08	mg/kg	0.71 U	0.7 U	0.77 U
Sodium	--	--	--	mg/kg	93.7 J	55.4 J	94.9 J
Thallium	**0.078**	1.2	0.0014	mg/kg	0.14 U	0.14 U	0.16 U
Vanadium	39	580	8.6	mg/kg	16.2	13.9	24.2
Zinc	2300	35000	37	mg/kg	41.4	41.8	53.9

Total chromium results are compared to Chromium (VI) EPA RSLs

Preliminary - Under EPA and MDEQ Review

Table A8. Summary of General Chemistry in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029
				Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017
				Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit													
Fluoride	310	4700	12	mg/kg	19.5 J+	22.6 J+	24.8 J+	22.7 J+	20.5 J+	16.7 J+	74 J+	93.7 J+	34.9 J+	69.2 J+	21.8 J+	22.9 J+	22.2 J+
pH	--	--	--	pH Units	7.1 J	7.8 J	7.9	7.5	8	8	7.1 J	7.2 J	7.7 J	7.5	7.8	7.5	8.2
Total Organic Carbon	--	--	--	mg/kg	18700	51900	10800	25600	2130	1570	105000	91500	42100	4910	44600	17500	2290

Preliminary - Under EPA and MDEQ Review

Table A8. Summary of General Chemistry in Sediment – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
				Sample Date	11/03/2017	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit				
Fluoride	310	4700	12	mg/kg	20.8 J+	22.2 J+	17.2 J+	19.2 J+
pH	--	--	--	pH Units	7.3	7.4	7.7	7.2
Total Organic Carbon	--	--	--	mg/kg	14300	14800	3990	2850

Preliminary - Under EPA and MDEQ Review

Table A9. Summary of Volatile Organic Compounds in Surface Water – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031	CFSWP-032	CFSWP-033
				Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
				Sample Fraction	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Parameter	DEQ-7 Human Health Standards	EPA Risk Based Screening Level Drinking water MCL	EPA Risk Based Screening Level Tapwater RSL	Unit														
1,1,1-Trichloroethane	200	200	800	ug/L	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	1.7	--	0.076	ug/L	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	ug/L	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	3	5	0.041	ug/L	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	ug/L	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	7	28	ug/L	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	ug/L	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 UJ	0.35 U	0.35 U	0.35 U	0.35 U
1,2,4-Trichlorobenzene	35	70	0.4	ug/L	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	0.2	0.2	0.00033	ug/L	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 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dichlorobenzene	420	600	30	ug/L	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	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	3.8	5	0.17	ug/L	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	5	5	0.82	ug/L	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	320	--	--	ug/L	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	75	75	0.48	ug/L	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-Butanone (MEK)	--	--	560	ug/L	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-Hexanone	--	--	3.8	ug/L	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
4-Methyl-2-pentanone (MIBK)	--	--	630	ug/L	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
Acetone	--	--	1400	ug/L	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	15	7.1	1.1 U
Benzene	5	5	0.46	ug/L	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
Bromoform	43	80	3.3	ug/L	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U
Bromomethane	47	--	0.75	ug/L	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	0.18 U	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ
Carbon disulfide	--	--	81	ug/L	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 U	0.22 U	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U
Carbon tetrachloride	2.3	5	0.46	ug/L	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	100	100	7.8	ug/L	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
Chlorobromomethane	--	--	8.3	ug/L	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
Chlorodibromomethane	4	80	0.87	ug/L	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloroethane	--	--	2100	ug/L	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	0.37 U
Chloroform	57	80	0.22	ug/L	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	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	30	--	19	ug/L	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	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-Dichloroethene	70	70	3.6	ug/L	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	3.4	--	--	ug/L	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	ug/L	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
Dichlorobromomethane	5.5	80	0.13	ug/L	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
Dichlorodifluoromethane	--	--	20	ug/L	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	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 UJ
Ethylbenzene	530	700	1.5	ug/L	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
Ethylene Dibromide	--	0.05	0.0075	ug/L	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
Isopropylbenzene	--	--	45	ug/L	0.32 U	0.32 U	0.32 U	0.32 U	0.32 UJ	0.32 UJ	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Methyl acetate	--	--	2000	ug/L	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 tert-butyl ether	30	--	14	ug/L	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
Methylcyclohexane	--	--	--	ug/L	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	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	5	11	ug/L	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
m-Xylene & p-Xylene	--	--	--	ug/L	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
o-Xylene	10000	--	19	ug/L	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	100	120	ug/L	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	1	0.17 U	0.17 U
Tetrachloroethene	5	5	4.1	ug/L	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	1000	1000	110	ug/L	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	3	0.82 J	0.25 U
trans-1,2-Dichloroethene	100	100	36	ug/L	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	--	--	ug/L	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
Trichloroethene	5	5	0.28	ug/L	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U

Preliminary Unofficial Data

Table A9. Summary of Volatile Organic Compounds in Surface Water – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031	CFSWP-032	CFSWP-033
				Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
				Sample Fraction	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Parameter	DEQ-7 Human Health Standards	EPA Risk Based Screening Level Drinking water MCL	EPA Risk Based Screening Level Tapwater RSL	Unit														
Trichlorofluoromethane	10000	--	520	ug/L	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
Vinyl chloride	0.25	2	0.019	ug/L	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

Preliminary - Under EPA and MDEQ Review

Table A10. Summary of Semi-Volatile Organic Compounds in Surface Water – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031
				Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	FD	N	N	N	N	N	N	N	N
				Sample Fraction	T	T	T	T	T	T	T	T	T	T	T	T
Parameter	DEQ-7 Human Health Standards	EPA Risk Based Screening Level Drinking water MCL	EPA Risk Based Screening Level Tapwater RSL	Unit												
1,1'-Biphenyl	--	--	0.083	ug/L	0.64 U	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.64 U	0.66 U	0.64 U	0.63 U	0.63 U	0.63 U
1,2,4,5-Tetrachlorobenzene	0.97	--	0.17	ug/L	0.44 U	0.44 U	0.43 U	0.43 U	0.43 U	0.43 U	0.44 U	0.45 U	0.44 U	0.43 U	0.43 U	0.43 U
1,4-Dioxane	--	--	0.46	ug/L	3.2 U	3.2 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	3.1 U	3.1 U
2,2'-oxybis[1-chloropropane]	1400	--	71	ug/L	0.95 U	0.95 U	0.93 U	0.93 U	0.93 U	0.93 U	0.95 U	0.97 U	0.95 U	0.93 U	0.93 U	0.93 U
2,3,4,6-Tetrachlorophenol	--	--	24	ug/L	0.7 U	0.7 U	0.69 U	0.69 U	0.69 U	0.69 U	0.7 U	0.72 U	0.7 U	0.69 U	0.69 U	0.69 U
2,4,5-Trichlorophenol	1800	--	120	ug/L	0.5 U	0.5 U	0.49 U	0.49 U	0.49 U	0.49 U	0.5 U	0.51 U	0.5 U	0.49 U	0.49 U	0.49 U
2,4,6-Trichlorophenol	14	--	1.2	ug/L	0.54 U	0.54 U	0.53 U	0.53 U	0.53 U	0.53 U	0.54 U	0.55 U	0.54 U	0.53 U	0.53 U	0.53 U
2,4-Dichlorophenol	77	--	4.6	ug/L	0.64 U	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.64 U	0.66 U	0.64 U	0.63 U	0.63 U	0.63 U
2,4-Dimethylphenol	380	--	36	ug/L	0.93 U	0.93 U	0.91 U	0.91 U	0.91 U	0.91 U	0.93 U	0.95 U	0.93 U	0.91 U	0.91 U	0.91 U
2,4-Dinitrophenol	69	--	3.9	ug/L	2.4 UJ	2.4 UJ	2.4 U	2.4 U	2.4 U	2.4 U	2.4 UJ	2.5 UJ	2.4 UJ	2.4 U	2.4 U	2.4 U
2,4-Dinitrotoluene	1.1	--	0.24	ug/L	1.1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	0.5	--	0.049	ug/L	0.9 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.9 U	0.92 U	0.9 U	0.88 U	0.88 U	0.88 U
2-Chloronaphthalene	1000	--	75	ug/L	0.62 U	0.62 U	0.61 U	0.61 U	0.61 U	0.61 U	0.62 U	0.64 U	0.62 U	0.61 U	0.61 U	0.61 U
2-Chlorophenol	81	--	9.1	ug/L	0.76 U	0.76 U	0.74 U	0.74 U	0.74 U	0.74 U	0.76 U	0.77 U	0.76 U	0.74 U	0.74 U	0.74 U
2-Methylnaphthalene	--	--	3.6	ug/L	0.9 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.9 U	0.92 U	0.9 U	0.88 U	0.88 U	0.88 U
2-Methylphenol	--	--	93	ug/L	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	2.7 J
2-Nitroaniline	--	--	19	ug/L	0.66 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.66 U	0.68 U	0.66 U	0.65 U	0.65 U	0.65 U
2-Nitrophenol	--	--	--	ug/L	0.6 U	0.6 U	0.59 U	0.59 U	0.59 U	0.59 U	0.6 U	0.61 U	0.6 U	0.59 U	0.59 U	0.59 U
3 & 4 Methylphenol	--	--	--	ug/L	0.9 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.9 U	0.92 U	0.9 U	0.88 U	0.88 U	7.5 J
3,3'-Dichlorobenzidine	0.21	--	0.13	ug/L	1.1 U	1.1 U	1 U	1 U	1 UJ	1 U	1.1 U	1.1 U	1.1 U	1 U	1 U	1 U
3-Nitroaniline	--	--	--	ug/L	0.84 U	0.84 U	0.82 U	0.82 U	0.82 UJ	0.82 U	0.84 U	0.85 U	0.84 U	0.82 U	0.82 UJ	0.82 UJ
4,6-Dinitro-2-methylphenol	13	--	0.15	ug/L	2.1 U	2.1 U	2 U	2 U	2 UJ	2 U	2.1 U	2.1 U	2.1 U	2 U	2 U	2 U
4-Bromophenyl phenyl ether	--	--	--	ug/L	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
4-Chloro-3-methylphenol	3000	--	140	ug/L	0.78 U	0.78 U	0.76 U	0.76 U	0.76 U	0.76 U	0.78 U	0.79 U	0.78 U	0.76 U	0.76 U	0.76 U
4-Chloroaniline	--	--	0.37	ug/L	0.74 U	0.74 U	0.73 U	0.73 U	0.73 U	0.73 U	0.74 U	0.76 U	0.74 U	0.73 U	0.73 UJ	0.73 UJ
4-Chlorophenyl phenyl ether	--	--	--	ug/L	0.98 U	0.98 U	0.96 U	0.96 U	0.96 U	0.96 U	0.98 U	1 U	0.98 U	0.96 U	0.96 U	0.96 U
4-Nitroaniline	--	--	3.8	ug/L	0.49 U	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.49 U	0.5 U	0.49 U	0.48 U	0.48 U	0.48 U
4-Nitrophenol	60	--	--	ug/L	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.8 U	4.7 U	4.7 U	4.7 UJ	4.7 UJ
Acenaphthene	670	--	53	ug/L	0.9 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.9 U	0.92 U	0.9 U	0.88 U	0.88 U	0.88 U
Acenaphthylene	--	--	--	ug/L	0.66 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.66 U	0.68 U	0.66 U	0.65 U	0.65 U	0.65 U
Acetophenone	--	--	190	ug/L	1.1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1 U	1 U	1 U
Anthracene	8300	--	180	ug/L	0.58 U	0.58 U	0.57 U	0.57 U	0.57 U	0.57 U	0.58 U	0.59 U	0.58 U	0.57 U	0.57 U	0.57 U
Atrazine	3	3	0.3	ug/L	0.79 U	0.79 U	0.77 U	0.77 U	0.77 U	0.77 U	0.79 U	0.8 U	0.79 U	0.77 U	0.77 U	0.77 U
Benzaldehyde	--	--	19	ug/L	0.88 U	0.88 U	0.86 U	0.86 U	0.86 U	0.86 U	0.88 U	0.9 U	0.88 U	0.86 U	0.86 U	2.3 J
Benzo[a]anthracene	**0.038**	--	0.03	ug/L	0.56 U	0.56 U	0.55 U	0.55 U	0.55 U	0.55 U	**0.63 J**	0.57 U	0.56 U	0.55 U	0.55 U	0.55 U
Benzo[a]pyrene	**0.038**	0.2	0.025	ug/L	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.36 J	**0.25 J**	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U
Benzo[b]fluoranthene	**0.038**	--	0.25	ug/L	0.45 U	0.45 U	0.44 U	0.44 U	0.44 U	**0.53 J**	**0.7 J**	0.46 U	0.45 U	0.44 U	0.44 U	0.44 U
Benzo[g,h,i]perylene	--	--	--	ug/L	0.77 U	0.77 U	0.75 U	0.75 U	0.75 U	0.75 U	0.77 U	0.78 U	0.77 U	0.75 U	0.75 U	0.75 U
Benzo[k]fluoranthene	**0.038**	--	2.5	ug/L	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	**0.46 J**	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-chloroethoxy)methane	--	--	5.9	ug/L	0.7 U	0.7 U	0.69 U	0.69 U	0.69 UJ	0.69 U	0.7 U	0.72 U	0.7 U	0.69 U	0.69 U	0.69 U
Bis(2-chloroethyl)ether	0.3	--	0.014	ug/L	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U
Bis(2-ethylhexyl) phthalate	6	6	5.6	ug/L	1.2 J	0.73 U	0.72 U	0.72 U	0.72 U	0.72 U	0.73 U	0.75 U	0.73 U	0.72 U	0.72 U	0.72 U
Butyl benzyl phthalate	1500	--	16	ug/L	0.61 U	0.61 U	0.6 U	0.6 U	0.6 U	0.6 U	0.61 U	0.63 U	0.61 U	0.6 U	0.6 U	0.6 U

Preliminary Under EPA and MDEQ Review

Table A10. Summary of Semi-Volatile Organic Compounds in Surface Water – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031
				Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	FD	N	N	N	N	N	N	N	N
				Sample Fraction	T	T	T	T	T	T	T	T	T	T	T	T
Parameter	DEQ-7 Human Health Standards	EPA Risk Based Screening Level Drinking water MCL	EPA Risk Based Screening Level Tapwater RSL	Unit												
Caprolactam	--	--	990	ug/L	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 U
Carbazole	--	--	--	ug/L	0.87 U	0.87 U	0.85 U	0.85 U	0.85 U	0.85 U	0.87 U	0.89 U	0.87 U	0.85 U	1.9 J	2.9 J
Chrysene	**0.038**	--	25	ug/L	0.68 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	**1.2 J**	0.7 U	0.68 U	0.67 U	0.67 U	0.67 U
Dibenz(a,h)anthracene	0.038	--	0.025	ug/L	0.092 U	0.092 U	0.09 U	0.09 U	0.09 U	0.09 U	0.092 U	0.094 U	0.092 U	0.09 U	0.09 U	0.09 U
Dibenzofuran	--	--	0.79	ug/L	0.87 U	0.87 U	0.85 U	0.85 U	0.85 U	0.85 U	0.87 U	0.89 U	0.87 U	0.85 U	0.85 U	0.85 U
Diethyl phthalate	17000	--	1500	ug/L	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	270000	--	--	ug/L	1 U	1 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U	1 U	1 U	0.98 U	0.98 U	0.98 U
Di-n-butyl phthalate	2000	--	90	ug/L	0.84 U	0.84 U	0.82 U	0.82 U	0.82 U	0.82 U	0.84 U	0.85 U	0.84 U	0.82 U	0.82 U	0.82 U
Di-n-octyl phthalate	--	--	20	ug/L	0.7 U	0.7 U	0.69 U	0.69 U	0.69 U	1.4 J	0.7 U	0.72 U	0.7 U	0.69 U	0.69 U	0.69 U
Fluoranthene	130	--	80	ug/L	0.73 U	0.73 U	0.72 U	0.72 U	0.72 U	0.72 U	2.1 J	0.75 U	0.73 U	1.1 J	3.7 J	2.5 J
Fluorene	1100	--	29	ug/L	0.82 U	0.82 U	0.8 U	0.8 U	0.8 U	0.8 U	0.82 U	0.83 U	0.82 U	0.8 U	0.8 U	0.8 U
Hexachlorobenzene	0.0028	1	0.0098	ug/L	0.48 U	0.48 U	0.47 U	0.47 U	0.47 U	0.47 U	0.48 U	0.49 U	0.48 U	0.47 U	0.47 U	0.47 U
Hexachlorobutadiene	4.4	--	0.14	ug/L	0.78 U	0.78 U	0.76 UJ	0.76 UJ	0.76 U	0.76 U	0.78 U	0.79 U	0.78 U	0.76 UJ	0.76 U	0.76 U
Hexachlorocyclopentadiene	40	50	0.041	ug/L	0.62 UJ	0.62 UJ	0.61 UJ	0.61 UJ	0.61 UJ	0.61 UJ	0.62 UJ	0.64 UJ	0.62 UJ	0.61 UJ	0.61 UJ	0.61 UJ
Hexachloroethane	14	--	0.33	ug/L	0.092 U	0.092 U	0.09 U	0.09 U	0.26 J	0.09 U	0.092 U	0.094 U	0.092 U	0.09 U	0.09 U	0.09 U
Indeno[1,2,3-cd]pyrene	**0.038**	--	0.25	ug/L	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	**0.28 J**	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U
Isophorone	350	--	78	ug/L	0.68 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	0.68 U	0.7 U	0.68 U	0.67 U	0.67 U	0.67 U
Naphthalene	100	--	0.17	ug/L	0.82 U	0.82 U	0.8 U	0.8 U	0.8 U	0.8 U	0.82 U	0.83 U	0.82 U	0.8 U	0.8 U	0.8 U
Nitrobenzene	17	--	0.14	ug/L	0.5 U	0.5 U	0.49 U	0.49 U	0.49 U	0.49 U	0.5 U	0.51 U	0.5 U	0.49 U	0.49 U	0.49 U
N-Nitrosodi-n-propylamine	0.05	--	0.011	ug/L	0.85 UJ	0.85 UJ	0.83 U	0.83 U	0.83 U	0.83 U	0.85 UJ	0.86 UJ	0.85 UJ	0.83 U	0.83 U	0.83 U
N-Nitrosodiphenylamine	33	--	12	ug/L	0.76 U	0.76 U	0.74 U	0.74 U	0.74 U	0.74 U	0.76 U	0.77 U	0.76 U	0.74 U	0.74 U	0.74 U
Pentachlorophenol	1	1	0.041	ug/L	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.3 U	2.2 U	2.2 U	2.2 U	2.2 U
Phenanthrene	--	--	--	ug/L	0.66 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	1.2 J	0.68 U	0.66 U	0.65 U	1.9 J	1.8 J
Phenol	300	--	580	ug/L	0.42 U	0.42 U	0.41 U	0.41 U	0.41 U	0.41 U	0.42 U	0.43 U	0.42 U	0.41 U	0.41 U	5.2 J
Pyrene	830	--	12	ug/L	0.85 U	0.85 U	0.83 U	0.83 U	0.83 U	0.83 U	1.6 J	0.86 U	0.85 U	0.83 U	1.8 J	1.4 J

Preliminary - Subject to EPA and MDEQ Review

Table A10. Summary of Semi-Volatile Organic Compounds in Surface Water – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSWP-032	CFSWP-033
				Sample Date	11/03/2017	11/03/2017
				Sample Type	N	N
				Sample Fraction	T	T
Parameter	DEQ-7 Human Health Standards	EPA Risk Based Screening Level Drinking water MCL	EPA Risk Based Screening Level Tapwater RSL	Unit		
1,1'-Biphenyl	--	--	0.083	ug/L	0.63 U	0.63 U
1,2,4,5-Tetrachlorobenzene	0.97	--	0.17	ug/L	0.43 U	0.43 U
1,4-Dioxane	--	--	0.46	ug/L	3.1 U	3.1 U
2,2'-oxybis[1-chloropropane]	1400	--	71	ug/L	0.93 U	0.93 U
2,3,4,6-Tetrachlorophenol	--	--	24	ug/L	0.69 U	0.69 U
2,4,5-Trichlorophenol	1800	--	120	ug/L	0.49 U	0.49 U
2,4,6-Trichlorophenol	14	--	1.2	ug/L	0.53 U	0.53 U
2,4-Dichlorophenol	77	--	4.6	ug/L	0.63 U	0.63 U
2,4-Dimethylphenol	380	--	36	ug/L	0.91 U	0.91 U
2,4-Dinitrophenol	69	--	3.9	ug/L	2.4 U	2.4 U
2,4-Dinitrotoluene	1.1	--	0.24	ug/L	1 U	1 U
2,6-Dinitrotoluene	0.5	--	0.049	ug/L	0.88 U	0.88 U
2-Chloronaphthalene	1000	--	75	ug/L	0.61 U	0.61 U
2-Chlorophenol	81	--	9.1	ug/L	0.74 U	0.74 U
2-Methylnaphthalene	--	--	3.6	ug/L	0.88 U	0.88 U
2-Methylphenol	--	--	93	ug/L	1.3 U	1.3 U
2-Nitroaniline	--	--	19	ug/L	0.65 U	0.65 U
2-Nitrophenol	--	--	--	ug/L	0.59 U	0.59 U
3 & 4 Methylphenol	--	--	--	ug/L	0.88 U	0.88 U
3,3'-Dichlorobenzidine	0.21	--	0.13	ug/L	1 U	1 U
3-Nitroaniline	--	--	--	ug/L	0.82 UJ	0.82 UJ
4,6-Dinitro-2-methylphenol	13	--	0.15	ug/L	2 U	2 U
4-Bromophenyl phenyl ether	--	--	--	ug/L	1 U	1 U
4-Chloro-3-methylphenol	3000	--	140	ug/L	0.76 U	0.76 U
4-Chloroaniline	--	--	0.37	ug/L	0.73 UJ	0.73 UJ
4-Chlorophenyl phenyl ether	--	--	--	ug/L	0.96 U	0.96 U
4-Nitroaniline	--	--	3.8	ug/L	0.48 U	0.48 U
4-Nitrophenol	60	--	--	ug/L	4.7 UJ	4.7 UJ
Acenaphthene	670	--	53	ug/L	0.88 U	0.88 U
Acenaphthylene	--	--	--	ug/L	0.65 U	0.65 U
Acetophenone	--	--	190	ug/L	1 U	1 U
Anthracene	8300	--	180	ug/L	0.57 U	0.57 U
Atrazine	3	3	0.3	ug/L	0.77 U	0.77 U
Benzaldehyde	--	--	19	ug/L	0.86 U	0.86 U
Benzo[a]anthracene	**0.038**	--	0.03	ug/L	0.55 U	0.55 U
Benzo[a]pyrene	**0.038**	0.2	0.025	ug/L	0.16 U	0.16 U
Benzo[b]fluoranthene	**0.038**	--	0.25	ug/L	0.44 U	0.44 U
Benzo[g,h,i]perylene	--	--	--	ug/L	0.75 U	0.75 U
Benzo[k]fluoranthene	**0.038**	--	2.5	ug/L	0.18 U	0.18 U
Bis(2-chloroethoxy)methane	--	--	5.9	ug/L	0.69 U	0.69 U
Bis(2-chloroethyl)ether	0.3	--	0.014	ug/L	0.12 U	0.12 U
Bis(2-ethylhexyl) phthalate	6	6	5.6	ug/L	0.72 U	0.72 U
Butyl benzyl phthalate	1500	--	16	ug/L	0.6 U	0.6 U

Preliminary Under EPA and MDEQ Review

Table A10. Summary of Semi-Volatile Organic Compounds in Surface Water – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSWP-032	CFSWP-033
				Sample Date	11/03/2017	11/03/2017
				Sample Type	N	N
				Sample Fraction	T	T
Parameter	DEQ-7 Human Health Standards	EPA Risk Based Screening Level Drinking water MCL	EPA Risk Based Screening Level Tapwater RSL	Unit		
Caprolactam	--	--	990	ug/L	1.1 U	1.1 U
Carbazole	--	--	--	ug/L	0.85 U	0.85 U
Chrysene	**0.038**	--	25	ug/L	0.67 U	0.67 U
Dibenz(a,h)anthracene	0.038	--	0.025	ug/L	0.09 U	0.09 U
Dibenzofuran	--	--	0.79	ug/L	0.85 U	0.85 U
Diethyl phthalate	17000	--	1500	ug/L	1 U	1 U
Dimethyl phthalate	270000	--	--	ug/L	0.98 U	0.98 U
Di-n-butyl phthalate	2000	--	90	ug/L	0.82 U	0.82 U
Di-n-octyl phthalate	--	--	20	ug/L	0.69 U	0.69 U
Fluoranthene	130	--	80	ug/L	1 J	1.1 J
Fluorene	1100	--	29	ug/L	0.8 U	0.8 U
Hexachlorobenzene	0.0028	1	0.0098	ug/L	0.47 U	0.47 U
Hexachlorobutadiene	4.4	--	0.14	ug/L	0.76 U	0.76 U
Hexachlorocyclopentadiene	40	50	0.041	ug/L	0.61 UJ	0.61 UJ
Hexachloroethane	14	--	0.33	ug/L	0.09 U	0.09 U
Indeno[1,2,3-cd]pyrene	**0.038**	--	0.25	ug/L	0.21 U	0.21 U
Isophorone	350	--	78	ug/L	0.67 U	0.67 U
Naphthalene	100	--	0.17	ug/L	0.8 U	0.8 U
Nitrobenzene	17	--	0.14	ug/L	0.49 U	0.49 U
N-Nitrosodi-n-propylamine	0.05	--	0.011	ug/L	0.83 U	0.83 U
N-Nitrosodiphenylamine	33	--	12	ug/L	0.74 U	0.74 U
Pentachlorophenol	1	1	0.041	ug/L	2.2 U	2.2 U
Phenanthrene	--	--	--	ug/L	0.65 U	0.65 U
Phenol	300	--	580	ug/L	0.8 J	0.41 U
Pyrene	830	--	12	ug/L	0.83 U	0.83 U

Preliminary Under EPA and MDEQ Review

Table A11. Summary of Metals in Surface Water – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSWP-003	CFSWP-003	CFSWP-004	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-019	CFSWP-020	CFSWP-020	CFSWP-026	CFSWP-026
				Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017
				Sample Type	N	N	N	N	N	FD	N	FD	N	N	N	N	N	N
				Sample Fraction	DI	T	DI	T	DI	DI	T	T	DI	T	DI	T	DI	T
Parameter	DEQ-7 Human Health Standards	EPA Risk Based Screening Level Drinking water MCL	EPA Risk Based Screening Level Tapwater RSL	Unit														
Aluminum	--	--	2000	ug/L	18.2 U	800	18.2 U	1180	18.2 U	18.2 U	33.9 J	23.6 J	2360	4330	265	24500	18.2 U	41.1
Antimony	5.6	6	0.78	ug/L	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	**10**	10	0.052	ug/L	0.64 U	0.66 J	0.64 U	0.95 J	0.64 U	0.64 U	0.64 U	0.64 U	1.7 J	1.9 J	0.64 U	4.4	0.64 U	0.64 U
Barium	**1000**	2000	380	ug/L	127	154	191	216	191	200	192	196	527	713	334	**2710**	115	119
Beryllium	4	4	2.5	ug/L	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	1.5	0.24 U	0.24 U
Cadmium	5	5	0.92	ug/L	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	1 J	0.71 U	0.71 U
Calcium	--	--	--	ug/L	33300	32700	59100	58000	61900	63000	59700	61300	147000	200000	58400	506000	28800	27700
Chromium	100	100	--	ug/L	1.3 U	1.3 U	1.3 U	1.6 J	1.3 U	1.3 U	1.3 U	1.3 U	1.5 J	5.9	1.3 U	27.2	1.3 U	1.3 U
Cobalt	--	--	0.6	ug/L	1.3 U	1.3 U	1.3 U	1.7 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	2.6 J	1.3 U	15.5	1.3 U	1.3 U
Copper	1300	1300	80	ug/L	1.4 U	4.3	1.4 U	12.3	1.4 U	1.4 U	1.4 U	1.4 U	33.4	75.9	3.6 J	183	1.4 U	2 J
Cyanide, Free	140	200	0.15	ug/L	12.5	12.5	20.3	21.5	5.3	4.8 J	5.3	4.8 J	2.5 J	2.3 J	4.9 J	1.8 J	1.6 J	2 J
Cyanide, Total	**140**	200	0.15	ug/L	88.3	74.6	328	323	303	300	327	329	2 U	4.3 J	58.8	57.2	22.7	17.8
Iron	--	--	1400	ug/L	56.7 J	1110	150	1620	106 J	99.9 J	188	181	768	2790	139	22500	42.4 U	77.4 J
Lead	**15**	15	15	ug/L	0.38 U	1 J	0.38 U	1.6	0.38 U	0.38 U	0.38 U	0.38 U	5.2	8.3	0.63 J	**35.2**	0.38 U	0.38 U
Magnesium	--	--	--	ug/L	8410	9610	15700	17900	17300	17200	17500	17800	21900	22200	18300	47800	7060	7870
Manganese	--	--	43	ug/L	22.7	44.9	63.7	77.4	2.5 U	2.5 U	2.5 U	2.5 U	56.7	75.8	6.1 J	337	5.4 J	8.7
Mercury	**0.05**	2	0.063	ug/L	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	**0.26**	0.17 U	0.17 U
Nickel	100	--	39	ug/L	1.4 U	1.6 J	1.4 U	2.2 J	1.4 U	1.4 U	1.4 U	1.4 U	4.2	10.7	1.4 U	51.7	1.4 U	1.4 U
Potassium	--	--	--	ug/L	507	696	974	1200	1040	1040	973	1000	9310	9100 J+	849	3570 J+	415	439
Selenium	50	50	10	ug/L	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	1 J	0.73 U	2 J	0.73 U	0.73 U
Silver	100	--	9.4	ug/L	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	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	--	--	--	ug/L	8780	8210	32700	34900	34900	36800	37200	37700	49000	45900	6810	7010	169000	3650
Thallium	**0.24**	2	0.02	ug/L	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	**0.33 J**	0.26 U	0.26 U
Vanadium	--	--	8.6	ug/L	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	3.6 J	1.9 U	24.8	1.9 U	1.9 U
Zinc	2000	--	600	ug/L	7 U	9.3 J	7 U	19.1	7 U	7 U	7 U	7 U	58.8	86.3	7 U	179	7 U	8.5 J

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Table A11. Summary of Metals in Surface Water – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSWP-027	CFSWP-027	CFSWP-028	CFSWP-028	CFSWP-029	CFSWP-029	CFSWP-030	CFSWP-030	CFSWP-031	CFSWP-031	CFSWP-032	CFSWP-032	CFSWP-033	CFSWP-033
				Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N
				Sample Fraction	DI	T	DI	T	DI	T	DI	T	DI	T	DI	T	DI	T
Parameter	DEQ-7 Human Health Standards	EPA Risk Based Screening Level Drinking water MCL	EPA Risk Based Screening Level Tapwater RSL	Unit														
Aluminum	--	--	2000	ug/L	18.2 U	154	18.2 U	617	18.2 U	383	245	11800	614	888	586	32000	50.4	5090
Antimony	5.6	6	0.78	ug/L	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	**10**	10	0.052	ug/L	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.72 J	4.6	5.5	5.6	3.9	18.5	1 J	4.4
Barium	**1000**	2000	380	ug/L	115	123	114	134	174	182	130	347	401	424	333	**1230**	340	466
Beryllium	4	4	2.5	ug/L	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.62 J	0.24 U	0.24 U	0.24 U	2	0.24 U	0.27 J
Cadmium	5	5	0.92	ug/L	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	0.9 J	0.71 U	0.71 U
Calcium	--	--	--	ug/L	27900	29400	28300	29800	65700	64900	39400	72800	82100	86800	64600	219000	66500	78300
Chromium	100	100	--	ug/L	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	13.1	1.3 U	1.3 U	1.3 U	36.4	1.3 U	5.5
Cobalt	--	--	0.6	ug/L	1.3 U	1.3 U	1.3 U	1.3 U	1.4 J	1.7 J	1.3 U	8.8	1.8 J	2.4 J	1.5 J	22.7	1.3 U	3.9 J
Copper	1300	1300	80	ug/L	1.4 U	1.4 U	1.4 U	1.9 J	1.4 U	1.4 U	1.8 J	24.7	1.4 J	3.1 J	1.6 J	67.7	1.4 U	13.8
Cyanide, Free	140	200	0.15	ug/L	2.6 J	3.2 J	5.7	6.1	63.5	65.1	26.1	26.1	1.8 J	3.4 J	2.2 J	4.4 J	3.4 J	3.4 J
Cyanide, Total	**140**	200	0.15	ug/L	23.2	25.7	27.3	24.1	245	253	104	113	9.9 J	13.7	26.6	98.6	91.4	95.8
Iron	--	--	1400	ug/L	42.4 U	224	42.4 U	875	74.7 J	655	296	15900	10200	13000	2160	52100	1250	11100
Lead	**15**	15	15	ug/L	0.38 U	0.38 U	0.38 U	0.74 J	0.38 U	0.41 J	0.49 J	12.5	0.8 J	0.88 J	1.1 J	38.5	0.38 U	5.6
Magnesium	--	--	--	ug/L	6970	8490	6980	8620	17100	18200	15200	31500	21800	27100	19300	63900	15400	22100
Manganese	--	--	43	ug/L	6 J	13.4	7.3 J	31	367	405	22.7	321	2420	2570	583	1450	675	869
Mercury	**0.05**	2	0.063	ug/L	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	**0.19 J**	0.17 U	0.17 U
Nickel	100	--	39	ug/L	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	16.8	2.2 J	3.1 J	1.6 J	47	1.4 U	7.6
Potassium	--	--	--	ug/L	393	453	406	561	1110	1150	2500	4240	4750	4800	4240	7320	1840	2650
Selenium	50	50	10	ug/L	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	0.96 J	0.73 U	0.73 U
Silver	100	--	9.4	ug/L	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	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	--	--	--	ug/L	3460	5460	25500	4420	35800	37200	39900	45600	24600	30000	31300	29500	23200	25300
Thallium	**0.24**	2	0.02	ug/L	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	**0.32 J**	0.26 U	0.26 U
Vanadium	--	--	8.6	ug/L	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	17.2	1.9 U	1.9 U	1.9 U	46.8	1.9 U	7.9
Zinc	2000	--	600	ug/L	7 U	12.6 J	7 U	8.1 J	7 U	8.1 J	8.3 J	76.3	13.5 J	16.5	7 U	192	7 U	36.2

Preliminary - Under EPA and DEQ Review

Table A12. Summary of General Chemistry in Surface Water – Human Health Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

				Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031	CFSWP-032	CFSWP-033
				Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
				Sample Type	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
				Sample Fraction	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Parameter	DEQ-7 Human Health Standards	EPA Risk Based Screening Level Drinking water MCL	EPA Risk Based Screening Level Tapwater RSL	Unit														
Alkalinity	--	--	--	ug/L	128000	259000	259000	259000	335000	276000	104000	104000	105000	259000	228000	339000	288000	281000
Ammonia	--	--	--	ug/L	72 U	72 U	72 U	72 U	8550	207	72 U	80.8 J	72 U	72 U	511	345	448	218
Chloride	--	--	--	ug/L	885	2620	2540 J+	2580 J+	25900 J-	1630 J-	570	601	596	2590 J+	4140	4150	5330	3960
Fluoride	**4000**	4000	80	ug/L	646	2470	2440 J+	2640 J+	**9240 J-**	418 J-	308	320	311	2400 J+	2580	3420	2720	2160
Hardness as calcium carbonate	--	--	--	ug/L	125000	222000	222000	222000	535000	1740000	107000	101000	103000	230000	176000	329000	257000	238000
Nitrate Nitrite as N	10000	10000	--	ug/L	396	1940	2210	2230	100 U	306	182	202	522	1870	1160	100 U	100 U	100 U
Orthophosphate as P	--	--	--	ug/L	62 U	62 U	62 U	62 U	62 UJ	62 UJ	62 U	62 U	62 U	62 U	NA	NA	NA	NA
Sulfate	--	--	--	ug/L	7840	20000	19700 J+	19600 J+	19900 J-	6460 J-	5150	5360	5420	25800 J+	29000	12200	19900	11900

Preliminary - Under EPA and MDEQ Review

Table A13. Summary of Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-134	CFSB-135	CFSB-136	CFSB-137	CFSB-138	CFSB-138	CFSB-139	CFSB-140	CFSB-141
			Sample Date	10/31/2017	10/31/2017	10/31/2017	11/02/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	11/02/2017
			Depth Range	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2
			Sample Type	N	N	N	N	N	FD	N	N	N
Parameter	Minimum ESV	ESV Source	Unit									
1,1,1-Trichloroethane	29.8	F	mg/kg	0.00028 U	0.00033 U	0.00033 U	0.0004 U	0.0004 U	0.00051 U	0.00029 U	0.00034 U	0.00029 U
1,1,2,2-Tetrachloroethane	225	F	mg/kg	0.00026 U	0.0003 U	0.0003 U	0.00037 U	0.00037 U	0.00047 U	0.00027 U	0.00031 U	0.00027 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	mg/kg	0.00036 U	0.00042 U	0.00042 U	0.00052 U	0.00051 U	0.00066 U	0.00038 U	0.00043 U	0.00037 U
1,1,2-Trichloroethane	28.6	F	mg/kg	0.00021 U	0.00025 U	0.00025 U	0.00031 U	0.0003 U	0.00039 U	0.00022 U	0.00026 U	0.00022 U
1,1-Dichloroethane	20.1	F	mg/kg	0.00025 U	0.00029 U	0.00029 U	0.00036 U	0.00035 U	0.00045 U	0.00026 U	0.0003 U	0.00026 U
1,1-Dichloroethene	8.28	F	mg/kg	0.00027 U	0.00032 U	0.00032 U	0.00039 U	0.00038 U	0.00049 U	0.00028 U	0.00032 U	0.00028 U
1,2,3-Trichlorobenzene	11.1	F	mg/kg	0.00022 U	0.00026 U	0.00025 U	0.00031 U	0.00031 U	0.0004 U	0.00023 U	0.00026 U	0.00022 U
1,2,4-Trichlorobenzene	0.27	A	mg/kg	0.00011 U	0.00013 U	0.00013 U	0.00016 U	0.00016 U	0.0002 U	0.00012 U	0.00013 U	0.00011 U
1,2-Dibromo-3-Chloropropane	0.0352	F	mg/kg	0.00055 U	0.00065 U	0.00065 U	0.0008 U	0.00079 U	0.001 U	0.00058 U	0.00066 U	0.00057 U
1,2-Dichlorobenzene	0.92	A	mg/kg	0.00017 U	0.0002 U	0.0002 U	0.00025 U	0.00025 U	0.00031 U	0.00018 U	0.00021 U	0.00018 U
1,2-Dichloroethane	0.85	A	mg/kg	0.00036 U	0.00042 U	0.00042 U	0.00051 U	0.00051 U	0.00065 U	0.00037 U	0.00043 U	0.00037 U
1,2-Dichloropropane	32.7	F	mg/kg	0.00051 U	0.0006 U	0.0006 U	0.00073 U	0.00072 U	0.00093 U	0.00053 U	0.00061 U	0.00052 U
1,3-Dichlorobenzene	0.73	A	mg/kg	0.00019 U	0.00022 U	0.00022 U	0.00028 U	0.00027 U	0.00035 U	0.0002 U	0.00023 U	0.0002 U
1,4-Dichlorobenzene	0.88	A	mg/kg	0.00012 U	0.00014 U	0.00014 U	0.00017 U	0.00017 U	0.00022 U	0.00013 U	0.00014 U	0.00012 U
2-Butanone (MEK)	360	A	mg/kg	0.0037 J	0.0041 J	0.0043 J	0.006 J+	0.013	0.0096 J	0.0041 J	0.0043 J	0.0046 J
2-Hexanone	0.36	A	mg/kg	0.00094 U	0.0011 U	0.0011 U	0.0014 U	0.0013 U	0.0017 U	0.00098 U	0.0011 U	0.00097 U
4-Methyl-2-pentanone (MIBK)	9.8	A	mg/kg	0.0008 U	0.00094 U	0.00093 U	0.0012 U	0.0011 U	0.0015 U	0.00083 U	0.00096 U	0.00082 U
Acetone	1.2	A	mg/kg	0.034	0.03	0.047	0.05	0.083	0.056	0.044	0.043	0.041
Benzene	0.255	F	mg/kg	0.0017	0.0019	0.00085 J	0.0017	0.00076 J	0.00084 J	0.0013	0.0016	0.0018
Bromoform	15.9	F	mg/kg	0.00051 U	0.0006 U	0.0006 U	0.00074 U	0.00073 U	0.00093 U	0.00053 U	0.00061 U	0.00053 U
Bromomethane	--	--	mg/kg	0.00057 U	0.00067 U	0.00067 U	0.00082 U	0.00081 U	0.001 U	0.00059 U	0.00068 U	0.00059 U
Carbon disulfide	0.0941	F	mg/kg	0.0011 J	0.0011 J	0.00054 J	0.00095 J	0.00046 U	0.00058 U	0.002	0.0023	0.0018
Carbon tetrachloride	2.98	F	mg/kg	0.00022 U	0.00026 U	0.00025 U	0.00031 U	0.00031 U	0.0004 U	0.00023 U	0.00026 U	0.00022 U
Chlorobenzene	2.4	A	mg/kg	0.00021 U	0.00025 U	0.00025 U	0.00031 U	0.0003 U	0.00039 U	0.00022 U	0.00026 U	0.00022 U
Chlorobromomethane	--	--	mg/kg	0.00034 U	0.0004 U	0.0004 U	0.00049 U	0.00048 U	0.00061 U	0.00035 U	0.00041 U	0.00035 U
Chlorodibromomethane	2.05	F	mg/kg	0.00023 U	0.00027 U	0.00027 U	0.00034 U	0.00033 U	0.00042 U	0.00024 U	0.00028 U	0.00024 U
Chloroethane	--	--	mg/kg	0.00063 U	0.00074 U	0.00073 U	0.00091 U	0.00089 U	0.0011 U	0.00065 U	0.00075 U	0.00065 U
Chloroform	1.19	F	mg/kg	0.00038 U	0.00045 U	0.00045 U	0.00055 U	0.00055 U	0.0007 U	0.0004 U	0.00046 U	0.0004 U
Chloromethane	--	--	mg/kg	0.00052 UJ	0.00061 UJ	0.00061 UJ	0.00076 U	0.00074 UJ	0.00095 UJ	0.00055 UJ	0.00063 UJ	0.00054 U
cis-1,2-Dichloroethene	23	A	mg/kg	0.00018 U	0.00021 U	0.00021 U	0.00026 U	0.00026 U	0.00033 U	0.00019 U	0.00022 U	0.00019 U
cis-1,3-Dichloropropene	0.398	F	mg/kg	0.00033 U	0.00038 U	0.00038 U	0.00047 U	0.00047 U	0.0006 U	0.00034 U	0.00039 U	0.00034 U
Cyclohexane	--	--	mg/kg	0.003	0.0025	0.00051 J	0.0031	0.00088 J	0.0013 J	0.0018	0.0023	0.0026
Dichlorobromomethane	0.54	F	mg/kg	0.00031 U	0.00036 U	0.00036 U	0.00045 U	0.00044 U	0.00056 U	0.00032 U	0.00037 U	0.00032 U
Dichlorodifluoromethane	39.5	F	mg/kg	0.00041 U	0.00048 U	0.00048 U	0.00059 U	0.00058 U	0.00074 U	0.00042 U	0.00049 U	0.00042 U
Ethylbenzene	5.16	F	mg/kg	0.00047 J	0.0006 J	0.0004 J	0.0005 J	0.00034 U	0.00044 U	0.00038 J	0.0005 J	0.00054 J
Ethylene Dibromide	1.23	F	mg/kg	0.00022 U	0.00025 U	0.00025 U	0.00031 U	0.00031 U	0.00039 U	0.00023 U	0.00026 U	0.00022 U
Isopropylbenzene	--	--	mg/kg	0.00015 U	0.00018 U	0.00018 U	0.00022 U	0.00022 U	0.00028 U	0.00016 U	0.00018 U	0.00016 U
Methyl acetate	--	--	mg/kg	0.0052 U	0.0061 U	0.011	0.0075 U	0.6 J	0.0094 UJ	0.0054 U	0.0062 U	0.0053 U
Methyl tert-butyl ether	--	--	mg/kg	0.00015 U	0.00018 U	0.00018 U	0.00022 U	0.00021 U	0.00027 U	0.00016 U	0.00018 U	0.00016 U
Methylcyclohexane	--	--	mg/kg	0.0054	0.0049	0.0012 J	0.0048	0.0018	0.0023	0.0037	0.0043	0.0052
Methylene Chloride	2.6	A	mg/kg	0.0002 U	0.00023 U	0.0027	0.00028 U	0.00045 J	0.00036 U	0.0002 U	0.00031 J	0.0002 U
m-Xylene & p-Xylene	--	--	mg/kg	0.0013	0.0019	0.0012 J	0.0013 J	0.0006 J	0.00077 J	0.0009 J	0.0012 J	0.0012
o-Xylene	--	--	mg/kg	0.00037 J	0.00058 J	0.00038 J	0.00041 J	0.00021 J	0.00021 U	0.00028 J	0.00038 J	0.00039 J
Styrene	1.2	A	mg/kg	0.00015 U	0.00017 U	0.00017 U	0.00021 U	0.00021 U	0.00027 U	0.00015 U	0.00018 U	0.00015 U
Tetrachloroethene	0.18	A	mg/kg	0.00017 U	0.0002 U	0.0002 U	0.00025 U	0.0004 J	0.00031 U	0.00018 U	0.00021 U	0.00018 U
Toluene	5.45	F	mg/kg	0.0029	0.004	0.0023	0.0029	0.0012 J	0.0016 J	0.0023	0.0033	0.003

Preliminary - Under EPA and MDEQ Review

Table A13. Summary of Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-134	CFSB-135	CFSB-136	CFSB-137	CFSB-138	CFSB-138	CFSB-139	CFSB-140	CFSB-141
			Sample Date	10/31/2017	10/31/2017	10/31/2017	11/02/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	11/02/2017
			Depth Range	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2	0.5 - 2
			Sample Type	N	N	N	N	N	FD	N	N	N
Parameter	Minimum ESV	ESV Source	Unit									
trans-1,2-Dichloroethene	23	A	mg/kg	0.0003 U	0.00035 U	0.00035 U	0.00043 U	0.00042 U	0.00054 U	0.00031 U	0.00036 U	0.00031 U
trans-1,3-Dichloropropene	0.398	F	mg/kg	0.00032 U	0.00037 U	0.00037 U	0.00046 U	0.00046 U	0.00058 U	0.00033 U	0.00038 U	0.00033 U
Trichloroethene	1.387	B	mg/kg	0.00017 U	0.0002 U	0.0002 U	0.00025 U	0.00025 U	0.00031 U	0.00018 U	0.00021 U	0.00018 U
Trichlorofluoromethane	16.4	F	mg/kg	0.00049 U	0.00057 U	0.00057 U	0.00071 U	0.00069 U	0.00089 U	0.00051 U	0.00059 U	0.0005 U
Vinyl chloride	0.12	A	mg/kg	0.00066 U	0.00077 U	0.00077 U	0.00095 U	0.00093 U	0.0012 U	0.00068 U	0.00079 U	0.00068 U

Preliminary - Under EPA and MDEQ Review

Table A13. Summary of Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-146
			Sample Date	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017
			Depth Range	0.5 - 2	2 - 4	0.5 - 2	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2
			Sample Type	N	N	N	FD	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit										
1,1,1-Trichloroethane	29.8	F	mg/kg	0.00023 U	0.00023 U	0.00029 U	0.00028 U	0.00021 U	0.00025 U	0.0003 U	0.00027 U	0.00024 U	0.00022 U
1,1,2,2-Tetrachloroethane	225	F	mg/kg	0.00021 U	0.00021 U	0.00026 U	0.00026 U	0.00019 U	0.00023 U	0.00028 U	0.00024 U	0.00022 U	0.0002 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	mg/kg	0.00029 U	0.0003 U	0.00037 U	0.00036 U	0.00027 U	0.00033 U	0.00039 U	0.00034 U	0.00031 U	0.00028 U
1,1,2-Trichloroethane	28.6	F	mg/kg	0.00017 U	0.00018 U	0.00022 U	0.00022 U	0.00016 U	0.00019 U	0.00023 U	0.0002 U	0.00019 U	0.00017 U
1,1-Dichloroethane	20.1	F	mg/kg	0.0002 U	0.00021 U	0.00025 U	0.00025 U	0.00018 U	0.00022 U	0.00027 U	0.00023 U	0.00022 U	0.00019 U
1,1-Dichloroethene	8.28	F	mg/kg	0.00022 U	0.00022 U	0.00028 U	0.00027 U	0.0002 U	0.00024 U	0.00029 U	0.00026 U	0.00023 U	0.00021 U
1,2,3-Trichlorobenzene	11.1	F	mg/kg	0.00018 U	0.00018 U	0.00022 U	0.00022 U	0.00016 UJ	0.0002 U	0.00023 UJ	0.00021 U	0.00019 U	0.00017 U
1,2,4-Trichlorobenzene	0.27	A	mg/kg	9E-05 U	9.2E-05 U	0.00011 U	0.00011 U	8.2E-05 UJ	0.0001 U	0.00012 UJ	0.0001 U	9.6E-05 U	8.6E-05 U
1,2-Dibromo-3-Chloropropane	0.0352	F	mg/kg	0.00045 U	0.00046 U	0.00057 U	0.00056 U	0.00041 U	0.0005 U	0.00059 U	0.00052 U	0.00048 U	0.00043 U
1,2-Dichlorobenzene	0.92	A	mg/kg	0.00014 U	0.00014 U	0.00018 U	0.00017 U	0.00013 UJ	0.00016 U	0.00019 UJ	0.00016 U	0.00015 U	0.00014 U
1,2-Dichloroethane	0.85	A	mg/kg	0.00029 U	0.0003 U	0.00037 U	0.00036 U	0.00026 U	0.00032 U	0.00038 U	0.00034 U	0.00031 U	0.00028 U
1,2-Dichloropropane	32.7	F	mg/kg	0.00041 U	0.00042 U	0.00052 U	0.00051 U	0.00038 U	0.00046 U	0.00054 U	0.00048 U	0.00044 U	0.0004 U
1,3-Dichlorobenzene	0.73	A	mg/kg	0.00016 U	0.00016 U	0.0002 U	0.00019 U	0.00014 UJ	0.00017 U	0.0002 UJ	0.00018 U	0.00017 U	0.00015 U
1,4-Dichlorobenzene	0.88	A	mg/kg	9.8E-05 U	0.0001 U	0.00012 U	0.00012 U	8.9E-05 UJ	0.00011 U	0.00013 UJ	0.00011 U	0.0001 U	9.4E-05 U
2-Butanone (MEK)	360	A	mg/kg	0.0046 J	0.0031 J+	0.0062 J	0.0035 J	0.0038 J	0.0044 J	0.0036 J	0.0059	0.0039 J	0.0038 J
2-Hexanone	0.36	A	mg/kg	0.00076 U	0.00078 U	0.00096 U	0.00094 U	0.0007 U	0.00085 U	0.001 U	0.00089 U	0.00081 U	0.00073 U
4-Methyl-2-pentanone (MIBK)	9.8	A	mg/kg	0.00065 U	0.00066 U	0.00082 U	0.0008 U	0.00059 U	0.00072 U	0.00086 U	0.00076 U	0.00069 U	0.00062 U
Acetone	1.2	A	mg/kg	0.035	0.027	0.062 J	0.027 J	0.035 J-	0.042	0.024 J-	0.076	0.045	0.045
Benzene	0.255	F	mg/kg	0.00071 J	0.00069 J	0.0022 J	0.0013 J	0.00084 J	0.0014	0.0015	0.0012	0.002	0.00061 J
Bromoform	15.9	F	mg/kg	0.00042 U	0.00042 U	0.00052 U	0.00051 U	0.00038 U	0.00046 U	0.00055 U	0.00048 U	0.00044 U	0.0004 U
Bromomethane	--	--	mg/kg	0.00046 U	0.00047 U	0.00058 U	0.00057 U	0.00042 U	0.00052 U	0.00061 U	0.00054 U	0.00049 U	0.00045 U
Carbon disulfide	0.0941	F	mg/kg	0.00036 J	0.00027 U	0.0028 J	0.0013 J	0.00095	0.00032 J	0.00034 U	0.0011	0.0014	0.00065 J
Carbon tetrachloride	2.98	F	mg/kg	0.00018 U	0.00018 U	0.00022 U	0.00022 U	0.00016 U	0.0002 U	0.00023 U	0.00021 U	0.00019 U	0.00017 U
Chlorobenzene	2.4	A	mg/kg	0.00017 U	0.00018 U	0.00022 U	0.00021 U	0.00016 U	0.00019 U	0.00023 UJ	0.0002 U	0.00018 U	0.00017 U
Chlorobromomethane	--	--	mg/kg	0.00027 U	0.00028 U	0.00035 U	0.00034 U	0.00025 U	0.00031 U	0.00036 U	0.00032 U	0.00029 U	0.00026 U
Chlorodibromomethane	2.05	F	mg/kg	0.00019 U	0.00019 U	0.00024 U	0.00023 U	0.00017 U	0.00021 U	0.00025 U	0.00022 U	0.0002 U	0.00018 U
Chloroethane	--	--	mg/kg	0.00051 U	0.00052 U	0.00064 U	0.00063 U	0.00047 U	0.00057 U	0.00067 U	0.00059 U	0.00055 U	0.00049 U
Chloroform	1.19	F	mg/kg	0.00031 U	0.00032 U	0.00039 U	0.00039 U	0.00028 U	0.00035 U	0.00041 U	0.00036 U	0.00033 U	0.0003 U
Chloromethane	--	--	mg/kg	0.00043 U	0.00043 U	0.00054 U	0.00053 U	0.00039 U	0.00047 U	0.00056 U	0.0005 U	0.00045 U	0.00041 U
cis-1,2-Dichloroethene	23	A	mg/kg	0.00015 U	0.00015 U	0.00019 U	0.00018 U	0.00014 U	0.00017 U	0.0002 U	0.00017 U	0.00016 U	0.00014 U
cis-1,3-Dichloropropene	0.398	F	mg/kg	0.00027 U	0.00027 U	0.00034 U	0.00033 U	0.00024 U	0.0003 U	0.00035 U	0.00031 U	0.00029 U	0.00026 U
Cyclohexane	--	--	mg/kg	0.00086 J	0.00086 J	0.0042 J	0.0025 J	0.0012	0.0019	0.0025	0.0026	0.0042	0.00047 J
Dichlorobromomethane	0.54	F	mg/kg	0.00025 U	0.00026 U	0.00032 U	0.00031 U	0.00023 U	0.00028 U	0.00033 U	0.00029 U	0.00027 U	0.00024 U
Dichlorodifluoromethane	39.5	F	mg/kg	0.00033 U	0.00034 U	0.00042 U	0.00041 U	0.0003 U	0.00037 U	0.00044 U	0.00038 U	0.00035 U	0.00032 U
Ethylbenzene	5.16	F	mg/kg	0.00019 U	0.00026 J	0.00062 J	0.00037 J	0.00033 J	0.00037 J	0.00026 UJ	0.00056 J	0.00089 J	0.00019 U
Ethylene Dibromide	1.23	F	mg/kg	0.00018 U	0.00018 U	0.00022 U	0.00022 U	0.00016 U	0.0002 U	0.00023 U	0.0002 U	0.00019 U	0.00017 U
Isopropylbenzene	--	--	mg/kg	0.00012 U	0.00013 U	0.00016 U	0.00015 U	0.00011 U	0.00014 U	0.00016 UJ	0.00014 U	0.00013 U	0.00012 U
Methyl acetate	--	--	mg/kg	0.0042 U	0.0043 U	0.0053 U	0.0052 U	0.0038 U	0.0047 U	0.048 J-	0.0049 U	0.0045 U	0.004 U
Methyl tert-butyl ether	--	--	mg/kg	0.00012 U	0.00012 U	0.00015 U	0.00015 U	0.00011 U	0.00014 U	0.00016 U	0.00014 U	0.00013 U	0.00012 U
Methylcyclohexane	--	--	mg/kg	0.0016	0.0017	0.0076 J	0.0043 J	0.0022	0.0034	0.004 J-	0.0051	0.0087	0.00088 J
Methylene Chloride	2.6	A	mg/kg	0.00016 U	0.00016 U	0.0002 U	0.0002 U	0.00015 U	0.00018 U	0.00021 U	0.00019 U	0.00017 U	0.00015 U
m-Xylene & p-Xylene	--	--	mg/kg	0.00071 J	0.00079 J	0.0018 J	0.00092 J	0.001	0.001 J	0.00098 J-	0.0015	0.0025	0.00031 J
o-Xylene	--	--	mg/kg	0.00025 J	0.00026 J	0.00063 J	0.00031 J	0.00038 J	0.00034 J	0.00032 J-	0.00046 J	0.00082 J	0.00011 J
Styrene	1.2	A	mg/kg	0.00012 U	0.00012 U	0.00015 U	0.00015 U	0.00011 U	0.00013 U	0.00016 UJ	0.00014 U	0.00013 U	0.00012 U
Tetrachloroethene	0.18	A	mg/kg	0.00014 U	0.00014 U	0.00018 U	0.00017 U	0.00013 U	0.00016 U	0.00018 U	0.00016 U	0.00015 U	0.00013 U
Toluene	5.45	F	mg/kg	0.0014	0.0016	0.004 J	0.0023 J	0.0018	0.0024	0.0022	0.0031	0.005	0.0013

Preliminary - Under EPA and MDEQ Review

Table A13. Summary of Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-146
			Sample Date	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017
			Depth Range	0.5 - 2	2 - 4	0.5 - 2	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2
			Sample Type	N	N	N	FD	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit										
trans-1,2-Dichloroethene	23	A	mg/kg	0.00024 U	0.00025 U	0.0003 U	0.0003 U	0.00022 U	0.00027 U	0.00032 U	0.00028 U	0.00026 U	0.00023 U
trans-1,3-Dichloropropene	0.398	F	mg/kg	0.00026 U	0.00027 U	0.00033 U	0.00032 U	0.00024 U	0.00029 U	0.00034 U	0.0003 U	0.00028 U	0.00025 U
Trichloroethene	1.387	B	mg/kg	0.00014 U	0.00014 U	0.00018 U	0.00017 U	0.00013 U	0.00016 U	0.00019 U	0.00016 U	0.00015 U	0.00014 U
Trichlorofluoromethane	16.4	F	mg/kg	0.0004 U	0.00041 U	0.0005 U	0.00049 U	0.00036 U	0.00044 U	0.00052 U	0.00046 U	0.00042 U	0.00038 U
Vinyl chloride	0.12	A	mg/kg	0.00053 U	0.00054 U	0.00067 U	0.00066 U	0.00049 U	0.00059 U	0.0007 U	0.00062 U	0.00057 U	0.00051 U

Preliminary - Under EPA and MDEQ Review

Table A13. Summary of Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-146	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-151	CFSB-152	CFSB-153
			Sample Date	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017	11/07/2017	11/06/2017
			Depth Range	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	0.5 - 2	0.5 - 2
			Sample Type	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit								
1,1,1-Trichloroethane	29.8	F	mg/kg	0.00022 U	0.00024 U	0.00024 U	0.00025 U	0.00027 U	0.00021 U	0.00026 U	0.00036 U
1,1,2,2-Tetrachloroethane	225	F	mg/kg	0.0002 U	0.00022 U	0.00022 U	0.00023 U	0.00025 U	0.0002 U	0.00024 U	0.00033 UJ
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	mg/kg	0.00028 U	0.00031 U	0.00031 U	0.00033 U	0.00035 U	0.00028 U	0.00034 U	0.00046 U
1,1,2-Trichloroethane	28.6	F	mg/kg	0.00017 U	0.00018 U	0.00019 U	0.00019 U	0.0002 U	0.00016 U	0.0002 U	0.00027 U
1,1-Dichloroethane	20.1	F	mg/kg	0.00019 U	0.00021 U	0.00022 U	0.00022 U	0.00024 U	0.00019 U	0.00023 U	0.00031 U
1,1-Dichloroethene	8.28	F	mg/kg	0.00021 U	0.00023 U	0.00024 U	0.00024 U	0.00026 U	0.00021 U	0.00025 U	0.00034 U
1,2,3-Trichlorobenzene	11.1	F	mg/kg	0.00017 U	0.00018 U	0.00019 U	0.0002 U	0.00021 U	0.00017 U	0.0002 U	0.00028 UJ
1,2,4-Trichlorobenzene	0.27	A	mg/kg	8.6E-05 U	9.4E-05 U	9.6E-05 U	0.0001 U	0.00011 U	8.4E-05 U	0.0001 U	0.00014 UJ
1,2-Dibromo-3-Chloropropane	0.0352	F	mg/kg	0.00043 U	0.00047 U	0.00048 U	0.0005 U	0.00053 U	0.00042 UJ	0.00052 UJ	0.0007 UJ
1,2-Dichlorobenzene	0.92	A	mg/kg	0.00013 U	0.00015 U	0.00015 U	0.00016 U	0.00017 U	0.00013 U	0.00016 U	0.00022 UJ
1,2-Dichloroethane	0.85	A	mg/kg	0.00028 U	0.0003 U	0.00031 U	0.00032 U	0.00034 U	0.00027 U	0.00033 U	0.00045 U
1,2-Dichloropropane	32.7	F	mg/kg	0.00039 U	0.00043 U	0.00044 U	0.00046 U	0.00049 U	0.00039 U	0.00048 U	0.00064 U
1,3-Dichlorobenzene	0.73	A	mg/kg	0.00015 U	0.00016 U	0.00017 U	0.00017 U	0.00018 U	0.00015 U	0.00018 U	0.00024 UJ
1,4-Dichlorobenzene	0.88	A	mg/kg	9.3E-05 U	0.0001 U	0.0001 U	0.00011 U	0.00011 U	9.2E-05 U	0.00011 U	0.00074 J+
2-Butanone (MEK)	360	A	mg/kg	0.0043 J	0.0037 J	0.004 J	0.004 J	0.0026 J	0.0061	0.0077	0.0094
2-Hexanone	0.36	A	mg/kg	0.00072 U	0.00079 U	0.00082 U	0.00084 U	0.0009 U	0.00071 U	0.00088 U	0.0012 U
4-Methyl-2-pentanone (MIBK)	9.8	A	mg/kg	0.00062 U	0.00068 U	0.00069 U	0.00072 U	0.00076 U	0.00061 U	0.00075 U	0.001 U
Acetone	1.2	A	mg/kg	0.044	0.038	0.037	0.037	0.021	0.036	0.059	0.063
Benzene	0.255	F	mg/kg	0.00058 J	0.0022	0.0023	0.0022	0.0038	0.0005 J	0.00031 J	0.0011 J
Bromoform	15.9	F	mg/kg	0.00039 U	0.00043 U	0.00044 U	0.00046 U	0.00049 U	0.00039 U	0.00048 U	0.00065 U
Bromomethane	--	--	mg/kg	0.00044 U	0.00048 U	0.0005 U	0.00051 U	0.00054 U	0.00043 U	0.00053 U	0.00072 U
Carbon disulfide	0.0941	F	mg/kg	0.00037 J	0.0015	0.0013	0.0038	0.0012	0.014	0.0021	0.0034
Carbon tetrachloride	2.98	F	mg/kg	0.00017 U	0.00018 U	0.00019 U	0.0002 U	0.00021 U	0.00017 U	0.0002 U	0.00028 U
Chlorobenzene	2.4	A	mg/kg	0.00016 U	0.00018 U	0.00019 U	0.00019 U	0.0002 U	0.00016 U	0.0002 U	0.00027 U
Chlorobromomethane	--	--	mg/kg	0.00026 U	0.00029 U	0.00029 U	0.0003 U	0.00032 U	0.00026 U	0.00032 U	0.00043 U
Chlorodibromomethane	2.05	F	mg/kg	0.00018 U	0.0002 U	0.0002 U	0.00021 U	0.00022 U	0.00018 U	0.00022 U	0.0003 U
Chloroethane	--	--	mg/kg	0.00049 U	0.00053 U	0.00055 U	0.00056 U	0.0006 U	0.00048 U	0.00059 U	0.0008 U
Chloroform	1.19	F	mg/kg	0.0003 U	0.00032 U	0.00033 U	0.00035 U	0.00037 U	0.00029 U	0.00036 U	0.00049 U
Chloromethane	--	--	mg/kg	0.0004 U	0.00044 U	0.00045 U	0.00047 U	0.0005 U	0.0004 U	0.00049 U	0.00066 U
cis-1,2-Dichloroethene	23	A	mg/kg	0.00014 U	0.00015 U	0.00016 U	0.00016 U	0.00017 U	0.00014 U	0.00017 U	0.00023 U
cis-1,3-Dichloropropene	0.398	F	mg/kg	0.00025 U	0.00028 U	0.00029 U	0.0003 U	0.00031 U	0.00025 UJ	0.00031 UJ	0.00042 U
Cyclohexane	--	--	mg/kg	0.00046 J	0.0039	0.005	0.005	0.0052	0.00066 J	0.00025 U	0.00085 J
Dichlorobromomethane	0.54	F	mg/kg	0.00024 U	0.00026 U	0.00027 U	0.00028 U	0.0003 U	0.00024 U	0.00029 U	0.00039 U
Dichlorodifluoromethane	39.5	F	mg/kg	0.00031 U	0.00034 U	0.00035 U	0.00037 U	0.00039 U	0.00031 U	0.00038 U	0.00052 U
Ethylbenzene	5.16	F	mg/kg	0.00018 U	0.00092 J	0.0014	0.0011	0.0012	0.00019 J	0.00022 U	0.00041 J
Ethylene Dibromide	1.23	F	mg/kg	0.00017 U	0.00018 U	0.00019 U	0.00019 U	0.00021 U	0.00016 U	0.0002 U	0.00027 U
Isopropylbenzene	--	--	mg/kg	0.00012 U	0.00013 U	0.00016 J	0.00014 U	0.00014 U	0.00012 U	0.00014 U	0.00019 U
Methyl acetate	--	--	mg/kg	0.004 U	0.0044 U	0.0045 U	0.0047 U	0.0049 U	0.0039 UJ	0.0048 UJ	0.0066 U
Methyl tert-butyl ether	--	--	mg/kg	0.00012 U	0.00013 U	0.00013 U	0.00014 U	0.00014 U	0.00011 U	0.00014 U	0.00019 U
Methylcyclohexane	--	--	mg/kg	0.00084 J	0.0083	0.011	0.011	0.01	0.0012	0.00027 J	0.0013 J
Methylene Chloride	2.6	A	mg/kg	0.00015 U	0.00017 U	0.00017 U	0.00018 U	0.00019 U	0.00015 U	0.00018 U	0.00025 U
m-Xylene & p-Xylene	--	--	mg/kg	0.00025 J	0.0023	0.0037	0.0028	0.0028	0.00049 J	0.00025 J	0.00095 J
o-Xylene	--	--	mg/kg	8.8E-05 U	0.00077 J	0.0012	0.00083 J	0.0009 J	0.00014 J	0.00011 U	0.00035 J
Styrene	1.2	A	mg/kg	0.00011 U	0.00013 U	0.00013 U	0.00013 U	0.00014 U	0.00011 U	0.00014 U	0.00019 U
Tetrachloroethene	0.18	A	mg/kg	0.00013 U	0.00015 U	0.00015 U	0.00015 U	0.00016 U	0.00013 U	0.00016 U	0.00022 U
Toluene	5.45	F	mg/kg	0.00099	0.005	0.0073	0.006	0.0068	0.00099	0.0007 U	0.0022

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Table A13. Summary of Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-146	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-151	CFSB-152	CFSB-153
			Sample Date	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017	11/07/2017	11/06/2017
			Depth Range	2 - 4	0.5 - 2	2 - 4	0.5 - 2	2 - 4	0.5 - 2	0.5 - 2	0.5 - 2
			Sample Type	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit								
trans-1,2-Dichloroethene	23	A	mg/kg	0.00023 U	0.00025 U	0.00026 U	0.00027 U	0.00028 U	0.00023 U	0.00028 U	0.00037 U
trans-1,3-Dichloropropene	0.398	F	mg/kg	0.00025 U	0.00027 U	0.00028 U	0.00029 U	0.00031 U	0.00024 UJ	0.0003 UJ	0.00041 U
Trichloroethene	1.387	B	mg/kg	0.00013 U	0.00015 U	0.00015 U	0.00016 U	0.00017 U	0.00013 U	0.00016 U	0.00022 U
Trichlorofluoromethane	16.4	F	mg/kg	0.00038 U	0.00041 U	0.00042 U	0.00044 U	0.00047 U	0.00037 U	0.00046 U	0.00062 U
Vinyl chloride	0.12	A	mg/kg	0.00051 U	0.00056 U	0.00057 U	0.00059 U	0.00063 U	0.0005 U	0.00062 U	0.00083 U

Preliminary - Under EPA and MDEQ Review

Table A14. Summary of Semi-Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-134	CFSB-134	CFSB-135	CFSB-135	CFSB-136	CFSB-136	CFSB-137	CFSB-137	CFSB-138
			Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017
			Depth Range	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5
			Sample Type	N	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit									
1,1'-Biphenyl	60	D	mg/kg	0.041 U	0.038 U	0.041 U	0.039 U	0.039 U	0.042 U	0.038 U	0.039 U	0.05 J
1,2,4,5-Tetrachlorobenzene	2.02	F	mg/kg	0.035 U	0.033 U	0.035 U	0.034 U	0.034 U	0.037 U	0.034 U	0.034 U	0.033 U
1,4-Dioxane	1.83	B	mg/kg	0.13 U	0.12 U	0.13 U	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U
2,2'-oxybis[1-chloropropane]	19.9	F	mg/kg	0.02 U	0.018 U	0.02 U	0.019 U	0.019 U	0.02 U	0.019 U	0.019 U	0.018 U
2,3,4,6-Tetrachlorophenol	--	--	mg/kg	0.045 U	0.042 U	0.045 U	0.043 U	0.043 U	0.047 U	0.042 U	0.043 U	0.042 U
2,4,5-Trichlorophenol	4	D	mg/kg	0.047 U	0.044 U	0.047 U	0.046 U	0.045 U	0.049 U	0.045 U	0.045 U	0.044 U
2,4,6-Trichlorophenol	9.94	F	mg/kg	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U
2,4-Dichlorophenol	87.5	F	mg/kg	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.01 U
2,4-Dimethylphenol	0.01	F	mg/kg	0.1 UJ	0.097 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.11 UJ	0.099 U	0.1 U	0.097 U
2,4-Dinitrophenol	0.0609	F	mg/kg	0.36 U	0.33 U	0.36 U	0.35 U	0.34 U	0.38 U	0.34 U	0.34 U	0.33 U
2,4-Dinitrotoluene	1.28	F	mg/kg	0.019 U	0.018 U	0.019 U	0.018 U	0.018 U	0.02 U	0.018 U	0.018 U	0.017 U
2,6-Dinitrotoluene	0.0328	F	mg/kg	0.025 U	0.024 U	0.025 U	0.024 U	0.024 U	0.026 U	0.024 U	0.024 U	0.024 U
2-Chloronaphthalene	0.0122	F	mg/kg	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
2-Chlorophenol	0.243	F	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.011 U	0.012 U	0.011 U
2-Methylnaphthalene	3.24	F	mg/kg	0.011 U	0.0098 U	0.011 U	0.01 U	0.01 U	0.011 U	0.039 J	0.024 J	0.48
2-Methylphenol	0.67	A	mg/kg	0.021 U	0.019 U	0.021 U	0.02 U	0.02 U	0.022 U	0.02 U	0.02 U	0.019 U
2-Nitroaniline	5.4	A	mg/kg	0.016 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
2-Nitrophenol	1.6	F	mg/kg	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U	0.017 U	0.015 U	0.015 U	0.015 U
3 & 4 Methylphenol	--	--	mg/kg	0.013 U	0.012 U	0.013 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U
3,3'-Dichlorobenzidine	0.646	F	mg/kg	0.053 U	0.049 U	0.053 U	0.051 U	0.051 U	0.055 U	0.05 U	0.051 U	0.049 U
3-Nitroaniline	3.16	F	mg/kg	0.014 U	0.013 U	0.014 U	0.014 U	0.013 U	0.015 U	0.013 U	0.013 U	0.013 U
4,6-Dinitro-2-methylphenol	0.144	F	mg/kg	0.13 U	0.12 U	0.13 U	0.12 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U
4-Bromophenyl phenyl ether	--	--	mg/kg	0.015 U	0.014 U	0.015 U	0.014 U	0.014 U	0.016 U	0.014 U	0.014 U	0.014 U
4-Chloro-3-methylphenol	--	--	mg/kg	0.02 U	0.019 U	0.02 U	0.02 U	0.02 U	0.021 U	0.019 U	0.019 U	0.019 U
4-Chloroaniline	**1**	A	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.011 U
4-Chlorophenyl phenyl ether	--	--	mg/kg	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.015 U	0.013 U	0.014 U	0.013 U
4-Nitroaniline	21.9	F	mg/kg	0.018 U	0.017 U	0.018 U	0.017 U	0.017 U	0.019 U	0.017 U	0.017 U	0.017 U
4-Nitrophenol	7	E	mg/kg	0.23 U	0.21 U	0.23 U	0.22 U	0.22 U	0.24 U	0.22 UJ	0.22 UJ	0.21 UJ
Acenaphthene	0.25	A	mg/kg	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.021 J
Acenaphthylene	120	A	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.1 J
Acetophenone	300	F	mg/kg	0.01 U	0.0096 U	0.01 U	0.01 U	0.0099 U	0.011 U	0.0098 U	0.0099 U	0.0096 U
Anthracene	6.8	A	mg/kg	0.045 U	0.042 U	0.045 U	0.044 U	0.043 U	0.047 U	0.043 U	0.043 U	0.042 U
Atrazine	--	--	mg/kg	0.021 U	0.02 U	0.021 U	0.02 U	0.02 U	0.022 U	0.02 U	0.02 U	0.02 U
Benzaldehyde	--	--	mg/kg	0.036 U	0.034 U	0.036 U	0.035 U	0.035 U	0.038 U	0.034 U	0.035 U	0.034 U
Benzo[a]anthracene	0.8	A	mg/kg	0.049	0.037 U	0.04 U	0.038 U	0.091	0.041 U	0.038 U	0.038 U	0.037 U
Benzo[a]pyrene	**1.52**	F	mg/kg	0.033 J	0.013 U	0.014 U	0.027 J	0.014 U	0.015 U	0.036 J	0.014 U	0.013 U
Benzo[b]fluoranthene	18	A	mg/kg	0.12	0.079	0.045 J	0.07	0.18	0.019 U	0.071	0.018 U	0.4
Benzo[g,h,i]perylene	24	A	mg/kg	0.052 J+	0.025 U	0.027 U	0.026 U	0.051 J+	0.029 U	0.026 U	0.026 U	0.21 J+
Benzo[k]fluoranthene	62	A	mg/kg	0.037 J	0.025 J	0.021 U	0.02 U	0.061	0.022 U	0.02 U	0.02 U	0.019 U
Bis(2-chloroethoxy)methane	0.302	F	mg/kg	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
Bis(2-chloroethyl)ether	23.7	F	mg/kg	0.011 U	0.01 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.01 U
Bis(2-ethylhexyl) phthalate	**0.02**	A	mg/kg	0.019 U	0.017 U	0.019 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.017 U
Butyl benzyl phthalate	0.239	F	mg/kg	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
Caprolactam	--	--	mg/kg	0.034 U	0.032 U	0.034 U	0.033 U	0.033 U	0.036 U	0.032 U	0.033 U	0.032 U
Carbazole	80	A	mg/kg	0.012 U	0.011 U	0.012 U	0.011 U	0.023 J	0.012 U	0.011 U	0.011 U	0.011 U
Chrysene	**2.4**	A	mg/kg	0.12 J	0.071 J	0.05 J	0.068 J	0.23 J	0.014 U	0.067 J	0.012 U	0.34 J
Dibenz(a,h)anthracene	12	A	mg/kg	0.025 U	0.023 U	0.025 U	0.024 U	0.024 U	0.026 U	0.023 U	0.024 U	0.069 J+

Preliminary - Under EPA and MDEQ Review

Table A14. Summary of Semi-Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-134	CFSB-134	CFSB-135	CFSB-135	CFSB-136	CFSB-136	CFSB-137	CFSB-137	CFSB-138
			Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017
			Depth Range	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5
			Sample Type	N	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit									
Dibenzofuran	6.1	A	mg/kg	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.02 J
Diethyl phthalate	100	A	mg/kg	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U
Dimethyl phthalate	10	A	mg/kg	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U
Di-n-butyl phthalate	0.011	A	mg/kg	0.014 U	0.013 U	0.014 U	0.014 U	0.014 U	0.015 U	0.013 U	0.014 U	0.013 U
Di-n-octyl phthalate	0.91	A	mg/kg	0.024 U	0.023 U	0.024 U	0.023 U	0.023 U	0.025 U	0.023 U	0.023 U	0.022 U
Fluoranthene	10	A	mg/kg	0.083 J	0.046 J	0.046 J	0.073 J	0.26 J	0.015 U	0.055 J	0.013 U	0.3 J
Fluorene	3.7	A	mg/kg	0.01 U	0.0096 U	0.01 U	0.01 U	0.0099 U	0.011 U	0.0098 U	0.0099 U	0.04 J
Hexachlorobenzene	0.079	A	mg/kg	0.019 U	0.018 U	0.019 U	0.019 U	0.018 U	0.02 U	0.018 U	0.018 U	0.018 U
Hexachlorobutadiene	0.0398	F	mg/kg	0.013 U	0.012 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.012 U
Hexachlorocyclopentadiene	0.755	F	mg/kg	0.03 UJ	0.028 UJ	0.03 UJ	0.029 UJ	0.028 UJ	0.031 UJ	0.028 UJ	0.028 UJ	0.028 UJ
Hexachloroethane	0.596	F	mg/kg	0.017 U	0.016 U	0.017 U	0.017 U	0.017 U	0.018 U	0.016 U	0.017 U	0.016 U
Indeno[1,2,3-cd]pyrene	62	A	mg/kg	0.057 J+	0.029 U	0.032 U	0.031 U	0.054 J+	0.033 U	0.047	0.03 U	0.31
Isophorone	139	F	mg/kg	0.01 U	0.0095 U	0.01 U	0.0098 U	0.0098 U	0.011 U	0.0097 U	0.0097 U	0.0095 U
Naphthalene	**0.0994**	F	mg/kg	0.012 U	0.011 U	0.012 U	0.012 U	0.012 U	0.013 U	0.067 J	0.04 J	**0.81**
Nitrobenzene	1.31	F	mg/kg	0.015 U	0.014 U	0.015 U	0.014 U	0.014 U	0.016 U	0.014 U	0.014 U	0.014 U
N-Nitrosodi-n-propylamine	0.544	F	mg/kg	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U	0.017 U	0.015 U	0.015 U	0.015 U
N-Nitrosodiphenylamine	0.545	F	mg/kg	0.043 U	0.04 U	0.043 U	0.042 U	0.041 U	0.045 U	0.041 U	0.041 U	0.04 U
Pentachlorophenol	0.119	F	mg/kg	0.058 U	0.054 U	0.058 U	0.055 U	0.055 U	0.06 U	0.055 U	0.055 U	0.053 U
Phenanthrene	5.5	A	mg/kg	0.029 J	0.012 U	0.013 U	0.022 J	0.046 J	0.013 U	0.012 U	0.012 U	0.16 J
Phenol	0.79	A	mg/kg	0.016 U	0.014 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.014 U
Pyrene	10	A	mg/kg	0.087 J	0.05 J	0.045 J	0.071 J	0.26 J	0.023 U	0.037 J	0.021 U	0.26 J

Preliminary - Under EPA and MDEQ Review

Table A14. Summary of Semi-Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-138	CFSB-138	CFSB-139	CFSB-139	CFSB-140	CFSB-140	CFSB-141	CFSB-141	CFSB-142	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-143	CFSB-144
			Sample Date	11/01/2017	11/01/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017
			Depth Range	0.5 - 2	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0.5 - 2	2 - 4	0 - 0.5
			Sample Type	N	FD	N	N	N	N	N	N	N	N	N	N	N	FD	N	N
Parameter	Minimum ESV	ESV Source	Unit																
1,1'-Biphenyl	60	D	mg/kg	0.038 U	0.044 U	0.034 U	0.031 U	0.036 U	0.032 U	0.041 U	0.033 U	0.031 U	0.033 U	0.033 U	0.035 U	0.033 U	0.031 U	0.03 U	0.038 U
1,2,4,5-Tetrachlorobenzene	2.02	F	mg/kg	0.033 U	0.038 U	0.03 U	0.027 U	0.031 U	0.028 U	0.036 U	0.029 U	0.027 U	0.028 U	0.029 U	0.031 U	0.029 U	0.027 U	0.026 U	0.033 U
1,4-Dioxane	1.83	B	mg/kg	0.12 U	0.14 U	0.11 U	0.097 U	0.11 U	0.1 U	0.13 U	0.1 U	0.097 U	0.1 U	0.1 U	0.11 U	0.1 U	0.098 U	0.094 U	0.12 U
2,2'-oxybis[1-chloropropane]	19.9	F	mg/kg	0.018 U	0.021 U	0.017 U	0.015 U	0.017 U	0.015 U	0.02 U	0.016 U	0.015 U	0.016 U	0.016 U	0.017 U	0.016 U	0.015 U	0.014 U	0.018 U
2,3,4,6-Tetrachlorophenol	--	--	mg/kg	0.042 U	0.048 U	0.038 U	0.034 U	0.04 U	0.035 U	0.046 U	0.037 U	0.034 U	0.036 U	0.036 U	0.039 U	0.037 U	0.035 U	0.033 U	0.041 U
2,4,5-Trichlorophenol	4	D	mg/kg	0.044 U	0.051 U	0.04 U	0.036 U	0.042 U	0.037 U	0.048 U	0.039 U	0.036 U	0.038 U	0.038 U	0.041 U	0.039 U	0.036 U	0.035 U	0.044 U
2,4,6-Trichlorophenol	9.94	F	mg/kg	0.013 U	0.015 U	0.011 U	0.01 U	0.012 U	0.011 U	0.014 U	0.011 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.01 U	0.01 U	0.013 U
2,4-Dichlorophenol	87.5	F	mg/kg	0.01 U	0.012 U	0.0095 U	0.0086 U	0.0099 U	0.0088 U	0.011 U	0.0092 U	0.0085 U	0.009 U	0.0091 U	0.0098 U	0.0092 U	0.0087 U	0.0083 U	0.01 U
2,4-Dimethylphenol	0.01	F	mg/kg	0.097 U	0.11 U	0.088 UJ	0.08 UJ	0.092 UJ	0.082 UJ	0.11 U	0.086 U	0.08 U	0.084 U	0.084 U	0.091 U	0.086 U	0.081 U	0.077 U	0.097 U
2,4-Dinitrophenol	0.0609	F	mg/kg	0.33 UJ	0.39 U	0.3 U	0.27 U	0.32 U	0.28 U	0.37 U	0.29 U	0.27 U	0.29 U	0.29 U	0.31 U	0.3 U	0.28 U	0.27 UJ	0.33 U
2,4-Dinitrotoluene	1.28	F	mg/kg	0.018 U	0.02 U	0.016 U	0.014 U	0.017 U	0.015 U	0.019 U	0.015 U	0.014 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.014 U	0.017 U
2,6-Dinitrotoluene	0.0328	F	mg/kg	0.024 U	0.027 U	0.021 U	0.019 U	0.022 U	0.02 U	0.026 U	0.021 U	0.019 U	0.02 U	0.02 U	0.022 U	0.021 U	0.02 U	0.019 U	0.023 U
2-Chloronaphthalene	0.0122	F	mg/kg	0.01 U	0.012 U	0.0091 U	0.0082 U	0.0095 U	0.0085 U	0.011 U	0.0088 U	0.0082 U	0.0087 U	0.0087 U	0.0094 U	0.0089 U	0.0083 U	0.008 U	0.01 U
2-Chlorophenol	0.243	F	mg/kg	0.011 U	0.013 U	0.01 U	0.0092 U	0.011 U	0.0095 U	0.012 U	0.0099 U	0.0092 U	0.0097 U	0.0097 U	0.011 U	0.0099 U	0.0093 U	0.0089 U	0.011 U
2-Methylnaphthalene	3.24	F	mg/kg	0.03 J	0.024 J	0.0089 U	0.008 U	0.0093 U	0.0083 U	0.21 J	0.16 J	0.008 U	0.0084 U	0.0085 U	0.0091 U	0.0086 U	0.0081 U	0.0078 U	0.0097 U
2-Methylphenol	0.67	A	mg/kg	0.019 UJ	0.022 U	0.017 U	0.016 U	0.018 U	0.016 U	0.021 U	0.017 U	0.016 U	0.017 U	0.017 U	0.018 U	0.017 U	0.016 U	0.015 U	0.019 U
2-Nitroaniline	5.4	A	mg/kg	0.015 U	0.017 U	0.013 U	0.012 U	0.014 U	0.012 U	0.016 U	0.013 U	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.012 U	0.012 U	0.015 U
2-Nitrophenol	1.6	F	mg/kg	0.015 U	0.017 U	0.013 U	0.012 U	0.014 U	0.013 U	0.016 U	0.013 U	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.012 U	0.012 U	0.015 U
3 & 4 Methylphenol	--	--	mg/kg	0.012 UJ	0.014 U	0.011 U	0.0097 U	0.011 U	0.0099 U	0.013 U	0.01 U	0.0096 U	0.01 U	0.01 U	0.011 U	0.01 U	0.0098 U	0.0094 U	0.012 U
3,3'-Dichlorobenzidine	0.646	F	mg/kg	0.049 U	0.057 U	0.045 U	0.04 U	0.047 U	0.042 U	0.054 U	0.043 U	0.04 U	0.043 U	0.043 U	0.046 U	0.044 U	0.041 U	0.039 U	0.049 U
3-Nitroaniline	3.16	F	mg/kg	0.013 U	0.015 U	0.012 U	0.011 U	0.012 U	0.011 U	0.014 U	0.012 U	0.011 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.01 U	0.013 U
4,6-Dinitro-2-methylphenol	0.144	F	mg/kg	0.12 UJ	0.14 U	0.11 U	0.097 U	0.11 U	0.1 U	0.13 U	0.1 U	0.096 U	0.1 U	0.1 U	0.11 U	0.1 U	0.098 U	0.094 UJ	0.12 U
4-Bromophenyl phenyl ether	--	--	mg/kg	0.014 U	0.016 U	0.013 U	0.011 U	0.013 U	0.012 U	0.015 U	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.011 U	0.014 U
4-Chloro-3-methylphenol	--	--	mg/kg	0.019 U	0.022 U	0.017 U	0.016 U	0.018 U	0.016 U	0.021 U	0.017 U	0.016 U	0.016 U	0.016 U	0.018 U	0.017 U	0.016 U	0.015 U	0.019 U
4-Chloroaniline	**1**	A	mg/kg	0.011 U	0.013 U	0.01 U	0.0093 U	0.011 U	0.0096 U	0.012 U	0.01 U	0.0093 U	0.0098 U	0.0099 U	0.011 U	0.01 U	0.0094 U	0.0091 U	0.011 U
4-Chlorophenyl phenyl ether	--	--	mg/kg	0.013 U	0.015 U	0.012 U	0.011 U	0.013 U	0.011 U	0.014 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	0.013 U
4-Nitroaniline	21.9	F	mg/kg	0.017 U	0.019 U	0.015 UJ	0.014 UJ	0.016 U	0.014 UJ	0.018 U	0.015 U	0.014 U	0.014 U	0.015 U	0.016 U	0.015 U	0.014 U	0.013 U	0.017 U
4-Nitrophenol	7	E	mg/kg	0.21 UJ	0.25 UJ	0.19 U	0.17 U	0.2 U	0.18 U	0.23 UJ	0.19 UJ	0.17 U	0.18 U	0.18 U	0.2 U	0.19 U	0.18 U	0.17 U	0.21 U
Acenaphthene	0.25	A	mg/kg	0.011 U	0.012 U	0.0097 U	0.0088 U	0.01 U	0.009 U	0.012 U	0.0094 U	0.0088 U	0.0092 U	0.0093 U	0.01 U	0.0095 U	0.0089 U	0.0085 U	0.011 U
Acenaphthylene	120	A	mg/kg	0.011 U	0.013 U	0.01 U	0.0093 U	0.011 U	0.0096 U	0.051 J	0.024 J	0.0093 U	0.0098 U	0.0099 U	0.011 U	0.01 U	0.0094 U	0.0091 U	0.011 U
Acetophenone	300	F	mg/kg	0.0096 U	0.011 U	0.0087 U	0.0079 U	0.0091 U	0.0081 U	0.011 U	0.0085 U	0.0079 U	0.0083 U	0.0084 U	0.009 U	0.0085 U	0.008 U	0.0077 U	0.0096 U
Anthracene	6.8	A	mg/kg	0.042 U	0.049 U	0.038 U	0.034 U	0.04 U	0.036 U	0.046 U	0.037 U	0.034 U	0.036 U	0.036 U	0.039 U	0.037 U	0.035 U	0.033 U	0.042 U
Atrazine	--	--	mg/kg	0.02 U	0.023 U	0.018 U	0.016 U	0.019 U	0.017 U	0.022 U	0.017 U	0.016 U	0.017 U	0.017 U	0.018 U	0.017 U	0.016 U	0.016 U	0.02 U
Benzaldehyde	--	--	mg/kg	0.034 U	0.039 U	0.031 U	0.028 U	0.032 U	0.028 U	0.037 U	0.03 U	0.028 U	0.029 U	0.029 U	0.032 U	0.03 U	0.028 U	0.027 U	0.055 J
Benzo[a]anthracene	0.8	A	mg/kg	0.037 U	0.043 U	0.034 U	0.03 U	0.035 U	0.031 U	0.04 U	0.032 U	0.038	0.069	0.05	0.11	0.046	0.031 U	0.029 U	0.037 U
Benzo[a]pyrene	**1.52**	F	mg/kg	0.013 U	0.015 U	0.012 U	0.011 U	0.013 U	0.011 U	0.015 U	0.012 U	0.062	0.093	0.069	0.15	0.068	0.049	0.032 J	0.013 U
Benzo[b]fluoranthene	18	A	mg/kg	0.048 J	0.02 UJ	0.016 U	0.014 U	0.016 U	0.015 U	0.073	0.015 U	0.11	0.17	0.11	0.25	0.13	0.09	0.048	0.017 U
Benzo[g,h,i]perylene	24	A	mg/kg	0.025 UJ	0.029 U	0.023 U	0.021 U	0.024 U	0.021 U	0.028 U	0.022 U	0.049 J	0.072 J	0.046 J	0.13 J	0.065 J	0.046 J	0.02 U	0.025 U
Benzo[k]fluoranthene	62	A	mg/kg	0.019 UJ	0.022 U	0.017 U	0.016 U	0.018 U	0.016 U	0.021 U	0.017 U	0.042	0.057	0.045	0.091	0.051	0.032 J	0.019 J	0.019 U
Bis(2-chloroethoxy)methane	0.302	F	mg/kg	0.014 U	0.016 U	0.013 U	0.011 U	0.013 U	0.012 U	0.015 U	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.011 U	0.014 U
Bis(2-chloroethyl)ether	23.7	F	mg/kg	0.01 UJ	0.012 U	0.0095 U	0.0086 U	0.0099 U	0.0088 U	0.011 U	0.0092 U	0.0085 U	0.009 U	0.0091 U	0.0098 U	0.0092 U	0.0087 U	0.0083 U	0.01 U
Bis(2-ethylhexyl) phthalate	**0.02**	A	mg/kg	0.017 U	0.02 U	0.016 U	0.014 U	0.016 U	0.015 U	0.019 U	0.015 U	0.014 U	0.015 U	0.015 U	0.016 U	0.015 U	0.014 U	0.014 U	0.017 U
Butyl benzyl phthalate	0.239	F	mg/kg	0.014 U	0.016 U	0.012 U	0.011 U	0.013 U	0.012 U	0.015 U	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.011 U	0.014 U
Caprolactam	--	--	mg/kg	0.032 U	0.037 U	0.029 U	0.026 U	0.03 U	0.027 U	0.035 U	0.028 U	0.026 U	0.027 U	0.028 U	0.03 U	0.028 U	0.026 U	0.025 U	0.032 U
Carbazole	80	A	mg/kg	0.011 U	0.013 U	0.01 U	0.009 U	0.01 U	0.0093 U	0.012 U	0.0096 U	0.009 U	0.011 J	0.0095 U	0.015 J	0.0097 U	0.0091 U	0.0087 U	0.011 U
Chrysene	**2.4**	A	mg/kg	0.023 J-	0.014 U	0.011 U	0.0099 U	0.011 U	0.027 J	0.059 J	0.011 U	0.057 J	0.11 J	0.07 J	0.16 J	0.076 J	0.044 J	0.019 J	0.012 U
Dibenz(a,h)anthracene	12	A	mg/kg	0.023 U	0.027 U	0.021 U	0.019 U	0.022 U	0.019 U	0.025 U	0.02 U	0.019 U	0.042	0.02 U	0.055	0.02 U	0.019 U	0.018 U	0.023 U

Table A14. Summary of Semi-Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-138	CFSB-138	CFSB-139	CFSB-139	CFSB-140	CFSB-140	CFSB-141	CFSB-141	CFSB-142	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-143	CFSB-144
			Sample Date	11/01/2017	11/01/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017
			Depth Range	0.5 - 2	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0.5 - 2	2 - 4	0 - 0.5
			Sample Type	N	FD	N	N	N	N	N	N	N	N	N	N	N	FD	N	N
Parameter	Minimum ESV	ESV Source	Unit																
Dibenzofuran	6.1	A	mg/kg	0.013 U	0.015 U	0.012 U	0.011 U	0.013 U	0.011 U	0.015 U	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.011 U	0.013 U
Diethyl phthalate	100	A	mg/kg	0.013 U	0.015 U	0.011 U	0.01 U	0.012 U	0.011 U	0.014 U	0.011 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.01 U	0.01 U	0.013 U
Dimethyl phthalate	10	A	mg/kg	0.013 U	0.015 U	0.012 U	0.011 U	0.012 U	0.011 U	0.014 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	0.013 U
Di-n-butyl phthalate	0.011	A	mg/kg	0.013 U	0.015 U	0.012 U	0.011 U	0.013 U	0.011 U	0.014 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	0.013 U
Di-n-octyl phthalate	0.91	A	mg/kg	0.023 U	0.026 U	0.02 U	0.018 U	0.021 U	0.019 U	0.025 U	0.02 U	0.018 U	0.019 U	0.019 U	0.021 U	0.02 U	0.019 U	0.018 U	0.022 U
Fluoranthene	10	A	mg/kg	0.033 J	0.015 UJ	0.02 J	0.011 U	0.019 J	0.04 J	0.046 J	0.012 U	0.053 J	0.1 J	0.077 J	0.14 J	0.059 J	0.033 J	0.018 J	0.013 U
Fluorene	3.7	A	mg/kg	0.0096 U	0.011 U	0.0087 U	0.0079 U	0.0091 U	0.0081 U	0.011 U	0.0085 U	0.0079 U	0.0083 U	0.0084 U	0.009 U	0.0085 U	0.008 U	0.0077 U	0.0096 U
Hexachlorobenzene	0.079	A	mg/kg	0.018 U	0.021 U	0.016 U	0.015 U	0.017 U	0.015 U	0.02 U	0.016 U	0.015 U	0.015 U	0.016 U	0.017 U	0.016 U	0.015 U	0.014 U	0.018 U
Hexachlorobutadiene	0.0398	F	mg/kg	0.012 U	0.014 U	0.011 U	0.01 U	0.012 U	0.011 U	0.014 U	0.011 U	0.01 U	0.011 U	0.011 U	0.012 U	0.011 U	0.01 U	0.0099 U	0.012 U
Hexachlorocyclopentadiene	0.755	F	mg/kg	0.028 UJ	0.032 UJ	0.025 UJ	0.023 UJ	0.026 UJ	0.023 UJ	0.03 UJ	0.024 UJ	0.023 UJ	0.024 UJ	0.024 UJ	0.026 UJ	0.024 UJ	0.023 UJ	0.022 UJ	0.027 UJ
Hexachloroethane	0.596	F	mg/kg	0.016 UJ	0.019 U	0.015 U	0.013 U	0.015 U	0.014 U	0.018 U	0.014 U	0.013 U	0.014 U	0.014 U	0.015 U	0.014 U	0.013 U	0.013 U	0.016 U
Indeno[1,2,3-cd]pyrene	62	A	mg/kg	0.029 U	0.034 U	0.027 U	0.024 U	0.028 U	0.025 U	0.04 J	0.026 U	0.08	0.11	0.079	0.18	0.092	0.075	0.036	0.029 U
Isophorone	139	F	mg/kg	0.0095 U	0.011 U	0.0086 U	0.0078 U	0.009 U	0.008 U	0.01 U	0.0084 U	0.0078 U	0.0082 U	0.0082 U	0.0089 U	0.0084 U	0.0079 U	0.0076 U	0.0094 U
Naphthalene	**0.0994**	F	mg/kg	0.043 J-	0.037 J	0.01 U	0.0092 U	0.011 U	0.0095 U	**0.36 J**	**0.36 J**	0.0092 U	0.0097 U	0.0097 U	0.011 U	0.0099 U	0.0093 U	0.0089 U	0.011 U
Nitrobenzene	1.31	F	mg/kg	0.014 U	0.016 U	0.013 U	0.011 U	0.013 U	0.012 U	0.015 U	0.012 U	0.011 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.011 U	0.014 U
N-Nitrosodi-n-propylamine	0.544	F	mg/kg	0.015 U	0.017 U	0.013 U	0.012 U	0.014 U	0.013 U	0.016 U	0.013 U	0.012 U	0.013 U	0.013 U	0.014 U	0.013 U	0.012 U	0.012 U	0.015 U
N-Nitrosodiphenylamine	0.545	F	mg/kg	0.04 U	0.046 U	0.036 U	0.033 U	0.038 U	0.034 U	0.044 U	0.035 U	0.033 U	0.035 U	0.035 U	0.038 U	0.035 U	0.033 U	0.032 U	0.04 U
Pentachlorophenol	0.119	F	mg/kg	0.054 U	0.062 U	0.049 U	0.044 U	0.051 U	0.045 U	0.059 U	0.047 U	0.044 U	0.046 U	0.046 U	0.05 U	0.047 U	0.044 U	0.043 U	0.053 U
Phenanthrene	5.5	A	mg/kg	0.027 J	0.014 UJ	0.011 U	0.0097 U	0.011 U	0.0099 U	0.03 J	0.01 U	0.025 J	0.046 J	0.031 J	0.072 J	0.03 J	0.019 J	0.0096 J	0.012 U
Phenol	0.79	A	mg/kg	0.014 U	0.017 U	0.013 U	0.012 U	0.014 U	0.012 U	0.016 U	0.013 U	0.012 U	0.012 U	0.013 U	0.014 U	0.013 U	0.012 U	0.012 U	0.014 U
Pyrene	10	A	mg/kg	0.02 UJ	0.023 U	0.018 U	0.016 U	0.019 U	0.017 U	0.03 J	0.018 U	0.064 J	0.12 J	0.079 J	0.19 J	0.079 J	0.046 J	0.02 J	0.02 U

Preliminary - Under Review

Table A14. Summary of Semi-Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-145	CFSB-146	CFSB-146	CFSB-146	CFSB-147	CFSB-147	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-148	CFSB-151
			Sample Date	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017
			Depth Range	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5
			Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit																
1,1'-Biphenyl	60	D	mg/kg	0.037 U	0.04 UJ	0.031 U	0.03 U	0.03 U	0.032 U	0.031 U	0.031 U	0.033 U	0.032 U	0.03 U	0.03 U	0.032 U	0.03 U	0.03 U	0.048 U
1,2,4,5-Tetrachlorobenzene	2.02	F	mg/kg	0.032 U	0.035 U	0.027 U	0.026 U	0.026 U	0.028 U	0.027 U	0.027 U	0.028 U	0.028 U	0.026 U	0.026 U	0.028 U	0.026 U	0.026 U	0.041 U
1,4-Dioxane	1.83	B	mg/kg	0.11 U	0.12 U	0.099 U	0.094 U	0.094 U	0.1 U	0.097 U	0.097 U	0.1 U	0.1 U	0.093 U	0.094 U	0.099 U	0.093 U	0.094 U	0.15 U
2,2'-oxybis[1-chloropropane]	19.9	F	mg/kg	0.018 U	0.019 U	0.015 U	0.014 U	0.014 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.023 U
2,3,4,6-Tetrachlorophenol	--	--	mg/kg	0.04 U	0.044 UJ	0.035 U	0.033 U	0.033 U	0.035 U	0.034 U	0.034 U	0.036 U	0.035 U	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.052 U
2,4,5-Trichlorophenol	4	D	mg/kg	0.043 U	0.046 UJ	0.037 U	0.035 U	0.035 U	0.037 U	0.036 U	0.036 U	0.038 U	0.037 U	0.035 U	0.035 U	0.037 U	0.035 U	0.035 U	0.055 U
2,4,6-Trichlorophenol	9.94	F	mg/kg	0.012 U	0.013 UJ	0.01 U	0.0099 U	0.01 U	0.011 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0099 U	0.01 U	0.011 U	0.0099 U	0.01 U	0.016 U
2,4-Dichlorophenol	87.5	F	mg/kg	0.01 U	0.011 UJ	0.0087 U	0.0083 U	0.0083 U	0.0088 U	0.0086 U	0.0086 U	0.009 U	0.0089 U	0.0082 U	0.0083 U	0.0088 U	0.0082 U	0.0083 U	0.013 U
2,4-Dimethylphenol	0.01	F	mg/kg	0.094 U	0.1 UJ	0.081 U	0.077 U	0.077 U	0.082 U	0.08 U	0.08 U	0.084 U	0.083 U	0.077 U	0.077 U	0.082 U	0.076 U	0.077 U	0.12 UJ
2,4-Dinitrophenol	0.0609	F	mg/kg	0.32 U	0.35 UJ	0.28 UJ	0.26 U	0.27 U	0.28 U	0.27 U	0.27 U	0.29 U	0.28 U	0.26 U	0.27 U	0.28 U	0.26 U	0.27 U	0.42 U
2,4-Dinitrotoluene	1.28	F	mg/kg	0.017 U	0.018 UJ	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.022 U
2,6-Dinitrotoluene	0.0328	F	mg/kg	0.023 U	0.025 UJ	0.02 U	0.019 U	0.019 U	0.02 U	0.019 U	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U	0.02 U	0.018 U	0.019 U	0.03 U
2-Chloronaphthalene	0.0122	F	mg/kg	0.0097 U	0.011 U	0.0084 U	0.0079 U	0.008 U	0.0085 U	0.0082 U	0.0082 U	0.0087 U	0.0085 U	0.0079 U	0.008 U	0.0084 U	0.0079 U	0.008 U	0.013 U
2-Chlorophenol	0.243	F	mg/kg	0.011 U	0.012 UJ	0.0094 U	0.0089 U	0.0089 U	0.0095 U	0.0092 U	0.0092 U	0.0097 U	0.0095 U	0.0088 U	0.0089 U	0.0094 U	0.0088 U	0.0089 U	0.014 U
2-Methylnaphthalene	3.24	F	mg/kg	0.0095 U	0.01 UJ	0.0081 U	0.0077 U	0.0078 U	0.0083 U	0.008 U	0.008 U	0.0084 U	0.0083 U	0.0077 U	0.0078 U	0.0082 U	0.0077 U	0.0077 U	0.012 U
2-Methylphenol	0.67	A	mg/kg	0.019 U	0.02 UJ	0.016 U	0.015 U	0.015 U	0.016 U	0.016 U	0.016 U	0.017 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.024 U
2-Nitroaniline	5.4	A	mg/kg	0.014 U	0.015 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.011 U	0.012 U	0.012 U	0.011 U	0.012 U	0.018 U
2-Nitrophenol	1.6	F	mg/kg	0.014 U	0.016 UJ	0.012 U	0.012 U	0.012 U	0.013 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	0.019 U
3 & 4 Methylphenol	--	--	mg/kg	0.011 U	0.012 UJ	0.0098 U	0.0093 U	0.0094 U	0.01 U	0.0097 U	0.0097 U	0.01 U	0.01 U	0.0093 U	0.0094 U	0.0099 U	0.0092 U	0.0093 U	0.015 U
3,3'-Dichlorobenzidine	0.646	F	mg/kg	0.048 U	0.052 U	0.041 U	0.039 U	0.039 U	0.042 U	0.04 U	0.041 U	0.043 U	0.042 U	0.039 U	0.039 U	0.041 U	0.039 U	0.039 U	0.062 U
3-Nitroaniline	3.16	F	mg/kg	0.013 U	0.014 U	0.011 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	0.01 U	0.011 U	0.01 U	0.01 U	0.017 U
4,6-Dinitro-2-methylphenol	0.144	F	mg/kg	0.11 U	0.12 UJ	0.098 UJ	0.093 U	0.094 U	0.1 U	0.097 U	0.097 U	0.1 U	0.1 U	0.093 U	0.094 U	0.099 U	0.093 U	0.094 U	0.15 U
4-Bromophenyl phenyl ether	--	--	mg/kg	0.013 U	0.015 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.018 U
4-Chloro-3-methylphenol	--	--	mg/kg	0.018 U	0.02 UJ	0.016 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	0.016 U	0.015 U	0.015 U	0.024 U
4-Chloroaniline	**1**	A	mg/kg	0.011 U	0.012 U	0.0095 U	0.009 U	0.009 U	0.0096 U	0.0093 U	0.0093 U	0.0098 U	0.0096 U	0.009 U	0.009 U	0.0096 U	0.0089 U	0.009 U	0.014 U
4-Chlorophenyl phenyl ether	--	--	mg/kg	0.013 U	0.014 UJ	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	0.011 U	0.01 U	0.01 U	0.017 U
4-Nitroaniline	21.9	F	mg/kg	0.016 U	0.018 UJ	0.014 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	0.014 U	0.013 U	0.013 U	0.021 U
4-Nitrophenol	7	E	mg/kg	0.21 U	0.22 U	0.18 U	0.17 U	0.17 U	0.18 U	0.17 U	0.17 U	0.18 U	0.18 U	0.17 U	0.17 U	0.18 U	0.17 U	0.17 U	0.27 U
Acenaphthene	0.25	A	mg/kg	0.01 U	0.011 U	0.0089 U	0.0085 U	0.0085 U	0.01 J	0.0088 U	0.0088 U	0.0092 U	0.0091 U	0.0084 U	0.0085 U	0.009 U	0.0084 U	0.0085 U	0.013 U
Acenaphthylene	120	A	mg/kg	0.011 U	0.012 UJ	0.0095 U	0.009 U	0.009 U	0.0096 U	0.0093 U	0.0093 U	0.0098 U	0.0096 U	0.009 U	0.009 U	0.0096 U	0.0089 U	0.009 U	0.014 U
Acetophenone	300	F	mg/kg	0.0093 U	0.01 UJ	0.008 U	0.0076 U	0.0077 U	0.0082 U	0.0079 U	0.0079 U	0.0083 U	0.0082 U	0.0076 U	0.0077 U	0.0081 U	0.0076 U	0.0076 U	0.012 U
Anthracene	6.8	A	mg/kg	0.041 U	0.044 UJ	0.035 U	0.033 U	0.033 U	0.036 U	0.034 U	0.034 U	0.036 U	0.036 U	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.053 U
Atrazine	--	--	mg/kg	0.019 U	0.021 U	0.016 U	0.016 U	0.016 U	0.017 U	0.016 U	0.016 U	0.017 U	0.017 U	0.015 U	0.016 U	0.017 U	0.015 U	0.016 U	0.025 U
Benzaldehyde	--	--	mg/kg	0.033 U	0.036 U	0.028 U	0.027 U	0.027 U	0.029 U	0.028 U	0.028 U	0.029 U	0.029 U	0.027 U	0.027 U	0.028 U	0.026 U	0.027 U	0.042 U
Benzo[a]anthracene	0.8	A	mg/kg	0.036 U	0.039 U	0.054	0.029 U	0.029 U	0.11	0.061	0.062	0.042	0.031 U	0.029 U	0.029 U	0.042	0.029 U	0.029 U	0.053 J
Benzo[a]pyrene	**1.52**	F	mg/kg	0.013 U	0.11 J-	0.082	0.011 U	0.039	0.16	0.084	0.087	0.067 J	0.011 UJ	0.011 U	0.011 U	0.06	0.01 U	0.011 U	0.059
Benzo[b]fluoranthene	18	A	mg/kg	0.017 U	0.2 J-	0.13	0.014 U	0.062	0.24	0.14	0.13	0.12 J	0.015 UJ	0.014 U	0.037	0.095	0.014 U	0.014 U	0.11
Benzo[g,h,i]perylene	24	A	mg/kg	0.025 U	0.095 J	0.085 J	0.02 U	0.029 J	0.19 J	0.084 J	0.091 J	0.066 J	0.022 UJ	0.02 U	0.02 U	0.021 U	0.02 U	0.02 U	0.045 J
Benzo[k]fluoranthene	62	A	mg/kg	0.019 U	0.074 J-	0.05	0.015 U	0.015 U	0.092	0.05	0.016 U	0.036 J	0.016 UJ	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.046 J
Bis(2-chloroethoxy)methane	0.302	F	mg/kg	0.013 U	0.015 UJ	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.017 U
Bis(2-chloroethyl)ether	23.7	F	mg/kg	0.01 U	0.011 UJ	0.0087 UJ	0.0083 U	0.0083 U	0.0088 U	0.0086 U	0.0086 U	0.009 U	0.0089 U	0.0082 U	0.0083 U	0.0088 U	0.0082 U	0.0083 U	0.013 U
Bis(2-ethylhexyl) phthalate	**0.02**	A	mg/kg	0.017 U	0.018 U	0.014 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.015 U	0.014 U	0.014 U	0.022 U
Butyl benzyl phthalate	0.239	F	mg/kg	0.013 U	0.014 U	0.011 U	0.011 U	0.011 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	0.011 U	0.011 U	0.017 U
Caprolactam	--	--	mg/kg	0.031 U	0.034 U	0.027 U	0.025 U	0.025 U	0.027 U	0.026 U	0.026 U	0.027 U	0.027 U	0.025 U	0.025 U	0.027 U	0.025 U	0.025 U	0.04 U
Carbazole	80	A	mg/kg	0.011 U	0.012 UJ	0.0094 J	0.0087 U	0.0087 U	0.016 J	0.009 U	0.009 U	0.0095 U	0.0093 U	0.0086 U	0.0087 U	0.0092 U	0.0086 U	0.0087 U	0.014 U
Chrysene	**2.4**	A	mg/kg	0.012 U	0.16 J-	0.078 J	0.012 J	0.03 J	0.15 J	0.077 J	0.079 J	0.056 J	0.01 UJ	0.0095 U	0.014 J	0.048 J	0.0094 U	0.0095 U	0.067 J
Dibenz(a,h)anthracene	12	A	mg/kg	0.022 U	0.055	0.019 U	0.018 U	0.018 U	0.053	0.04	0.041	0.02 U	0.02 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.029 U

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Table A14. Summary of Semi-Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-145	CFSB-146	CFSB-146	CFSB-146	CFSB-147	CFSB-147	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-148	CFSB-151
			Sample Date	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017
			Depth Range	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5
			Sample Type	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit																
Dibenzofuran	6.1	A	mg/kg	0.013 U	0.014 UJ	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	0.01 U	0.011 U	0.017 U
Diethyl phthalate	100	A	mg/kg	0.012 U	0.013 UJ	0.01 U	0.0099 U	0.01 U	0.011 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0099 U	0.01 U	0.011 U	0.0099 U	0.01 U	0.016 U
Dimethyl phthalate	10	A	mg/kg	0.012 U	0.014 UJ	0.011 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	0.01 U	0.011 U	0.01 U	0.01 U	0.016 U
Di-n-butyl phthalate	0.011	A	mg/kg	0.013 U	0.014 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	0.011 U	0.01 U	0.01 U	0.017 U
Di-n-octyl phthalate	0.91	A	mg/kg	0.022 U	0.024 U	0.019 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.019 U	0.019 U	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U	0.028 U
Fluoranthene	10	A	mg/kg	0.013 U	0.081 J-	0.069 J	0.01 U	0.026 J	0.17 J	0.087 J	0.089 J	0.052 J	0.011 UJ	0.01 U	0.014 J	0.053 J	0.01 U	0.01 U	0.094 J
Fluorene	3.7	A	mg/kg	0.0093 U	0.01 UJ	0.008 U	0.0076 U	0.0077 U	0.0082 U	0.0079 U	0.0079 U	0.0083 U	0.0082 U	0.0076 U	0.0077 U	0.0081 U	0.0076 U	0.0076 U	0.012 U
Hexachlorobenzene	0.079	A	mg/kg	0.017 U	0.019 U	0.015 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	0.015 U	0.014 U	0.014 U	0.023 U
Hexachlorobutadiene	0.0398	F	mg/kg	0.012 U	0.013 U	0.01 U	0.0098 U	0.0099 U	0.011 U	0.01 U	0.01 U	0.011 U	0.011 U	0.0098 U	0.0099 U	0.01 U	0.0098 U	0.0099 U	0.016 U
Hexachlorocyclopentadiene	0.755	F	mg/kg	0.027 UJ	0.029 UJ	0.023 UJ	0.022 UJ	0.022 UJ	0.023 UJ	0.023 UJ	0.023 UJ	0.024 UJ	0.023 UJ	0.022 UJ	0.022 UJ	0.023 UJ	0.022 UJ	0.022 UJ	0.035 UJ
Hexachloroethane	0.596	F	mg/kg	0.016 U	0.017 UJ	0.014 UJ	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.014 U	0.014 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.02 U
Indeno[1,2,3-cd]pyrene	62	A	mg/kg	0.028 U	0.15	0.11	0.031 J	0.051	0.23	0.12	0.13	0.1 J	0.025 UJ	0.023 U	0.036	0.072	0.023 U	0.023 U	0.06
Isophorone	139	F	mg/kg	0.0092 U	0.01 UJ	0.0079 U	0.0075 U	0.0075 U	0.008 U	0.0078 U	0.0078 U	0.0082 U	0.0081 U	0.0075 U	0.0076 U	0.008 U	0.0074 U	0.0075 U	0.012 U
Naphthalene	**0.0994**	F	mg/kg	0.011 U	0.012 UJ	0.0094 U	0.0089 U	0.0089 U	0.0095 U	0.0092 U	0.0092 U	0.0097 U	0.0095 U	0.0088 U	0.0089 U	0.0094 U	0.0088 U	0.0089 U	0.014 U
Nitrobenzene	1.31	F	mg/kg	0.013 U	0.015 UJ	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.018 U
N-Nitrosodi-n-propylamine	0.544	F	mg/kg	0.014 U	0.016 UJ	0.012 U	0.012 U	0.012 U	0.013 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	0.019 U
N-Nitrosodiphenylamine	0.545	F	mg/kg	0.039 U	0.042 U	0.033 U	0.032 U	0.032 U	0.034 U	0.033 U	0.033 U	0.035 U	0.034 U	0.032 U	0.032 U	0.034 U	0.031 U	0.032 U	0.051 U
Pentachlorophenol	0.119	F	mg/kg	0.052 U	0.056 UJ	0.045 U	0.042 U	0.043 U	0.045 U	0.044 U	0.044 U	0.046 U	0.045 U	0.042 U	0.043 U	0.045 U	0.042 U	0.042 U	0.067 U
Phenanthrene	5.5	A	mg/kg	0.011 U	0.045 J-	0.038 J	0.0093 U	0.014 J	0.11 J	0.051 J	0.053 J	0.025 J	0.01 UJ	0.0093 U	0.0094 U	0.032 J	0.0092 U	0.0093 U	0.047 J
Phenol	0.79	A	mg/kg	0.014 U	0.015 UJ	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.018 U
Pyrene	10	A	mg/kg	0.019 U	0.1 J	0.086 J	0.016 U	0.03 J	0.21 J	0.11 J	0.11 J	0.065 J	0.017 UJ	0.016 U	0.018 J	0.063 J	0.016 U	0.016 U	0.09 J

Preliminary - Under Review

Table A14. Summary of Semi-Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-151	CFSB-152	CFSB-152	CFSB-153	CFSB-153
			Sample Date	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017
			Depth Range	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
			Sample Type	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit					
1,1'-Biphenyl	60	D	mg/kg	0.032 U	0.052 U	0.038 U	0.51 U	0.23 U
1,2,4,5-Tetrachlorobenzene	2.02	F	mg/kg	0.028 U	0.046 U	0.033 U	0.45 U	0.2 U
1,4-Dioxane	1.83	B	mg/kg	0.1 U	0.16 U	0.12 U	1.6 U	0.73 U
2,2'-oxybis[1-chloropropane]	19.9	F	mg/kg	0.015 U	0.025 U	0.018 U	0.25 U	0.11 U
2,3,4,6-Tetrachlorophenol	--	--	mg/kg	0.035 U	0.058 U	0.042 U	0.56 U	0.26 U
2,4,5-Trichlorophenol	4	D	mg/kg	0.037 U	0.061 U	0.044 U	0.6 U	0.27 U
2,4,6-Trichlorophenol	9.94	F	mg/kg	0.011 U	0.017 U	0.013 U	0.17 U	0.077 U
2,4-Dichlorophenol	87.5	F	mg/kg	0.0089 U	0.014 U	0.01 U	0.14 U	0.064 U
2,4-Dimethylphenol	0.01	F	mg/kg	0.083 UJ	0.13 UJ	0.097 UJ	1.3 U	0.6 U
2,4-Dinitrophenol	0.0609	F	mg/kg	0.28 U	0.46 U	0.33 U	4.5 U	2.1 U
2,4-Dinitrotoluene	1.28	F	mg/kg	0.015 U	0.024 U	0.018 U	0.24 U	0.11 U
2,6-Dinitrotoluene	0.0328	F	mg/kg	0.02 U	0.033 U	0.024 U	0.32 U	0.14 U
2-Chloronaphthalene	0.0122	F	mg/kg	0.0085 U	0.014 U	0.01 U	0.14 U	0.062 U
2-Chlorophenol	0.243	F	mg/kg	0.0096 U	0.016 U	0.011 U	0.15 U	0.069 U
2-Methylnaphthalene	3.24	F	mg/kg	0.0083 U	0.014 U	0.0098 U	0.13 U	0.06 U
2-Methylphenol	0.67	A	mg/kg	0.016 U	0.027 U	0.019 U	0.26 U	0.12 U
2-Nitroaniline	5.4	A	mg/kg	0.012 U	0.02 U	0.015 U	0.2 U	0.09 U
2-Nitrophenol	1.6	F	mg/kg	0.013 U	0.021 U	0.015 U	0.2 U	0.091 U
3 & 4 Methylphenol	--	--	mg/kg	0.01 U	0.016 U	0.012 U	0.16 U	0.072 U
3,3'-Dichlorobenzidine	0.646	F	mg/kg	0.042 U	0.068 U	0.049 U	0.67 U	0.3 U
3-Nitroaniline	3.16	F	mg/kg	0.011 U	0.018 U	0.013 U	0.18 U	0.081 U
4,6-Dinitro-2-methylphenol	0.144	F	mg/kg	0.1 U	0.16 U	0.12 U	1.6 U	0.73 U
4-Bromophenyl phenyl ether	--	--	mg/kg	0.012 U	0.019 U	0.014 U	0.19 U	0.086 U
4-Chloro-3-methylphenol	--	--	mg/kg	0.016 U	0.026 U	0.019 U	0.26 U	0.12 U
4-Chloroaniline	**1**	A	mg/kg	0.0097 U	0.016 U	0.011 U	**1.9 J**	0.89 J
4-Chlorophenyl phenyl ether	--	--	mg/kg	0.011 U	0.018 U	0.013 U	0.18 U	0.081 U
4-Nitroaniline	21.9	F	mg/kg	0.014 U	0.023 U	0.017 U	0.23 U	0.1 U
4-Nitrophenol	7	E	mg/kg	0.18 U	0.29 U	0.21 U	2.9 U	1.3 U
Acenaphthene	0.25	A	mg/kg	0.0091 U	0.015 U	0.011 U	0.14 U	0.066 U
Acenaphthylene	120	A	mg/kg	0.0097 U	0.016 U	0.011 U	0.15 U	0.07 U
Acetophenone	300	F	mg/kg	0.0082 U	0.013 U	0.0096 U	0.13 U	0.059 U
Anthracene	6.8	A	mg/kg	0.036 U	0.058 U	0.042 U	0.57 U	0.26 U
Atrazine	--	--	mg/kg	0.017 U	0.027 U	0.02 U	0.27 U	0.12 U
Benzaldehyde	--	--	mg/kg	0.029 U	0.047 U	0.034 U	0.46 U	0.21 U
Benzo[a]anthracene	0.8	A	mg/kg	0.031 U	0.2	0.037 U	0.5 U	0.75
Benzo[a]pyrene	**1.52**	F	mg/kg	0.034 J	0.019 U	0.013 U	**2.8**	**4**
Benzo[b]fluoranthene	18	A	mg/kg	0.072	0.024 U	0.017 U	6.6	5
Benzo[g,h,i]perylene	24	A	mg/kg	0.035 J	0.035 U	0.025 U	2.7 J	1.3 J
Benzo[k]fluoranthene	62	A	mg/kg	0.027 J	0.14	0.088	0.26 U	0.12 U
Bis(2-chloroethoxy)methane	0.302	F	mg/kg	0.012 U	0.019 U	0.014 U	0.19 U	0.085 U
Bis(2-chloroethyl)ether	23.7	F	mg/kg	0.0089 U	0.014 U	0.01 U	0.14 U	0.064 U
Bis(2-ethylhexyl) phthalate	**0.02**	A	mg/kg	**0.11 J**	**0.074 J**	**0.076 J**	0.23 U	**2.2 J**
Butyl benzyl phthalate	0.239	F	mg/kg	0.012 U	0.019 U	0.014 U	0.18 U	0.084 U
Caprolactam	--	--	mg/kg	0.027 U	0.044 U	0.032 U	0.43 U	0.2 U
Carbazole	80	A	mg/kg	0.0093 U	0.1 J	0.067 J	0.97 J	0.31 J
Chrysene	**2.4**	A	mg/kg	0.036 J	0.34 J	0.2 J	**2.6 J**	1.8 J
Dibenz(a,h)anthracene	12	A	mg/kg	0.02 U	0.032 U	0.023 U	0.31 U	0.44

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Table A14. Summary of Semi-Volatile Organic Compounds in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-151	CFSB-152	CFSB-152	CFSB-153	CFSB-153
			Sample Date	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017
			Depth Range	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
			Sample Type	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit					
Dibenzofuran	6.1	A	mg/kg	0.011 U	0.019 U	0.013 U	0.18 U	0.082 U
Diethyl phthalate	100	A	mg/kg	0.011 U	0.017 U	0.013 U	0.17 U	0.077 U
Dimethyl phthalate	10	A	mg/kg	0.011 U	0.018 U	0.013 U	0.17 U	0.079 U
Di-n-butyl phthalate	0.011	A	mg/kg	0.011 U	0.018 U	0.013 U	0.18 U	0.081 U
Di-n-octyl phthalate	0.91	A	mg/kg	0.019 U	0.031 U	0.022 U	0.3 U	0.14 U
Fluoranthene	10	A	mg/kg	0.047 J	0.31 J	0.19 J	1.3 J	0.86 J
Fluorene	3.7	A	mg/kg	0.0082 U	0.013 U	0.0096 U	0.13 U	0.059 U
Hexachlorobenzene	0.079	A	mg/kg	0.015 U	0.025 U	0.018 U	0.24 U	0.11 U
Hexachlorobutadiene	0.0398	F	mg/kg	0.011 U	0.017 U	0.012 U	0.17 U	0.077 U
Hexachlorocyclopentadiene	0.755	F	mg/kg	0.023 UJ	0.038 UJ	0.028 UJ	0.37 UJ	0.17 UJ
Hexachloroethane	0.596	F	mg/kg	0.014 U	0.022 U	0.016 U	0.22 U	0.1 U
Indeno[1,2,3-cd]pyrene	62	A	mg/kg	0.044	0.041 U	0.029 U	3.1	2.2
Isophorone	139	F	mg/kg	0.0081 U	0.013 U	0.0095 U	0.13 U	0.058 U
Naphthalene	**0.0994**	F	mg/kg	0.0096 U	0.016 U	0.011 U	0.15 U	0.069 U
Nitrobenzene	1.31	F	mg/kg	0.012 U	0.019 U	0.014 U	0.19 U	0.086 U
N-Nitrosodi-n-propylamine	0.544	F	mg/kg	0.013 U	0.021 U	0.015 U	0.2 U	0.091 U
N-Nitrosodiphenylamine	0.545	F	mg/kg	0.034 U	0.056 U	0.04 U	0.54 U	0.25 U
Pentachlorophenol	0.119	F	mg/kg	0.045 U	0.074 U	0.053 U	0.72 U	0.33 U
Phenanthrene	5.5	A	mg/kg	0.023 J	0.13 J	0.089 J	0.55 J	0.28 J
Phenol	0.79	A	mg/kg	0.012 U	0.02 U	0.014 U	0.2 U	0.089 U
Pyrene	10	A	mg/kg	0.043 J	0.25 J	0.14 J	1.3 J	0.93 J

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Table A15. Summary of Metals in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-134	CFSB-134	CFSB-135	CFSB-135	CFSB-136	CFSB-136	CFSB-137	CFSB-137	CFSB-138	CFSB-138	CFSB-138	CFSB-139	CFSB-139	CFSB-140	CFSB-140	CFSB-141	CFSB-141
			Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017
			Depth Range	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
			Sample Type	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit																	
Aluminum	**50**	D	mg/kg	**9760**	**8640**	**9650**	**9660**	**8270**	**9080**	**9160**	**9060**	**10600**	**7330**	**10500**	**9490**	**9560**	**8790**	**8900**	**10800**	**8520**
Antimony	**0.142**	F	mg/kg	0.47 U	0.42 U	0.46 U	0.46 U	0.42 U	0.48 U	0.34 UJ	0.37 UJ	0.37 UJ	0.37 UJ	0.39 UJ	0.4 U	0.34 U	0.42 U	0.38 U	0.37 UJ	0.31 UJ
Arsenic	**0.25**	B	mg/kg	**4.9**	**4.3**	**5.4**	**4.2**	**4.4**	**3.7**	**4.6**	**4.5**	**5.1**	**1.9**	**2.8**	**5.3**	**5.6**	**5**	**4.7**	**5.4**	**4.9**
Barium	**1.04**	F	mg/kg	**194**	**125**	**153**	**168**	**153**	**131**	**159**	**144**	**236**	**161**	**98.2**	**162**	**130**	**190**	**130**	**212**	**153**
Beryllium	1.06	F	mg/kg	0.63	0.42 J	0.45 J	0.48 J	0.36 J	0.52 J	0.49	0.45	0.55	0.37 J	0.54	0.6	0.52	0.54	0.39 J	0.6	0.46
Cadmium	**0.00222**	F	mg/kg	0.5 U	0.45 U	0.49 U	0.49 U	0.45 U	0.5 U	0.36 U	0.39 U	0.39 U	0.39 U	0.41 U	0.43 U	0.36 U	0.44 U	0.4 U	0.39 U	0.33 U
Calcium	--	--	mg/kg	35100	18400	23900	20900	18700	18400	21800	20500	18000	12400	11800	23000	18900	25900	18600	29500	20400
Chromium	**0.34**	A	mg/kg	**11.5**	**10.2**	**11**	**11.4**	**9.5**	**10.6**	**10.5**	**10.4**	**10.6**	**8.5**	**12.5**	**11.1**	**11.2**	**10.3**	**10.3**	**12.4**	**9.8**
Cobalt	**0.14**	F	mg/kg	**6.9**	**6.8**	**7**	**6.7**	**6**	**6.1**	**6.3**	**6.3**	**6.8**	**4.1**	**6.2**	**7**	**7**	**6.5**	**6.4**	**7.6**	**6**
Copper	**5.4**	F	mg/kg	**19**	**14.4**	**15.9**	**17.5**	**15.3**	**15.1**	**15.2**	**14.9**	**22.7**	**15.1**	**14.9**	**19**	**18.1**	**18.1**	**16.3**	**18.3**	**14.3**
Cyanide, Free	0.1	A	mg/kg	0.42 U	NA	0.43 U	NA	0.42 U	NA	0.4 U	NA	0.4 U	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	**0.1**	A	mg/kg	**1.6**	**2**	**1.4**	**1.4**	**1.9**	**3.7**	**0.96**	**0.52**	**0.16 J**	**2.1**	**2.7**	0.071 U	0.069 U	0.077 U	0.071 U	**0.14 J**	0.079 J
Iron	--	--	mg/kg	15200	15500	16600	15400	13000	14900	14900	15300	14900	9160	15300	16300	16800	14200	15100	17600	14600
Lead	**0.0537**	F	mg/kg	**10.4**	**7.7**	**8.8**	**9.1**	**9.1**	**8.6**	**8.9**	**8.3**	**11.8**	**9**	**9.4**	**9.8**	**9**	**9.7**	**8.1**	**10.8**	**7.8**
Magnesium	--	--	mg/kg	12300	12500	13300	13400	10400	12200	12000	12200	11800	8020 J	13600 J	12700	12100	12100	11500	14800	11700
Manganese	**220**	AC	mg/kg	**249**	191	**295**	159	**288**	153	**304**	**278**	**379**	76.4	111	**366**	**352**	**389**	**306**	**467**	**330**
Mercury	**0.005**	B	mg/kg	**0.02 J**	**0.02 J**	**0.018 J**	**0.024**	**0.015 J**	**0.021 J**	**0.02 J**	**0.015 J**	**0.023**	**0.027**	**0.03**	**0.021**	**0.013 J**	**0.023**	**0.012 J**	**0.024**	**0.015 J**
Nickel	**9.7**	A	mg/kg	**13.9**	**13.1**	**14.1**	**14.2**	**11.5**	**12.8**	**12.9**	**12.8**	**16.4**	9.2	**13.4**	**14.2**	**14.3**	**12.9**	**13.1**	**15.3**	**12.2**
Potassium	--	--	mg/kg	1080	802	1110	986	929	843	1070 J+	834 J+	1210 J+	991 J+	1020 J+	940	768	1090	835	1290 J+	802 J+
Selenium	**0.0276**	F	mg/kg	0.44 U	0.39 U	0.43 U	0.43 U	0.39 U	0.44 U	0.32 U	0.34 U	0.34 U	**0.65 J**	**0.44 J**	0.37 U	0.32 U	0.39 U	0.35 U	0.35 U	0.29 U
Silver	**2**	D	mg/kg	0.92 U	0.82 U	0.9 U	0.9 U	0.82 U	0.93 U	0.66 U	0.72 U	0.71 U	0.72 U	0.76 U	0.79 U	0.67 U	0.81 U	0.74 U	0.73 U	0.61 U
Sodium	--	--	mg/kg	249	101 J	187	120 J	160	114 J	224	101 J	61 J	140	107 J	64.6 J	51.2 J	68.3 J	55.9 J	72.9 J	52 J
Thallium	**0.027**	B	mg/kg	0.19 U	0.17 U	0.18 U	0.18 U	0.17 U	0.19 U	0.13 U	0.14 U	0.14 U	0.15 U	0.15 U	0.16 U	0.14 U	0.16 U	0.15 U	0.15 U	0.12 U
Vanadium	**0.714**	B	mg/kg	**14.3**	**16.3**	**15.3**	**17**	**11.2**	**16.1**	**14.3**	**15.6**	**16.6**	**11**	**17.2**	**14.8**	**14.3**	**12.8**	**13.5**	**16.5**	**14.7**
Zinc	**6.62**	F	mg/kg	**48.8**	**43.4**	**51**	**47.8**	**42.2**	**45.2**	**45.1**	**42.1**	**46.7**	**28.8**	**45.7**	**50**	**46.8**	**48.1**	**44.6**	**56.3**	**39.2**

Preliminary - Draft Not Approved For Review

Table A15. Summary of Metals in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-142	CFSB-142	CFSB-142	CFSB-143	CFSB-143	CFSB-143	CFSB-143	CFSB-144	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-145	CFSB-146	CFSB-146	CFSB-146	CFSB-147
			Sample Date	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017
			Depth Range	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5
			Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit																	
Aluminum	**50**	D	mg/kg	**7380**	**6540**	**7390**	**9900**	**8860**	**8500**	**6940**	**9430**	**9310**	**9550**	**10600**	**8600**	**8060**	**7960**	**10100**	**9550**	**7810**
Antimony	**0.142**	F	mg/kg	0.29 UJ	0.3 UJ	0.3 UJ	0.32 UJ	0.32 UJ	0.27 UJ	0.27 UJ	0.34 U	0.34 U	0.36 UJ	0.37 UJ	0.34 UJ	0.34 UJ	0.35 UJ	0.36 UJ	0.36 UJ	0.38 UJ
Arsenic	**0.25**	B	mg/kg	**5.7**	**8.2**	**5**	**5.7**	**5.1**	**5.2**	**3.8**	**3.2**	**3.1**	**2.4**	**4.2**	**4.6**	**4.1**	**3.4**	**4**	**3.6**	**4**
Barium	**1.04**	F	mg/kg	**67.6**	**91.5**	**83.9**	**175**	**158**	**154**	**87.2**	**165**	**190**	**165**	**100**	**111**	**103**	**74.8**	**97.9**	**93.5**	**77.2**
Beryllium	1.06	F	mg/kg	0.35	0.44	0.33 J	0.56	0.58	0.48	0.3 J	0.47	0.38 J	0.54	0.46	0.44	0.43	0.3 J	0.39 J	0.37 J	0.4 J
Cadmium	**0.00222**	F	mg/kg	0.31 U	0.32 U	0.31 U	0.34 U	0.33 U	0.29 U	0.28 U	0.36 U	0.36 U	0.38 U	0.39 U	0.36 U	0.36 U	0.37 U	0.38 U	0.38 U	0.4 U
Calcium	--	--	mg/kg	13000	8590	16100	21600	17700	16800	19400	22300	25500	22000	11800	14400	18500	12500	16300	23700	14600
Chromium	**0.34**	A	mg/kg	**6.9**	**7.3**	**7.5**	**11**	**9.9**	**10.1**	**9.2**	**10.7**	**10.7**	**11.1**	**8.8**	**8.9**	**9**	**7.1**	**8.5**	**7.8**	**8.2**
Cobalt	**0.14**	F	mg/kg	**4.2 J+**	**4.2 J+**	**5 J+**	**6.7 J+**	**6.3 J+**	**6.2 J+**	**5 J+**	**6.3**	**6.6**	**6.3 J+**	**5.4**	**5.4**	**5.2**	**4**	**4.9**	**4.2**	**5**
Copper	**5.4**	F	mg/kg	**11.3**	**10.6**	**11.1**	**18.4**	**17.5**	**17.9**	**12.2**	**16.3**	**18.2**	**15.8**	**12.4 J**	**12.1 J**	**12.4 J**	**17.1 J**	**13.3 J**	**13.4 J**	**11.3 J**
Cyanide, Free	0.1	A	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	**0.1**	A	mg/kg	**0.43**	**0.44**	**0.3**	**0.24 J**	**0.17 J**	**0.2 J**	0.091 J	**1**	**0.54**	**1.1**	0.07 U	0.06 U	0.064 U	0.064 U	0.067 U	0.069 U	0.067 U
Iron	--	--	mg/kg	12400	12700	11500	15300	14500	14400	12400	14800	15100	14800	13900	13300	12500	10300	12500	11300	12500
Lead	**0.0537**	F	mg/kg	**6.3 J+**	**13.6 J+**	**10.3 J+**	**10.2 J+**	**9.1 J+**	**9 J+**	**6 J+**	**8.8**	**9.7**	**9.2 J+**	**9.6**	**7.9**	**7.1**	**10.1**	**12.9**	**8.4**	**7.3**
Magnesium	--	--	mg/kg	9230	7770	9730	12300	11300	10900	10200	12600	13300	13900	8970	9020	9540	7600	8590	8950	8940
Manganese	**220**	AC	mg/kg	**415**	**314**	**394**	**410**	**365**	**347**	**309**	157	168	145	**329 J**	**311 J**	**282 J**	**321 J**	**350 J**	**327 J**	**257 J**
Mercury	**0.005**	B	mg/kg	**0.011 J+**	**0.014 J+**	**0.023 J+**	**0.026 J+**	**0.02 J+**	**0.02 J+**	0.011 U	**0.022**	**0.017 J**	**0.018 J+**	**0.012 J**	**0.017 J**	**0.013 J**	**0.021**	**0.021**	**0.02**	**0.014 J**
Nickel	**9.7**	A	mg/kg	9.3	**10.4**	**10.2**	**15.9**	**13.3**	**13**	**11.4**	**12.7**	**13.3**	**13.2**	**12.6**	**11.1**	**11.4**	**10**	**10.7**	9.5	**11.5**
Potassium	--	--	mg/kg	436	536	529	1270	1060	924	653	983	954	993	933	866	819	663	720	680	776
Selenium	**0.0276**	F	mg/kg	0.27 U	0.28 U	0.28 U	0.3 U	0.29 U	0.26 U	0.25 U	0.32 U	0.32 U	0.34 U	0.34 U	0.31 U	0.32 U	0.33 U	0.33 U	0.34 U	0.35 U
Silver	**2**	D	mg/kg	0.57 U	0.59 U	0.58 U	0.63 U	0.62 U	0.54 U	0.52 U	0.67 U	0.67 U	0.7 U	0.72 U	0.66 U	0.67 U	0.69 U	0.69 U	0.71 U	0.74 U
Sodium	--	--	mg/kg	42.1 J	55.8 J	55.4 J	97.3	71.6 J	70.7 J	44.9 J	158	140	90 J	50 U	45.6 U	91 J	47.5 U	48.2 U	49.2 U	51.2 U
Thallium	**0.027**	B	mg/kg	0.12 U	0.12 U	0.12 U	0.13 U	0.12 U	0.11 U	0.11 U	0.14 U	0.13 U	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.14 U	0.14 U	0.15 U
Vanadium	**0.714**	B	mg/kg	**7.6 J+**	**11 J+**	**8.3 J+**	**17.3 J+**	**17.1 J+**	**17.4 J+**	**11 J+**	**15.2**	**15.4**	**15.2 J+**	**14.1**	**14.5**	**12.5**	**7.9**	**8.5**	**7.8**	**13**
Zinc	**6.62**	F	mg/kg	**35.4 J+**	**37.4 J+**	**33.3 J+**	**50.3 J+**	**43 J+**	**42.1 J+**	**32.7 J+**	**46.4**	**45.4**	**46.7 J+**	**42.1**	**37**	**42**	**35.7**	**41.1**	**34.8**	**35.2**

Preliminary - Under Review

Table A15. Summary of Metals in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-147	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-148	CFSB-151	CFSB-151	CFSB-152	CFSB-152	CFSB-153	CFSB-153
			Sample Date	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017
			Depth Range	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
			Sample Type	FD	N	N	N	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit												
Aluminum	**50**	D	mg/kg	**7710**	**7560**	**7090**	**8450**	**7490**	**7740**	**11000**	**8100**	**10400**	**5740**	**16100**	**11600**
Antimony	**0.142**	F	mg/kg	0.35 UJ	0.34 UJ	0.35 UJ	0.37 UJ	0.34 UJ	0.35 UJ	0.42 UJ	0.27 UJ	0.5 UJ	0.3 UJ	**0.67 J-**	0.54 UJ
Arsenic	**0.25**	B	mg/kg	**3.6**	**4**	**4**	**4.5**	**4**	**3.7**	**1.8**	**1.6**	**3.7**	**2.4**	**2.9**	**2.7**
Barium	**1.04**	F	mg/kg	**82**	**98.6**	**92.5**	**118**	**85.4**	**132**	**227**	**152**	**706**	**172**	**380**	**260**
Beryllium	1.06	F	mg/kg	0.38 J	0.44	0.39 J	0.46	0.47	0.52	0.36 J	0.39	0.37 J	0.19 J	0.79	0.62 J
Cadmium	**0.00222**	F	mg/kg	0.37 U	0.36 U	0.37 U	0.39 U	0.36 U	0.37 U	0.45 U	0.28 U	**1.1 J**	0.32 U	**2.5**	**1.5 J**
Calcium	--	--	mg/kg	17700	22900	22700	13600	21300	26900	122000	26700	220000	22400	28700	24300
Chromium	**0.34**	A	mg/kg	**8.4**	**8.2**	**7.8**	**8.6**	**8**	**8.4**	**11.4**	**8.7**	**14**	**4.5**	**32.8**	**18**
Cobalt	**0.14**	F	mg/kg	**5.1**	**5**	**4.8**	**5.5**	**4.8**	**5.3**	**6.1**	**5**	**5.3**	**6.1**	**4**	**4.3**
Copper	**5.4**	F	mg/kg	**10.6 J**	**11 J**	**11.1 J**	**13.5 J**	**10.7 J**	**12.1 J**	**20.9**	**16**	**206**	**119**	**694 J**	**374 J**
Cyanide, Free	0.1	A	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.56 U	NA
Cyanide, Total	**0.1**	A	mg/kg	0.069 U	0.064 U	0.065 U	0.071 U	0.066 U	0.064 U	0.095 U	0.062 U	**1.4**	**0.44**	**16.4**	**0.71**
Iron	--	--	mg/kg	12700	12400	12100	13900	11700	11800	14200	11600	8960	16300	10500	10200
Lead	**0.0537**	F	mg/kg	**6.4**	**6.3**	**6**	**8.5**	**6.5**	**7**	**12.7**	**6.6**	**35.1**	**5.1**	**116**	**75.4**
Magnesium	--	--	mg/kg	9290	9940	9520	8190	10200	11000	14800	7600	8360	3120	6830	7440
Manganese	**220**	AC	mg/kg	**268 J**	**262 J**	**260 J**	**388 J**	**261 J**	**290 J**	**226**	106	96	72.4	69.4 J	80.1 J
Mercury	**0.005**	B	mg/kg	**0.014 J**	**0.012 J**	0.012 U	**0.023**	**0.015 J**	**0.016 J**	0.018 U	0.012 U	**0.26**	**0.082**	**1.4**	**0.9**
Nickel	**9.7**	A	mg/kg	**10.5**	**10.3**	**10**	**10.9**	9.5	9.7	**14.9**	**11.1**	**24.5**	9.5	**53.9**	**26.6**
Potassium	--	--	mg/kg	735	772	681	877	775	854	882	749	1140	614	845	736
Selenium	**0.0276**	F	mg/kg	0.33 U	0.32 U	0.33 U	0.34 U	0.32 U	0.33 U	0.39 U	0.25 U	**1.1 J**	0.28 U	**1.3 J**	**0.61 J**
Silver	**2**	D	mg/kg	0.69 U	0.67 U	0.68 U	0.71 U	0.67 U	0.69 U	0.82 U	0.52 U	1.7	0.59 U	**23.5**	**4.2**
Sodium	--	--	mg/kg	47.5 U	46.3 U	47.3 U	49.4 U	46.1 U	48 U	57.1 U	40.3 J	280	270	184	111 J
Thallium	**0.027**	B	mg/kg	0.14 U	0.14 U	0.14 U	0.14 U	0.13 U	0.14 U	0.17 U	0.11 U	**0.2 J**	0.12 U	0.24 U	0.21 U
Vanadium	**0.714**	B	mg/kg	**12.5**	**14.2**	**13.5**	**15.9**	**11.1**	**11.2**	**12.7**	**10**	**14.4**	**55.7**	**26.2**	**17.6**
Zinc	**6.62**	F	mg/kg	**35**	**33.6**	**33.4**	**47.9**	**32.3**	**32**	**63**	**41.3**	**225**	**37.1**	**351**	**266**

Preliminary - Under MDEQ Review

Table A16. Summary of General Chemistry in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-134	CFSB-134	CFSB-135	CFSB-135	CFSB-136	CFSB-136	CFSB-137	CFSB-137	CFSB-138	CFSB-138	CFSB-138	CFSB-139	CFSB-139	CFSB-140	CFSB-140	CFSB-141	CFSB-141	CFSB-142	CFSB-142	CFSB-142
			Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/02/2017	11/02/2017	11/02/2017
			Depth Range	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	2 - 4
			Sample Type	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit																				
Fluoride	**6.5**	B	mg/kg	**25.7 J+**	**21.7 J+**	**22.2 J+**	**22.9 J+**	**14.5 J+**	**15.4 J+**	**17 J+**	**16.7 J+**	**32.7 J+**	**19.3 J**	**33.5 J**	**15.3 J+**	**12 J+**	**12.8 J+**	**14.9 J+**	**16.4 J+**	1.58 J+	**22.1 J+**	**17.8 J+**	**15.4 J+**
pH	--	--	ph units	7.9	7.8	8.1	8	7.9	7.4	7.6	8.2	8	7.5	7.5	8	8.2	8.1	8.1	7.9	8.2	8.1	8.2	8.3
Total Organic Carbon	--	--	mg/kg	18000	13200	12800	9990	7220	7760	18000	8140	30800	13500	20400	18800	10200	18800	13200	21300	7690	13100	13700	10300

Preliminary - Under EPA and MDEQ Review

Table A16. Summary of General Chemistry in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-143	CFSB-143	CFSB-143	CFSB-143	CFSB-144	CFSB-144	CFSB-144	CFSB-145	CFSB-145	CFSB-145	CFSB-146	CFSB-146	CFSB-146	CFSB-147	CFSB-147	CFSB-147	CFSB-147	CFSB-148	CFSB-148	CFSB-148
			Sample Date	11/02/2017	11/02/2017	11/02/2017	11/02/2017	11/03/2017	11/03/2017	11/03/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017	11/06/2017
			Depth Range	0 - 0.5	0.5 - 2	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4
			Sample Type	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit																				
Fluoride	**6.5**	B	mg/kg	**17.1 J+**	**15.5 J+**	**14.3 J+**	3.51 J+	**19.5 J+**	**18.6 J+**	**21.6 J+**	**14.4 J+**	**16.9 J+**	**13.3 J+**	**14.7 J+**	**18.9 J+**	**18.4 J+**	**12.4 J+**	**10.6 J+**	**12.4 J+**	**12.1 J+**	**12.3 J+**	**18.6 J+**	**27.5 J+**
pH	--	--	ph units	7.9	8.4	8.4	8.8	7.9	8.3	7.7	8.8 J	8.8 J	8.2 J	8.7 J	8.3 J	8.7 J	8.6 J	8.5 J	8.8 J	9 J	8.4 J	9 J	8.5 J
Total Organic Carbon	--	--	mg/kg	23000	13900	12100	5510	21200	14300	10800	6670	9760	8560	11200	12000	7640	11600	10100	7840	9300	20900	6040	6780

Preliminary - Under EPA and MDEQ Review

Table A16. Summary of General Chemistry in Soil – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-151	CFSB-151	CFSB-152	CFSB-152	CFSB-153	CFSB-153
			Sample Date	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017
			Depth Range	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2	0 - 0.5	0.5 - 2
			Sample Type	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit						
Fluoride	**6.5**	B	mg/kg	**18.3 J+**	**12.4 J+**	**44.1 J+**	**24.7 J+**	**30.4 J+**	**31.4 J+**
pH	--	--	ph units	8.4 J	8.6 J	7.8 J	8 J	7.8 J	7.8 J
Total Organic Carbon	--	--	mg/kg	15100	3520	65700	35100	97800	182000

Preliminary - Under EPA and MDEQ Review

Table A17. Summary of Volatile Organic Compounds in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020
			Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/02/2017	11/02/2017	11/07/2017	11/07/2017	11/07/2017
			Sample Type	N	N	N	N	N	FD	N	N	N
Parameter	Minimum ESV	ESV Source	Unit									
1,1,1-Trichloroethane	--	--	mg/kg	0.00043 U	0.00076 U	0.00033 U	0.00071 U	0.00026 U	0.00027 U	0.00099 U	0.0019 U	0.00086 U
1,1,2,2-Tetrachloroethane	--	--	mg/kg	0.0004 U	0.0007 U	0.0003 U	0.00065 U	0.00024 U	0.00025 U	0.00091 U	0.0017 UJ	0.00079 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	mg/kg	0.00056 U	0.00099 U	0.00042 U	0.00092 U	0.00033 U	0.00035 U	0.0013 U	0.0024 U	0.0011 U
1,1,2-Trichloroethane	--	--	mg/kg	0.00033 U	0.00058 U	0.00025 U	0.00054 U	0.0002 U	0.00021 U	0.00075 U	0.0014 UJ	0.00066 U
1,1-Dichloroethane	--	--	mg/kg	0.00038 U	0.00067 U	0.00029 U	0.00063 U	0.00023 U	0.00024 U	0.00087 U	0.0017 U	0.00076 U
1,1-Dichloroethene	--	--	mg/kg	0.00042 U	0.00074 U	0.00031 U	0.00069 U	0.00025 U	0.00026 U	0.00095 U	0.0018 U	0.00083 U
1,2,3-Trichlorobenzene	--	--	mg/kg	0.00034 U	0.00059 U	0.00025 U	0.00055 U	0.0002 U	0.00021 U	0.00077 U	0.0015 UJ	0.00067 U
1,2,4-Trichlorobenzene	--	--	mg/kg	0.00017 U	0.0003 U	0.00013 U	0.00028 U	0.0001 U	0.00011 U	0.00039 U	0.00074 UJ	0.00034 U
1,2-Dibromo-3-Chloropropane	--	--	mg/kg	0.00086 UJ	0.0015 UJ	0.00064 U	0.0014 U	0.00051 U	0.00053 U	0.0019 UJ	0.0037 UJ	0.0017 UJ
1,2-Dichlorobenzene	--	--	mg/kg	0.00027 U	0.00047 U	0.0002 U	0.00044 U	0.00016 U	0.00017 U	0.00061 U	0.0012 UJ	0.00053 U
1,2-Dichloroethane	--	--	mg/kg	0.00055 U	0.00097 U	0.00041 U	0.00091 U	0.00033 U	0.00034 U	0.0013 U	0.0024 U	0.0011 U
1,2-Dichloropropane	--	--	mg/kg	0.00079 U	0.0014 U	0.00059 U	0.0013 U	0.00047 U	0.00049 U	0.0018 U	0.0034 UJ	0.0016 U
1,3-Dichlorobenzene	--	--	mg/kg	0.0003 U	0.00052 U	0.00022 U	0.00049 U	0.00018 U	0.00018 U	0.00067 U	0.0013 UJ	0.00059 U
1,4-Dichlorobenzene	--	--	mg/kg	0.00019 U	0.00033 U	0.00014 U	0.00031 U	0.00011 U	0.00012 U	0.00042 U	0.0008 UJ	0.00037 U
2-Butanone (MEK)	--	--	mg/kg	0.053	0.016	0.013	0.012 J	0.0025 J+	0.0025 J	0.08	0.03 J	0.013 J
2-Hexanone	--	--	mg/kg	0.0015 U	0.0026 U	0.0011 U	0.0024 U	0.00086 U	0.0009 U	0.0033 U	0.0063 U	0.0029 U
4-Methyl-2-pentanone (MIBK)	--	--	mg/kg	0.0012 U	0.0022 U	0.00093 U	0.002 U	0.00073 U	0.00077 U	0.0028 U	0.0053 U	0.0024 U
Acetone	--	--	mg/kg	0.17	0.15	0.053	0.089	0.02	0.021	0.29	0.15	0.075
Benzene	--	--	mg/kg	0.0021	0.00085 U	0.002	0.0035	0.00085 J	0.00091 J	0.0011 U	0.0021 U	0.00095 U
Bromoform	--	--	mg/kg	0.00079 U	0.0014 U	0.00059 U	0.0013 U	0.00047 U	0.00049 U	0.0018 U	0.0034 U	0.0016 U
Bromomethane	--	--	mg/kg	0.00088 U	0.0016 U	0.00066 U	0.0014 U	0.00052 U	0.00055 U	0.002 U	0.0038 U	0.0017 U
Carbon disulfide	--	--	mg/kg	0.011	0.0029 J	0.014	0.0048	0.00045 J	0.00058 J	0.005	0.0053 J	0.0013 J
Carbon tetrachloride	--	--	mg/kg	0.00034 U	0.00059 U	0.00025 U	0.00055 U	0.0002 U	0.00021 U	0.00077 U	0.0015 U	0.00067 U
Chlorobenzene	--	--	mg/kg	0.00033 U	0.00058 U	0.00025 U	0.00054 U	0.0002 U	0.0002 U	0.00075 U	0.0014 UJ	0.00065 U
Chlorobromomethane	--	--	mg/kg	0.00052 U	0.00092 U	0.00039 U	0.00086 U	0.00031 U	0.00032 U	0.0012 U	0.0023 U	0.001 U
Chlorodibromomethane	--	--	mg/kg	0.00036 U	0.00064 U	0.00027 U	0.00059 U	0.00021 U	0.00022 U	0.00082 U	0.0016 U	0.00071 U
Chloroethane	--	--	mg/kg	0.00097 U	0.0017 U	0.00073 U	0.0016 U	0.00058 U	0.0006 U	0.0022 U	0.0042 U	0.0019 U
Chloroform	--	--	mg/kg	0.00059 U	0.001 U	0.00045 U	0.00098 U	0.00035 U	0.00037 U	0.0013 U	0.0026 U	0.0012 U
Chloromethane	--	--	mg/kg	0.00081 U	0.0014 U	0.00061 UJ	0.0013 UJ	0.00048 U	0.0005 U	0.0018 U	0.0035 U	0.0016 U
cis-1,2-Dichloroethene	--	--	mg/kg	0.00028 U	0.0005 U	0.00021 U	0.00046 U	0.00017 U	0.00018 U	0.00064 U	0.0012 U	0.00056 U
cis-1,3-Dichloropropene	--	--	mg/kg	0.00051 UJ	0.00089 UJ	0.00038 U	0.00083 U	0.0003 U	0.00032 U	0.0012 UJ	0.0022 UJ	0.001 UJ
Cyclohexane	--	--	mg/kg	0.0046	0.00072 U	0.0033	0.0039	0.0013	0.0011 J	0.00093 U	0.0018 UJ	0.00093 J
Dichlorobromomethane	--	--	mg/kg	0.00048 U	0.00084 U	0.00036 U	0.00079 U	0.00028 U	0.0003 U	0.0011 U	0.0021 U	0.00095 U
Dichlorodifluoromethane	--	--	mg/kg	0.00063 U	0.0011 U	0.00047 U	0.001 U	0.00037 U	0.00039 U	0.0014 U	0.0027 U	0.0012 U
Ethylbenzene	--	--	mg/kg	0.0013 J	0.00065 U	0.00057 J	0.0016 J	0.00038 J	0.00034 J	0.00084 U	0.0016 UJ	0.00073 U
Ethylene Dibromide	--	--	mg/kg	0.00034 U	0.00059 U	0.00025 U	0.00055 U	0.0002 U	0.00021 U	0.00076 U	0.0014 UJ	0.00066 U
Isopropylbenzene	--	--	mg/kg	0.00023 U	0.00041 U	0.00018 U	0.00039 U	0.00014 U	0.00015 U	0.00053 U	0.001 UJ	0.00046 U
Methyl acetate	--	--	mg/kg	0.008 UJ	0.014 UJ	0.006 U	0.11	0.0048 U	0.005 U	0.018 UJ	0.035 UJ	0.016 UJ
Methyl tert-butyl ether	--	--	mg/kg	0.00023 U	0.00041 U	0.00017 U	0.00038 U	0.00014 U	0.00014 U	0.00053 U	0.001 U	0.00046 U
Methylcyclohexane	--	--	mg/kg	0.0081	0.00052 U	0.0061	0.0085	0.0023	0.0021	0.00068 U	0.0013 UJ	0.0014 J
Methylene Chloride	--	--	mg/kg	0.0003 U	0.00053 U	0.00023 U	0.0011 J	0.00018 U	0.00019 U	0.001 J	0.0013 U	0.0006 U
m-Xylene & p-Xylene	--	--	mg/kg	0.0033	0.00057 U	0.0016	0.0043	0.00065 J	0.00091 J	0.00074 U	0.0014 UJ	0.00077 J
o-Xylene	--	--	mg/kg	0.0011 J	0.00031 U	0.00045 J	0.0012 J	0.00019 J	0.00031 J	0.0004 U	0.00076 UJ	0.00035 U
Styrene	--	--	mg/kg	0.00023 U	0.0004 U	0.00017 U	0.00038 U	0.00014 U	0.00014 U	0.00052 U	0.00099 UJ	0.00045 U
Tetrachloroethene	--	--	mg/kg	0.00027 U	0.00047 U	0.0002 U	0.00044 U	0.00021 J	0.00017 U	0.0006 U	0.0012 UJ	0.00053 U
Toluene	--	--	mg/kg	0.0062	0.002 U	0.004	0.011	0.0019	0.0019	0.0027 J	0.005 UJ	0.0023 U
trans-1,2-Dichloroethene	--	--	mg/kg	0.00046 U	0.00081 U	0.00034 U	0.00075 U	0.00027 U	0.00028 U	0.001 U	0.002 U	0.00091 U

Preliminary - Under EPA and MDEQ Review

Table A17. Summary of Volatile Organic Compounds in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020
			Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/02/2017	11/02/2017	11/07/2017	11/07/2017	11/07/2017
			Sample Type	N	N	N	N	N	FD	N	N	N
Parameter	Minimum ESV	ESV Source	Unit									
trans-1,3-Dichloropropene	--	--	mg/kg	0.0005 UJ	0.00087 UJ	0.00037 U	0.00081 U	0.00029 U	0.00031 U	0.0011 UJ	0.0021 UJ	0.00098 UJ
Trichloroethene	--	--	mg/kg	0.00027 U	0.00047 U	0.0002 U	0.00044 U	0.00016 U	0.00017 U	0.00061 U	0.0012 U	0.00053 U
Trichlorofluoromethane	--	--	mg/kg	0.00076 U	0.0013 U	0.00057 U	0.0012 U	0.00045 U	0.00047 U	0.0017 U	0.0033 U	0.0015 U
Vinyl chloride	--	--	mg/kg	0.001 U	0.0018 U	0.00076 U	0.0017 U	0.0006 U	0.00063 U	0.0023 U	0.0044 U	0.002 U

Preliminary - Under EPA and MDEQ Review

Table A17. Summary of Volatile Organic Compounds in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
			Sample Date	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
			Sample Type	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit								
1,1,1-Trichloroethane	--	--	mg/kg	0.00027 U	0.00032 U	0.00031 U	0.00024 U	0.00028 U	0.00027 U	0.00028 U	0.00027 U
1,1,2,2-Tetrachloroethane	--	--	mg/kg	0.00025 U	0.0003 U	0.00029 U	0.00022 U	0.00026 U	0.00025 U	0.00026 U	0.00025 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	mg/kg	0.00035 U	0.00042 U	0.0004 U	0.00031 U	0.00036 U	0.00035 U	0.00036 U	0.00036 U
1,1,2-Trichloroethane	--	--	mg/kg	0.00021 U	0.00025 U	0.00024 U	0.00018 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
1,1-Dichloroethane	--	--	mg/kg	0.00024 U	0.00029 U	0.00028 U	0.00021 U	0.00025 U	0.00024 U	0.00025 U	0.00024 U
1,1-Dichloroethene	--	--	mg/kg	0.00026 U	0.00031 U	0.0003 U	0.00023 U	0.00027 U	0.00027 U	0.00027 U	0.00027 U
1,2,3-Trichlorobenzene	--	--	mg/kg	0.00021 U	0.00025 U	0.00024 U	0.00018 U	0.00022 U	0.00021 U	0.00022 U	0.00021 U
1,2,4-Trichlorobenzene	--	--	mg/kg	0.00011 U	0.00013 U	0.00012 U	9.4E-05 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
1,2-Dibromo-3-Chloropropane	--	--	mg/kg	0.00054 U	0.00064 U	0.00062 U	0.00047 U	0.00055 U	0.00054 U	0.00055 U	0.00054 U
1,2-Dichlorobenzene	--	--	mg/kg	0.00017 U	0.0002 U	0.00019 U	0.00015 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
1,2-Dichloroethane	--	--	mg/kg	0.00035 U	0.00041 U	0.0004 U	0.0003 U	0.00036 U	0.00035 U	0.00036 U	0.00035 U
1,2-Dichloropropane	--	--	mg/kg	0.0005 U	0.00059 U	0.00057 U	0.00043 U	0.00051 U	0.0005 U	0.00051 U	0.0005 U
1,3-Dichlorobenzene	--	--	mg/kg	0.00019 U	0.00022 U	0.00021 U	0.00016 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U
1,4-Dichlorobenzene	--	--	mg/kg	0.00012 U	0.00014 U	0.00013 U	0.0001 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U
2-Butanone (MEK)	--	--	mg/kg	0.0025 J	0.0033 J	0.0063 J	0.0035 J	0.0047 J+	0.0058 J+	0.0043 J+	0.0042 J+
2-Hexanone	--	--	mg/kg	0.00091 U	0.0011 U	0.001 U	0.0008 U	0.00094 U	0.00092 U	0.00094 U	0.00092 U
4-Methyl-2-pentanone (MIBK)	--	--	mg/kg	0.00078 U	0.00092 U	0.00089 U	0.00068 U	0.0008 U	0.00078 U	0.0008 U	0.00078 U
Acetone	--	--	mg/kg	0.018	0.033	0.06	0.03	0.027	0.04	0.039	0.023
Benzene	--	--	mg/kg	0.0015	0.0014	0.0019	0.001	0.0017	0.0016	0.0011 J	0.0015
Bromoform	--	--	mg/kg	0.0005 U	0.00059 U	0.00057 U	0.00043 U	0.00051 U	0.0005 U	0.00051 U	0.0005 U
Bromomethane	--	--	mg/kg	0.00056 U	0.00066 U	0.00064 U	0.00048 U	0.00057 U	0.00056 U	0.00057 U	0.00056 U
Carbon disulfide	--	--	mg/kg	0.0015	0.0014	0.0029	0.00076 J	0.0022	0.0015	0.0026	0.0011 J
Carbon tetrachloride	--	--	mg/kg	0.00021 U	0.00025 U	0.00024 U	0.00018 U	0.00022 U	0.00021 U	0.00022 U	0.00021 U
Chlorobenzene	--	--	mg/kg	0.00021 U	0.00025 U	0.00024 U	0.00018 U	0.00021 U	0.00021 U	0.00021 U	0.00021 U
Chlorobromomethane	--	--	mg/kg	0.00033 U	0.00039 U	0.00038 U	0.00029 U	0.00034 U	0.00033 U	0.00034 U	0.00033 U
Chlorodibromomethane	--	--	mg/kg	0.00023 U	0.00027 U	0.00026 U	0.0002 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U
Chloroethane	--	--	mg/kg	0.00061 U	0.00072 U	0.0007 U	0.00053 U	0.00063 U	0.00062 U	0.00063 U	0.00062 U
Chloroform	--	--	mg/kg	0.00037 U	0.00044 U	0.00043 U	0.00033 U	0.00038 U	0.00038 U	0.00038 U	0.00038 U
Chloromethane	--	--	mg/kg	0.00051 UJ	0.0006 UJ	0.00058 UJ	0.00044 UJ	0.00052 U	0.00051 U	0.00052 U	0.00051 U
cis-1,2-Dichloroethene	--	--	mg/kg	0.00018 U	0.00021 U	0.0002 U	0.00016 U	0.00018 U	0.00018 U	0.00018 U	0.00018 U
cis-1,3-Dichloropropene	--	--	mg/kg	0.00032 U	0.00038 U	0.00037 U	0.00028 U	0.00033 U	0.00032 U	0.00033 U	0.00032 U
Cyclohexane	--	--	mg/kg	0.0019	0.0017	0.0031	0.0014	0.0032	0.0026	0.0017	0.0028
Dichlorobromomethane	--	--	mg/kg	0.0003 U	0.00036 U	0.00035 U	0.00026 U	0.00031 U	0.0003 U	0.00031 U	0.0003 U
Dichlorodifluoromethane	--	--	mg/kg	0.0004 U	0.00047 U	0.00045 U	0.00034 U	0.00041 U	0.0004 U	0.00041 U	0.0004 U
Ethylbenzene	--	--	mg/kg	0.00061 J	0.00059 J	0.00049 J	0.00047 J	0.00053 J	0.0022	0.00038 J	0.00026 J
Ethylene Dibromide	--	--	mg/kg	0.00021 U	0.00025 U	0.00024 U	0.00018 U	0.00022 U	0.00021 U	0.00022 U	0.00021 U
Isopropylbenzene	--	--	mg/kg	0.00015 U	0.00017 U	0.00017 U	0.00013 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Methyl acetate	--	--	mg/kg	0.005 U	0.006 U	0.0058 U	0.0044 U	0.0052 U	0.0051 U	0.0052 U	0.0051 U
Methyl tert-butyl ether	--	--	mg/kg	0.00015 U	0.00017 U	0.00017 U	0.00013 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Methylcyclohexane	--	--	mg/kg	0.0038	0.0035	0.0051	0.0029	0.006	0.0045	0.0028	0.0046
Methylene Chloride	--	--	mg/kg	0.00019 U	0.00023 U	0.00022 U	0.00017 U	0.0002 U	0.00019 U	0.0002 U	0.00019 U
m-Xylene & p-Xylene	--	--	mg/kg	0.0018	0.0013 J	0.0014	0.0014	0.0014	0.0011 J	0.0008 J	0.00098 J
o-Xylene	--	--	mg/kg	0.00064 J	0.00042 J	0.00041 J	0.00044 J	0.00045 J	0.00034 J	0.00026 J	0.0003 J
Styrene	--	--	mg/kg	0.00014 U	0.00017 U	0.00017 U	0.00013 U	0.00015 U	0.00015 U	0.00015 U	0.00015 U
Tetrachloroethene	--	--	mg/kg	0.00017 U	0.0002 U	0.00019 U	0.00015 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
Toluene	--	--	mg/kg	0.0036	0.0029	0.0044	0.0026	0.0031	0.0053	0.0032	0.0023
trans-1,2-Dichloroethene	--	--	mg/kg	0.00029 U	0.00034 U	0.00033 U	0.00025 U	0.0003 U	0.00029 U	0.0003 U	0.00029 U

Preliminary Under EPA and MDEQ Review

Table A17. Summary of Volatile Organic Compounds in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
			Sample Date	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
			Sample Type	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit								
trans-1,3-Dichloropropene	--	--	mg/kg	0.00031 U	0.00037 U	0.00036 U	0.00027 U	0.00032 U	0.00031 U	0.00032 U	0.00031 U
Trichloroethene	--	--	mg/kg	0.00017 U	0.0002 U	0.00019 U	0.00015 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U
Trichlorofluoromethane	--	--	mg/kg	0.00048 U	0.00056 U	0.00055 U	0.00041 U	0.00049 U	0.00048 U	0.00049 U	0.00048 U
Vinyl chloride	--	--	mg/kg	0.00064 U	0.00076 U	0.00073 U	0.00056 U	0.00066 U	0.00064 U	0.00066 U	0.00064 U

Preliminary - Under EPA and MDEQ Review

Table A18. Summary of Semi-Volatile Organic Compounds in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020
			Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017
			Sample Type	N	N	N	N	N	FD	N	N	N
Parameter	Minimum ESV	ESV Source	Unit									
1,1'-Biphenyl	1.22	D	mg/kg	0.05 U	0.058 U	0.044 U	0.047 U	0.039 U	0.038 U	0.1 U	0.12 U	0.086 U
1,2,4,5-Tetrachlorobenzene	--	--	mg/kg	0.044 U	0.051 U	0.039 U	0.041 U	0.034 U	0.034 U	0.089 U	0.11 U	0.075 U
1,4-Dioxane	--	--	mg/kg	0.16 U	0.18 U	0.14 U	0.15 U	0.12 U	0.12 U	0.32 U	0.39 U	0.27 U
2,2'-oxybis[1-chloropropane]	--	--	mg/kg	0.024 U	0.028 U	0.021 U	0.022 U	0.019 U	0.019 U	0.049 U	0.06 U	0.041 U
2,3,4,6-Tetrachlorophenol	0.129	A	mg/kg	0.055 U	0.064 U	0.049 U	0.051 U	0.043 U	0.042 U	0.11 U	0.14 UJ	0.095 U
2,4,5-Trichlorophenol	0.288	E	mg/kg	0.058 U	0.068 U	0.052 U	0.054 U	0.045 U	0.045 U	0.12 U	0.15 U	0.1 U
2,4,6-Trichlorophenol	0.208	A	mg/kg	0.017 U	0.019 U	0.015 U	0.016 U	0.013 U	0.013 U	0.034 U	0.041 U	0.029 U
2,4-Dichlorophenol	0.0817	A	mg/kg	0.014 U	0.016 U	0.012 U	0.013 U	0.011 U	0.011 U	0.028 U	0.034 U	0.024 U
2,4-Dimethylphenol	0.029	D	mg/kg	0.13 UJ	0.15 UJ	0.11 UJ	0.12 UJ	0.099 U	0.099 U	0.26 UJ	0.32 UJ	0.22 UJ
2,4-Dinitrophenol	0.00621	A	mg/kg	0.44 U	0.51 U	0.39 U	0.41 U	0.34 U	0.34 U	0.91 U	1.1 UJ	0.76 U
2,4-Dinitrotoluene	0.0144	A	mg/kg	0.023 U	0.027 U	0.021 U	0.022 U	0.018 U	0.018 U	0.048 U	0.058 U	0.04 U
2,6-Dinitrotoluene	0.0398	A	mg/kg	0.031 U	0.036 U	0.028 U	0.029 U	0.024 U	0.024 U	0.064 U	0.078 U	0.054 U
2-Chloronaphthalene	0.417	A	mg/kg	0.013 U	0.015 U	0.012 U	0.012 U	0.01 U	0.01 U	0.027 U	0.033 U	0.023 U
2-Chlorophenol	0.02716	E	mg/kg	0.015 U	0.017 U	0.013 U	0.014 U	0.011 U	0.011 U	0.031 U	0.037 UJ	0.026 U
2-Methylnaphthalene	0.0202	A	mg/kg	0.013 U	0.015 U	0.011 U	0.012 U	0.01 U	0.0099 U	0.027 U	0.032 U	0.022 U
2-Methylphenol	0.011856	E	mg/kg	0.026 U	0.03 U	0.023 U	0.024 U	0.02 U	0.02 U	0.052 U	0.064 U	0.044 U
2-Nitroaniline	--	--	mg/kg	0.019 U	0.022 U	0.017 U	0.018 U	0.015 U	0.015 U	0.04 U	0.048 U	0.033 U
2-Nitrophenol	--	--	mg/kg	0.02 U	0.023 U	0.017 U	0.018 U	0.015 U	0.015 U	0.04 U	0.049 UJ	0.034 U
3 & 4 Methylphenol	--	--	mg/kg	0.016 U	0.018 U	0.014 U	0.015 U	0.012 U	0.012 U	0.13 J	0.039 U	0.027 U
3,3'-Dichlorobenzidine	0.127	A	mg/kg	0.066 U	0.076 U	0.058 U	0.061 U	0.05 U	0.05 U	0.13 U	0.16 U	0.11 U
3-Nitroaniline	--	--	mg/kg	0.017 U	0.02 U	0.015 U	0.016 U	0.013 U	0.013 U	0.036 U	0.043 U	0.03 U
4,6-Dinitro-2-methylphenol	--	--	mg/kg	0.16 U	0.18 U	0.14 U	0.15 U	0.12 U	0.12 U	0.32 U	0.39 UJ	0.27 U
4-Bromophenyl phenyl ether	0.255	E	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.038 U	0.046 U	0.032 U
4-Chloro-3-methylphenol	0.388	A	mg/kg	0.025 U	0.029 U	0.022 U	0.023 U	0.019 U	0.019 U	0.052 U	0.063 U	0.043 U
4-Chloroaniline	0.146	A	mg/kg	0.015 U	0.018 U	0.013 U	0.014 U	0.012 U	0.012 U	0.031 U	0.038 U	0.026 U
4-Chlorophenyl phenyl ether	--	--	mg/kg	0.018 U	0.02 U	0.016 U	0.016 U	0.014 U	0.013 U	0.036 U	0.044 U	0.03 U
4-Nitroaniline	--	--	mg/kg	0.022 U	0.026 U	0.02 U	0.021 U	0.017 U	0.017 U	0.045 U	0.055 U	0.038 U
4-Nitrophenol	0.013	A	mg/kg	0.28 U	0.33 U	0.25 U	0.26 U	0.22 UJ	0.22 UJ	0.58 U	0.7 U	0.48 U
Acenaphthene	**0.00671**	A	mg/kg	0.014 U	0.016 U	0.013 U	0.013 U	0.011 U	0.011 U	0.029 U	0.035 U	0.024 U
Acenaphthylene	0.00587	A	mg/kg	0.015 U	0.018 U	0.013 U	0.014 U	0.012 U	0.012 U	0.031 U	0.038 U	0.026 U
Acetophenone	--	--	mg/kg	0.013 U	0.015 U	0.011 U	0.012 U	0.0098 U	0.0098 U	0.026 U	0.032 U	0.022 U
Anthracene	**0.01**	B	mg/kg	0.056 U	0.065 U	0.049 U	0.052 U	0.043 U	0.043 U	0.11 U	0.14 U	0.096 U
Atrazine	0.00662	D	mg/kg	0.026 U	0.03 U	0.023 U	0.024 U	0.02 U	0.02 U	0.053 U	0.065 U	0.045 U
Benzaldehyde	--	--	mg/kg	0.045 U	0.052 U	0.04 U	0.042 U	0.034 U	0.034 U	0.092 U	0.11 U	0.077 U
Benzo[a]anthracene	**0.016**	B	mg/kg	**0.083**	**0.2**	**0.079**	0.046 U	0.038 U	0.038 U	**0.51**	**0.31**	**0.31**
Benzo[a]pyrene	**0.032**	B	mg/kg	**0.11**	**0.31**	0.016 U	0.017 U	**0.038 J**	0.014 UJ	**0.86**	**0.48**	**0.48**
Benzo[b]fluoranthene	9.79	F	mg/kg	0.2	0.55	0.17	0.082	0.11 J	0.018 UJ	1.9	0.76 J-	0.71
Benzo[g,h,i]perylene	**0.016**	B	mg/kg	**0.12 J**	**0.43 J**	**0.048 J+**	0.031 U	0.026 U	0.026 U	**0.91 J**	**0.65 J**	**0.61 J**
Benzo[k]fluoranthene	**0.24**	AD	mg/kg	0.076	0.19	0.051 J	0.027 J	0.02 U	0.02 U	**0.64**	0.22 J-	**0.26**
Bis(2-chloroethoxy)methane	--	--	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.037 U	0.045 U	0.031 U
Bis(2-chloroethyl)ether	--	--	mg/kg	0.014 U	0.016 U	0.012 U	0.013 U	0.011 U	0.011 U	0.028 U	0.034 U	0.024 U
Bis(2-ethylhexyl) phthalate	**0.18**	D	mg/kg	0.023 U	0.027 U	0.02 U	0.021 U	0.018 U	0.018 U	**0.52 J**	0.057 U	0.039 U
Butyl benzyl phthalate	1.97	A	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.037 U	0.045 U	0.031 U
Caprolactam	--	--	mg/kg	0.042 U	0.049 U	0.037 U	0.039 U	0.033 U	0.032 U	0.087 U	0.11 U	0.072 U
Carbazole	--	--	mg/kg	0.015 U	0.017 U	0.013 U	0.014 U	0.011 U	0.011 U	0.16 J	0.07 J	0.025 U
Chrysene	**0.027**	B	mg/kg	**0.14 J**	**0.34 J**	**0.21 J**	**0.071 J**	**0.13 J**	0.012 UJ	**1.4**	**0.52 J**	**0.47 J**
Dibenz(a,h)anthracene	**0.01**	B	mg/kg	0.031 U	**0.14**	0.027 U	0.028 U	0.024 U	0.023 U	**0.28**	0.076 U	**0.19**

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			Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020
			Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017
			Sample Type	N	N	N	N	N	FD	N	N	N
Parameter	Minimum ESV	ESV Source	Unit									
Dibenzofuran	0.300736	E	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.036 U	0.044 U	0.03 U
Diethyl phthalate	0.603	D	mg/kg	0.017 U	0.019 U	0.015 U	0.016 U	0.013 U	0.013 U	0.034 U	0.041 U	0.029 U
Dimethyl phthalate	--	--	mg/kg	0.017 U	0.02 U	0.015 U	0.016 U	0.013 U	0.013 U	0.035 U	0.042 U	0.029 U
Di-n-butyl phthalate	1.1989	E	mg/kg	0.018 U	0.02 U	0.016 U	0.016 U	0.014 U	0.013 U	0.036 U	0.044 U	0.03 U
Di-n-octyl phthalate	16.8858	E	mg/kg	0.03 U	0.035 U	0.026 U	0.028 U	0.023 U	0.023 U	0.061 U	0.074 UJ	0.051 U
Fluoranthene	**0.031**	B	mg/kg	**0.12 J**	**0.28 J**	**0.27 J**	**0.099 J**	**0.14 J**	0.013 UJ	**1 J**	**0.41 J**	**0.44 J**
Fluorene	**0.01**	B	mg/kg	0.013 U	0.015 U	0.011 U	0.012 U	0.0098 U	0.0098 U	0.026 U	0.032 U	0.022 U
Hexachlorobenzene	0.02	AD	mg/kg	0.024 U	0.028 U	0.021 U	0.022 U	0.018 U	0.018 U	0.049 U	0.059 U	0.041 U
Hexachlorobutadiene	0.0265	A	mg/kg	0.017 U	0.019 U	0.015 U	0.015 U	0.013 U	0.013 U	0.034 U	0.041 U	0.028 U
Hexachlorocyclopentadiene	0.901	A	mg/kg	0.037 UJ	0.042 UJ	0.032 UJ	0.034 UJ	0.028 UJ	0.028 UJ	0.075 UJ	0.091 R	0.063 UJ
Hexachloroethane	0.2136	E	mg/kg	0.022 U	0.025 U	0.019 U	0.02 U	0.017 U	0.016 U	0.044 U	0.053 UJ	0.037 U
Indeno[1,2,3-cd]pyrene	**0.017**	BD	mg/kg	**0.14**	**0.57**	**0.052 J+**	0.036 U	**0.052 J**	0.03 UJ	**1.2**	**0.82**	**0.8**
Isophorone	0.432	A	mg/kg	0.013 U	0.015 U	0.011 U	0.012 U	0.0097 U	0.0097 U	0.026 U	0.031 U	0.022 U
Naphthalene	**0.015**	B	mg/kg	0.015 U	0.017 U	0.013 U	0.014 U	**0.016 J**	0.011 U	0.031 U	0.037 UJ	0.026 U
Nitrobenzene	0.145	A	mg/kg	0.018 U	0.021 U	0.016 U	0.017 U	0.014 U	0.014 U	0.038 U	0.046 UJ	0.032 U
N-Nitrosodi-n-propylamine	--	--	mg/kg	0.02 U	0.023 U	0.017 U	0.018 U	0.015 U	0.015 U	0.04 U	0.049 U	0.034 U
N-Nitrosodiphenylamine	0.516	E	mg/kg	0.053 U	0.062 U	0.047 U	0.05 U	0.041 U	0.041 U	0.11 U	0.13 U	0.091 U
Pentachlorophenol	0.504	D	mg/kg	0.071 U	0.082 U	0.063 U	0.066 U	0.055 U	0.055 U	0.15 U	0.18 UJ	0.12 U
Phenanthrene	**0.019**	B	mg/kg	**0.062 J**	**0.15 J**	**0.044 J**	**0.024 J**	**0.022 J**	0.012 UJ	**0.24 J**	**0.22 J**	**0.23 J**
Phenol	0.001152	E	mg/kg	0.019 U	0.022 U	0.017 U	0.018 U	0.015 U	0.015 U	0.039 U	0.048 U	0.033 U
Pyrene	**0.044**	B	mg/kg	**0.14 J**	**0.26 J**	**0.27 J**	**0.09 J**	**0.1 J**	0.02 UJ	0.055 U	**0.35 J-**	**0.42 J**

Preliminary - Under EPA and MDEQ Review

Table A18. Summary of Semi-Volatile Organic Compounds in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
			Sample Date	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
			Sample Type	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit								
1,1'-Biphenyl	1.22	D	mg/kg	0.041 U	0.046 U	0.041 U	0.035 U	0.041 U	0.042 U	0.04 U	0.044 U
1,2,4,5-Tetrachlorobenzene	--	--	mg/kg	0.035 U	0.04 U	0.036 U	0.031 U	0.036 U	0.037 U	0.035 U	0.038 U
1,4-Dioxane	--	--	mg/kg	0.13 U	0.14 U	0.13 U	0.11 U	0.13 U	0.13 U	0.12 U	0.14 U
2,2'-oxybis[1-chloropropane]	--	--	mg/kg	0.02 U	0.022 U	0.02 U	0.017 U	0.02 U	0.02 U	0.019 U	0.021 U
2,3,4,6-Tetrachlorophenol	0.129	A	mg/kg	0.045 U	0.05 U	0.045 U	0.039 U	0.045 U	0.047 U	0.044 U	0.049 U
2,4,5-Trichlorophenol	0.288	E	mg/kg	0.047 U	0.053 U	0.048 U	0.041 U	0.048 U	0.049 U	0.046 U	0.051 U
2,4,6-Trichlorophenol	0.208	A	mg/kg	0.014 U	0.015 U	0.014 U	0.012 U	0.014 U	0.014 U	0.013 U	0.015 U
2,4-Dichlorophenol	0.0817	A	mg/kg	0.011 U	0.013 U	0.011 U	0.0098 U	0.011 U	0.012 U	0.011 U	0.012 U
2,4-Dimethylphenol	0.029	D	mg/kg	0.1 UJ	0.12 UJ	0.11 UJ	0.092 U	0.11 U	0.11 U	0.1 U	0.11 U
2,4-Dinitrophenol	0.00621	A	mg/kg	0.36 U	0.41 U	0.37 U	0.31 U	0.36 U	0.37 U	0.35 U	0.39 U
2,4-Dinitrotoluene	0.0144	A	mg/kg	0.019 U	0.021 U	0.019 U	0.016 U	0.019 U	0.02 U	0.018 U	0.02 U
2,6-Dinitrotoluene	0.0398	A	mg/kg	0.025 U	0.029 U	0.026 U	0.022 U	0.026 U	0.026 U	0.025 U	0.028 U
2-Chloronaphthalene	0.417	A	mg/kg	0.011 U	0.012 U	0.011 U	0.0094 U	0.011 U	0.011 U	0.011 U	0.012 U
2-Chlorophenol	0.02716	E	mg/kg	0.012 U	0.014 U	0.012 U	0.011 U	0.012 U	0.013 U	0.012 U	0.013 U
2-Methylnaphthalene	0.0202	A	mg/kg	0.011 U	0.012 U	0.011 U	0.0092 U	0.011 U	0.011 U	0.01 U	0.011 U
2-Methylphenol	0.011856	E	mg/kg	0.021 U	0.023 U	0.021 U	0.018 U	0.021 U	0.022 U	0.02 U	0.023 U
2-Nitroaniline	--	--	mg/kg	0.016 U	0.018 U	0.016 U	0.014 U	0.016 U	0.016 U	0.015 U	0.017 U
2-Nitrophenol	--	--	mg/kg	0.016 U	0.018 U	0.016 U	0.014 U	0.016 U	0.017 U	0.016 U	0.017 U
3 & 4 Methylphenol	--	--	mg/kg	0.013 U	0.024 J	0.013 U	0.011 U	0.013 U	0.013 U	0.012 U	0.014 U
3,3'-Dichlorobenzidine	0.127	A	mg/kg	0.053 U	0.06 U	0.054 U	0.046 U	0.053 U	0.055 U	0.052 U	0.058 U
3-Nitroaniline	--	--	mg/kg	0.014 U	0.016 U	0.014 U	0.012 U	0.014 U	0.015 U	0.014 U	0.015 U
4,6-Dinitro-2-methylphenol	--	--	mg/kg	0.13 U	0.14 U	0.13 U	0.11 U	0.13 U	0.13 U	0.12 U	0.14 U
4-Bromophenyl phenyl ether	0.255	E	mg/kg	0.015 U	0.017 U	0.015 U	0.013 U	0.015 U	0.016 U	0.015 U	0.016 U
4-Chloro-3-methylphenol	0.388	A	mg/kg	0.02 U	0.023 U	0.021 U	0.018 U	0.021 U	0.021 U	0.02 U	0.022 U
4-Chloroaniline	0.146	A	mg/kg	0.012 U	0.014 U	0.012 U	0.011 U	0.012 U	0.013 U	0.012 U	0.013 U
4-Chlorophenyl phenyl ether	--	--	mg/kg	0.014 U	0.016 U	0.014 U	0.012 U	0.014 U	0.015 U	0.014 U	0.015 U
4-Nitroaniline	--	--	mg/kg	0.018 U	0.02 UJ	0.018 U	0.016 U	0.018 U	0.019 U	0.018 U	0.02 U
4-Nitrophenol	0.013	A	mg/kg	0.23 U	0.26 U	0.23 U	0.2 UJ	0.23 U	0.24 U	0.22 U	0.25 U
Acenaphthene	**0.00671**	A	mg/kg	0.012 U	**0.033 J**	0.012 U	0.01 U	0.012 U	0.012 U	0.011 U	0.013 U
Acenaphthylene	0.00587	A	mg/kg	0.012 U	0.014 U	0.012 U	0.011 U	0.012 U	0.013 U	0.012 U	0.013 U
Acetophenone	--	--	mg/kg	0.01 U	0.012 U	0.011 U	0.0091 U	0.01 U	0.011 U	0.01 U	0.011 U
Anthracene	**0.01**	B	mg/kg	0.045 U	**0.16 J**	0.046 U	0.04 U	0.046 U	0.047 U	0.044 U	0.049 U
Atrazine	0.00662	D	mg/kg	0.021 U	0.024 U	0.021 U	0.019 U	0.021 U	0.022 U	0.021 U	0.023 U
Benzaldehyde	--	--	mg/kg	0.036 U	0.041 U	0.085 J	0.032 U	0.037 U	0.038 U	0.036 U	0.039 U
Benzo[a]anthracene	**0.016**	B	mg/kg	**0.13**	**2.1**	**0.084**	0.035 U	**0.066**	0.041 U	0.039 U	0.043 U
Benzo[a]pyrene	**0.032**	B	mg/kg	0.014 U	**0.87**	**0.055**	**0.071**	**0.091**	0.015 U	0.014 U	**0.08**
Benzo[b]fluoranthene	9.79	F	mg/kg	0.27	4.1	0.17	0.34	0.16	0.053	0.042 J	0.2
Benzo[g,h,i]perylene	**0.016**	B	mg/kg	**0.05 J+**	**1.2**	**0.084 J+**	**0.047 J**	**0.084 J**	0.028 U	0.027 U	**0.075 J**
Benzo[k]fluoranthene	**0.24**	AD	mg/kg	0.088	**1.3**	0.059	0.018 U	0.054	0.022 U	0.02 U	0.023 U
Bis(2-chloroethoxy)methane	--	--	mg/kg	0.015 U	0.017 U	0.015 U	0.013 U	0.015 U	0.015 U	0.015 U	0.016 U
Bis(2-chloroethyl)ether	--	--	mg/kg	0.011 U	0.013 U	0.011 U	0.0098 U	0.011 U	0.012 U	0.011 U	0.012 U
Bis(2-ethylhexyl) phthalate	**0.18**	D	mg/kg	0.019 U	**0.26 J**	0.019 U	0.016 U	0.019 U	0.019 U	0.018 U	0.02 U
Butyl benzyl phthalate	1.97	A	mg/kg	0.015 U	0.044 J	0.015 U	0.013 U	0.015 U	0.015 U	0.014 U	0.016 U
Caprolactam	--	--	mg/kg	0.034 U	0.039 U	0.035 U	0.03 U	0.034 U	0.036 U	0.034 U	0.037 U
Carbazole	--	--	mg/kg	0.012 U	0.36 J	0.012 U	0.07 J	0.012 U	0.012 U	0.012 U	0.013 U
Chrysene	**0.027**	B	mg/kg	**0.3 J**	**4.9**	**0.18 J**	**0.5**	**0.11 J**	**0.028 J**	0.019 J	**0.1 J**
Dibenz(a,h)anthracene	**0.01**	B	mg/kg	0.025 U	**0.41**	0.025 U	**0.044**	**0.05**	0.026 U	0.024 U	0.027 U

Preliminary Unofficial Review

Table A18. Summary of Semi-Volatile Organic Compounds in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
			Sample Date	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
			Sample Type	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit								
Dibenzofuran	0.300736	E	mg/kg	0.014 U	0.021 J	0.015 U	0.013 U	0.014 U	0.015 U	0.014 U	0.016 U
Diethyl phthalate	0.603	D	mg/kg	0.014 U	0.015 U	0.014 U	0.012 U	0.014 U	0.014 U	0.013 U	0.015 U
Dimethyl phthalate	--	--	mg/kg	0.014 U	0.016 U	0.014 U	0.012 U	0.014 U	0.014 U	0.014 U	0.015 U
Di-n-butyl phthalate	1.1989	E	mg/kg	0.014 U	0.016 U	0.014 U	0.012 U	0.024 J	0.015 U	0.014 U	0.015 U
Di-n-octyl phthalate	16.8858	E	mg/kg	0.024 U	0.084 J	0.025 U	0.021 U	0.024 U	0.025 U	0.024 U	0.026 U
Fluoranthene	**0.031**	B	mg/kg	**0.37 J**	**6.5**	**0.17 J**	**0.94**	**0.082 J**	0.028 J	0.025 J	0.024 J
Fluorene	**0.01**	B	mg/kg	0.01 U	**0.03 J**	0.011 U	0.0091 U	0.01 U	0.011 U	0.01 U	0.011 U
Hexachlorobenzene	0.02	AD	mg/kg	0.019 U	0.022 U	0.02 U	0.017 U	0.019 U	0.02 U	0.019 U	0.021 U
Hexachlorobutadiene	0.0265	A	mg/kg	0.013 U	0.015 U	0.014 U	0.012 U	0.013 U	0.014 U	0.013 U	0.015 U
Hexachlorocyclopentadiene	0.901	A	mg/kg	0.03 UJ	0.033 UJ	0.03 UJ	0.026 UJ	0.03 UJ	0.031 UJ	0.029 UJ	0.032 UJ
Hexachloroethane	0.2136	E	mg/kg	0.017 U	0.02 U	0.018 U	0.015 U	0.018 U	0.018 U	0.017 U	0.019 U
Indeno[1,2,3-cd]pyrene	**0.017**	BD	mg/kg	0.032 U	**1.5**	**0.092 J+**	**0.11**	**0.12**	0.033 U	0.031 U	**0.12**
Isophorone	0.432	A	mg/kg	0.01 U	0.012 U	0.01 U	0.0089 U	0.01 U	0.011 U	0.01 U	0.011 U
Naphthalene	**0.015**	B	mg/kg	0.012 U	**0.019 J**	0.012 U	0.011 U	0.012 U	0.013 U	0.012 U	0.013 U
Nitrobenzene	0.145	A	mg/kg	0.015 U	0.017 U	0.015 U	0.013 U	0.015 U	0.016 U	0.015 U	0.016 U
N-Nitrosodi-n-propylamine	--	--	mg/kg	0.016 U	0.018 U	0.016 U	0.014 U	0.016 U	0.017 U	0.016 U	0.017 U
N-Nitrosodiphenylamine	0.516	E	mg/kg	0.043 U	0.049 U	0.044 U	0.038 U	0.043 U	0.045 U	0.042 U	0.047 U
Pentachlorophenol	0.504	D	mg/kg	0.058 U	0.065 U	0.058 U	0.05 U	0.058 U	0.06 U	0.056 U	0.063 U
Phenanthrene	**0.019**	B	mg/kg	**0.053 J**	**1**	**0.05 J**	**0.14 J**	**0.044 J**	0.014 J	0.012 U	0.014 U
Phenol	0.001152	E	mg/kg	0.016 U	0.018 U	0.016 U	0.014 U	0.016 U	0.016 U	0.015 U	0.017 U
Pyrene	**0.044**	B	mg/kg	**0.39 J**	**6.8**	**0.18 J**	**0.52**	**0.098 J**	0.031 J	0.027 J	0.035 J

Preliminary - Under Editorial Review

Table A19. Summary of Metals in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-026	CFSDP-027	CFSDP-028	CFSDP-029	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
			Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
			Sample Type	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit																	
Aluminum	26000	B	mg/kg	13300	9310	8590	8030	8440	9000	5470	8000	12900	9110	8790	7810	8150	8090	9130	8980	11800
Antimony	2	D	mg/kg	0.48 UJ	0.52 UJ	0.49 U	0.52 U	0.37 UJ	0.34 UJ	0.99 UJ	1.1 UJ	0.82 UJ	0.44 U	0.51 U	0.47 U	0.32 UJ	0.39 UJ	0.37 U	0.36 U	0.39 U
Arsenic	9.79	AC	mg/kg	2.5	1.2 J	3.3	5.2	3.4	3.9	1.9 J	1.3 J	1.9 J	3.7	4.1	4.1	5.2	2.6	3.9	3.3	3.7
Barium	--	--	mg/kg	234	693	147	128	55.7	49	762	969	744	72.9	97.8	143	83.9	126	136	85.7	208
Beryllium	--	--	mg/kg	0.67	0.34 J	0.48 J	0.44 J	0.29 J	0.41	0.3 U	0.32 U	0.61 J	0.35 J	0.57 J	0.49 J	0.42	0.47	0.39 J	0.27 J	0.51
Cadmium	0.583	B	mg/kg	0.51 U	0.55 U	0.52 U	0.55 U	0.39 U	0.35 U	1 U	1.1 U	0.86 U	0.47 U	0.54 U	0.5 U	0.34 U	0.41 U	0.39 U	0.38 U	0.42 U
Calcium	--	--	mg/kg	42800	181000	24500	18900	11700	9640	261000	302000	165000	16800	16200	20000	15100	17000	17300	14700	16900
Chromium	36.2	B	mg/kg	13.9	8	10.1	9.5	9.3	9.9	8.7	8.6	12.1	9.7	10.2	9.2	9.3	9.2	10.1	9.8	13.3
Cobalt	50	AD	mg/kg	7.2	4.1	6	5.7	5.5	5.8	2 J	3.6 J	6.2	5.6	6.4	5.8	5.7	5.7 J+	6.2	5.9	7.7
Copper	**28**	B	mg/kg	**32.7**	**31.8**	15.4	14.8	9	9.1	**131**	**143**	**67.8**	11.7	13.7	15.3	10	14.9	15.3	10.6	20.7
Cyanide, Free	**0.0001**	A	mg/kg	NA	**0.89 J**	0.48 U	0.5 U	0.42 U	0.42 U	NA	NA	NA	NA	0.45 U	NA	NA	0.45 U	NA	NA	NA
Cyanide, Total	**0.0001**	A	mg/kg	0.1 U	0.13 U	**0.44**	**1.1**	**0.35**	**0.3**	**8.5**	**0.64 J**	**0.69 J**	**0.82**	**1.2**	**1.9**	**0.8**	**1.7**	**0.41**	**0.58**	**1.2**
Iron	20000	D	mg/kg	15300	7780	13800	13900	14700	15700	2660	3940	10200	14700	15600	12900	15200	12900	15000	15400	18300
Lead	35.8	ACD	mg/kg	10.7	8.9	8.3	9	6.1	6.1	22.3	13.4	12.5	7.1	9.2	8.1	7	7.7 J+	8	6.9	11.6
Magnesium	--	--	mg/kg	16200	8080	12100	10600	10200	10400	4440	6080	12100	10700	11400	10700	10400	11000	12100	11400	15000
Manganese	460	D	mg/kg	153	91.3	202	209	169	167	20.5	38.4	107	166	180	231	244	137	208	153	177
Mercury	**0.174**	A	mg/kg	0.022 J	0.023 J	0.019 J	0.017 U	0.014 U	0.08	**0.28**	0.093	0.031 U	0.015 U	0.018 U	0.027	0.026	0.015 J+	0.016 J	0.015 U	0.019 J
Nickel	**19.5**	B	mg/kg	18.6	14.4	12.3	11.8	11.6	12.2	17.8	**20.3**	**25**	13.1	12.7	11.5	11.5	11.6	12.7	11.8	16.1
Potassium	--	--	mg/kg	1790	892	977	848	584 J+	568 J+	411	665	1470	668	741	910	591 J+	815	877	702	1140
Selenium	2	D	mg/kg	0.45 U	0.48 U	0.46 U	0.48 U	0.34 U	0.31 U	0.97 J	0.98 U	0.76 U	0.41 U	0.48 U	0.44 U	0.3 U	0.36 U	0.34 U	0.33 U	0.37 U
Silver	0.5	A	mg/kg	0.94 U	1 U	0.96 U	1 U	0.72 U	0.65 U	1.9 U	2.1 U	1.6 U	0.86 U	1 U	0.93 U	0.62 U	0.76 U	0.71 U	0.7 U	0.77 U
Sodium	--	--	mg/kg	86.6 J	126 J	124 J	122 J	55.6 J	53 J	268 J	429	141 J	99.7 J	83.9 J	198	55.2 J	101 J	93.7 J	55.4 J	94.9 J
Thallium	--	--	mg/kg	0.19 U	0.2 U	0.19 U	0.2 U	0.15 U	0.13 U	0.39 U	0.42 U	0.32 U	0.17 U	0.2 U	0.19 U	0.18 J	0.15 U	0.14 U	0.14 U	0.16 U
Vanadium	--	--	mg/kg	19.4	13	13.4	12.6	10	9.4	6.2	6.1 J	13.6	17.5	15.4	12	11.8	13.4 J+	16.2	13.9	24.2
Zinc	**98**	B	mg/kg	56.4	45.8	43.4	41.4	39.6	41.9	**174**	**140**	67	52.1	45.2	41.9	39.1	37.2 J+	41.4	41.8	53.9

Preliminary - Under EPA ADMIN Review

Table A20. Summary of General Chemistry in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSB-149	CFSB-150	CFSDP-003	CFSDP-004	CFSDP-005	CFSDP-005	CFSDP-018	CFSDP-019	CFSDP-020	CFSDP-026	CFSDP-027
			Sample Date	11/07/2017	11/07/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017
			Sample Type	N	N	N	N	N	FD	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit											
Fluoride	--	--	mg/kg	19.5 J+	22.6 J+	24.8 J+	22.7 J+	20.5 J+	16.7 J+	74 J+	93.7 J+	34.9 J+	69.2 J+	21.8 J+
pH	--	--	ph units	7.1 J	7.8 J	7.9	7.5	8	8	7.1 J	7.2 J	7.7 J	7.5	7.8
Total Organic Carbon	--	--	mg/kg	18700	51900	10800	25600	2130	1570	105000	91500	42100	4910	44600

Preliminary - Under EPA and MDEQ Review

Table A20. Summary of General Chemistry in Sediment – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location	CFSDP-028	CFSDP-029	CFSDP-030	CFSDP-031	CFSDP-032	CFSDP-033
			Sample Date	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
			Sample Type	N	N	N	N	N	N
Parameter	Minimum ESV	ESV Source	Unit						
Fluoride	--	--	mg/kg	22.9 J+	22.2 J+	20.8 J+	22.2 J+	17.2 J+	19.2 J+
pH	--	--	ph units	7.5	8.2	7.3	7.4	7.7	7.2
Total Organic Carbon	--	--	mg/kg	17500	2290	14300	14800	3990	2850

Preliminary - Under EPA and MDEQ Review

Table A21. Summary of Volatile Organic Compounds in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026
					Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017
					Sample Type	N	N	N	FD	N	N	N
					Sample Fraction	T	T	T	T	T	T	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit							
1,1,1-Trichloroethane	11	--	--	DE	ug/l	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	610	--	--	DE	ug/l	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	--	--	--	--	ug/l	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	1200	--	--	DE	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethane	47	--	--	DE	ug/l	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethene	25	--	--	DE	ug/l	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	8	--	--	F	ug/l	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	24	--	--	EF	ug/l	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	--	--	--	--	ug/l	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dichlorobenzene	0.7	--	--	E	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,2-Dichloroethane	100	--	--	EF	ug/l	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloropropane	--	--	--	--	ug/l	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	71	--	--	D	ug/l	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	15	--	--	D	ug/l	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Butanone (MEK)	14000	--	--	DE	ug/l	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
2-Hexanone	99	--	--	DE	ug/l	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
4-Methyl-2-pentanone (MIBK)	170	--	--	ED	ug/l	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
Acetone	1500	--	--	DE	ug/l	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Benzene	130	--	--	D	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Bromoform	320	--	--	DE	ug/l	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 UJ
Bromomethane	--	--	--	--	ug/l	0.18 U	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 UJ	0.18 U
Carbon disulfide	0.92	--	--	DE	ug/l	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 U	0.22 U	0.22 UJ
Carbon tetrachloride	9.8	--	--	D	ug/l	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Chlorobenzene	1.3	--	--	E	ug/l	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chlorobromomethane	--	--	--	--	ug/l	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chlorodibromomethane	--	--	--	--	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloroethane	--	--	--	--	ug/l	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Chloroform	1.8	--	--	E	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloromethane	--	--	--	--	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
cis-1,2-Dichloroethene	590	--	--	D	ug/l	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	0.055	--	--	D	ug/l	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Cyclohexane	--	--	--	--	ug/l	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Dichlorobromomethane	--	--	--	--	ug/l	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Dichlorodifluoromethane	--	--	--	--	ug/l	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Ethylbenzene	7.3	--	--	D	ug/l	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide	--	--	--	--	ug/l	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Isopropylbenzene	2.6	--	--	E	ug/l	0.32 U	0.32 U	0.32 U	0.32 U	0.32 UJ	0.32 UJ	0.32 U
Methyl acetate	--	--	--	--	ug/l	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U
Methyl tert-butyl ether	10000	--	--	F	ug/l	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Methylcyclohexane	--	--	--	--	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Methylene Chloride	98.1	--	--	E	ug/l	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
m-Xylene & p-Xylene	1.8	--	--	D	ug/l	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
o-Xylene	13	--	--	D	ug/l	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Styrene	72	--	--	EF	ug/l	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Tetrachloroethene	98	--	--	D	ug/l	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U

Preliminary Under EPA and MDEQ Review

Table A21. Summary of Volatile Organic Compounds in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026
					Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017
					Sample Type	N	N	N	FD	N	N	N
					Sample Fraction	T	T	T	T	T	T	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit							
Toluene	**2**	--	--	EF	ug/l	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	590	--	--	D	ug/l	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	0.055	--	--	D	ug/l	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Trichloroethene	21	--	--	E	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichlorofluoromethane	--	--	--	--	ug/l	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Vinyl chloride	930	--	--	E	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U

Preliminary - Under EPA and MDEQ Review

Table A21. Summary of Volatile Organic Compounds in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031	CFSWP-032	CFSWP-033
					Sample Date	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
					Sample Type	N	N	N	N	N	N	N
					Sample Fraction	T	T	T	T	T	T	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit							
1,1,1-Trichloroethane	11	--	--	DE	ug/l	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	610	--	--	DE	ug/l	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	--	--	--	--	ug/l	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	1200	--	--	DE	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethane	47	--	--	DE	ug/l	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,1-Dichloroethene	25	--	--	DE	ug/l	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	8	--	--	F	ug/l	0.35 U	0.35 U	0.35 UJ	0.35 U	0.35 U	0.35 U	0.35 U
1,2,4-Trichlorobenzene	24	--	--	EF	ug/l	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	--	--	--	--	ug/l	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dichlorobenzene	0.7	--	--	E	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,2-Dichloroethane	100	--	--	EF	ug/l	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloropropane	--	--	--	--	ug/l	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,3-Dichlorobenzene	71	--	--	D	ug/l	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	15	--	--	D	ug/l	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Butanone (MEK)	14000	--	--	DE	ug/l	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
2-Hexanone	99	--	--	DE	ug/l	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
4-Methyl-2-pentanone (MIBK)	170	--	--	ED	ug/l	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
Acetone	1500	--	--	DE	ug/l	1.1 U	1.1 U	1.1 U	1.1 U	15	7.1	1.1 U
Benzene	130	--	--	D	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Bromoform	320	--	--	DE	ug/l	0.18 UJ	0.18 UJ	0.18 UJ	0.18 U	0.18 U	0.18 U	0.18 U
Bromomethane	--	--	--	--	ug/l	0.18 U	0.18 U	0.18 U	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ
Carbon disulfide	0.92	--	--	DE	ug/l	0.22 UJ	0.22 UJ	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U
Carbon tetrachloride	9.8	--	--	D	ug/l	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Chlorobenzene	1.3	--	--	E	ug/l	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chlorobromomethane	--	--	--	--	ug/l	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chlorodibromomethane	--	--	--	--	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloroethane	--	--	--	--	ug/l	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
Chloroform	1.8	--	--	E	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Chloromethane	--	--	--	--	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
cis-1,2-Dichloroethene	590	--	--	D	ug/l	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	0.055	--	--	D	ug/l	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Cyclohexane	--	--	--	--	ug/l	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Dichlorobromomethane	--	--	--	--	ug/l	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Dichlorodifluoromethane	--	--	--	--	ug/l	0.14 U	0.14 U	0.14 U	0.14 UJ	0.14 UJ	0.14 UJ	0.14 UJ
Ethylbenzene	7.3	--	--	D	ug/l	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Ethylene Dibromide	--	--	--	--	ug/l	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Isopropylbenzene	2.6	--	--	E	ug/l	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Methyl acetate	--	--	--	--	ug/l	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U
Methyl tert-butyl ether	10000	--	--	F	ug/l	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Methylcyclohexane	--	--	--	--	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Methylene Chloride	98.1	--	--	E	ug/l	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
m-Xylene & p-Xylene	1.8	--	--	D	ug/l	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
o-Xylene	13	--	--	D	ug/l	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
Styrene	72	--	--	EF	ug/l	0.17 U	0.17 U	0.17 U	0.17 U	1	0.17 U	0.17 U
Tetrachloroethene	98	--	--	D	ug/l	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U

Preliminary Under EPA and MDEQ Review

Table A21. Summary of Volatile Organic Compounds in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031	CFSWP-032	CFSWP-033
					Sample Date	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
					Sample Type	N	N	N	N	N	N	N
					Sample Fraction	T	T	T	T	T	T	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit							
Toluene	**2**	--	--	EF	ug/l	0.25 U	0.25 U	0.25 U	0.25 U	**3**	0.82 J	0.25 U
trans-1,2-Dichloroethene	590	--	--	D	ug/l	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	0.055	--	--	D	ug/l	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Trichloroethene	21	--	--	E	ug/l	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichlorofluoromethane	--	--	--	--	ug/l	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Vinyl chloride	930	--	--	E	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U

Preliminary - Under EPA and MDEQ Review

Table A22. Summary of Semi-Volatile Organic Compounds in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026
					Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017
					Sample Type	N	N	N	FD	N	N	N
					Sample Fraction	T	T	T	T	T	T	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit							
1,1'-Biphenyl	14	--	--	DE	ug/l	0.64 U	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.64 U
1,2,4,5-Tetrachlorobenzene	3	--	--	E	ug/l	0.44 U	0.44 U	0.43 U	0.43 U	0.43 U	0.43 U	0.44 U
1,4-Dioxane	--	--	--	--	ug/l	3.2 U	3.2 U	3.1 U	3.1 U	3.1 U	3.1 U	3.2 U
2,2'-oxybis[1-chloropropane]	--	--	--	--	ug/l	0.95 U	0.95 U	0.93 U	0.93 U	0.93 U	0.93 U	0.95 U
2,3,4,6-Tetrachlorophenol	1	--	--	F	ug/l	0.7 U	0.7 U	0.69 U	0.69 U	0.69 U	0.69 U	0.7 U
2,4,5-Trichlorophenol	--	--	--	--	ug/l	0.5 U	0.5 U	0.49 U	0.49 U	0.49 U	0.49 U	0.5 U
2,4,6-Trichlorophenol	4.9	--	--	E	ug/l	0.54 U	0.54 U	0.53 U	0.53 U	0.53 U	0.53 U	0.54 U
2,4-Dichlorophenol	11	--	--	E	ug/l	0.64 U	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.64 U
2,4-Dimethylphenol	--	--	--	--	ug/l	0.93 U	0.93 U	0.91 U	0.91 U	0.91 U	0.91 U	0.93 U
2,4-Dinitrophenol	--	--	--	--	ug/l	2.4 UJ	2.4 UJ	2.4 U	2.4 U	2.4 U	2.4 U	2.4 UJ
2,4-Dinitrotoluene	44	--	--	E	ug/l	1.1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U
2,6-Dinitrotoluene	81	--	--	E	ug/l	0.9 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.9 U
2-Chloronaphthalene	--	--	--	--	ug/l	0.62 U	0.62 U	0.61 U	0.61 U	0.61 U	0.61 U	0.62 U
2-Chlorophenol	24	--	--	E	ug/l	0.76 U	0.76 U	0.74 U	0.74 U	0.74 U	0.74 U	0.76 U
2-Methylnaphthalene	4.7	--	--	E	ug/l	0.9 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.9 U
2-Methylphenol	13	--	--	DE	ug/l	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
2-Nitroaniline	--	--	--	--	ug/l	0.66 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.66 U
2-Nitrophenol	300	--	--	D	ug/l	0.6 U	0.6 U	0.59 U	0.59 U	0.59 U	0.59 U	0.6 U
3 & 4 Methylphenol	--	--	--	--	ug/l	0.9 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.9 U
3,3'-Dichlorobenzidine	4.5	--	--	E	ug/l	1.1 U	1.1 U	1 U	1 U	1 UJ	1 U	1.1 U
3-Nitroaniline	--	--	--	--	ug/l	0.84 U	0.84 U	0.82 U	0.82 U	0.82 UJ	0.82 U	0.84 U
4,6-Dinitro-2-methylphenol	--	--	--	--	ug/l	2.1 U	2.1 U	2 U	2 U	2 UJ	2 U	2.1 U
4-Bromophenyl phenyl ether	1.5	--	--	DE	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	--	--	--	--	ug/l	0.78 U	0.78 U	0.76 U	0.76 U	0.76 U	0.76 U	0.78 U
4-Chloroaniline	232	--	--	E	ug/l	0.74 U	0.74 U	0.73 U	0.73 U	0.73 U	0.73 U	0.74 U
4-Chlorophenyl phenyl ether	--	--	--	--	ug/l	0.98 U	0.98 U	0.96 U	0.96 U	0.96 U	0.96 U	0.98 U
4-Nitroaniline	--	--	--	--	ug/l	0.49 U	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.49 U
4-Nitrophenol	60	--	--	E	ug/l	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U
Acenaphthene	5.8	--	--	EF	ug/l	0.9 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.9 U
Acenaphthylene	--	--	--	--	ug/l	0.66 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.66 U
Acetophenone	--	--	--	--	ug/l	1.1 U	1.1 U	1 U	1 U	1 U	1 U	1.1 U
Anthracene	0.012	--	--	EF	ug/l	0.58 U	0.58 U	0.57 U	0.57 U	0.57 U	0.57 U	0.58 U
Atrazine	1.8	--	--	EF	ug/l	0.79 U	0.79 U	0.77 U	0.77 U	0.77 U	0.77 U	0.79 U
Benzaldehyde	--	--	--	--	ug/l	0.88 U	0.88 U	0.86 U	0.86 U	0.86 U	0.86 U	0.88 U
Benzo[a]anthracene	**0.018**	--	--	EF	ug/l	0.56 U	0.56 U	0.55 U	0.55 U	0.55 U	0.55 U	**0.63 J**
Benzo[a]pyrene	**0.014**	--	--	D	ug/l	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	**0.36 J**	**0.25 J**
Benzo[b]fluoranthene	--	--	--	--	ug/l	0.45 U	0.45 U	0.44 U	0.44 U	0.44 U	0.53 J	0.7 J
Benzo[g,h,i]perylene	--	--	--	--	ug/l	0.77 U	0.77 U	0.75 U	0.75 U	0.75 U	0.75 U	0.77 U
Benzo[k]fluoranthene	--	--	--	--	ug/l	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.46 J
Bis(2-chloroethoxy)methane	--	--	--	--	ug/l	0.7 U	0.7 U	0.69 U	0.69 U	0.69 UJ	0.69 U	0.7 U
Bis(2-chloroethyl)ether	--	--	--	--	ug/l	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Bis(2-ethylhexyl) phthalate	3	--	--	D	ug/l	1.2 J	0.73 U	0.72 U	0.72 U	0.72 U	0.72 U	0.73 U
Butyl benzyl phthalate	19	--	--	ED	ug/l	0.61 U	0.61 U	0.6 U	0.6 U	0.6 U	0.6 U	0.61 U
Caprolactam	--	--	--	--	ug/l	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 U	1.1 U
Carbazole	--	--	--	--	ug/l	0.87 U	0.87 U	0.85 U	0.85 U	0.85 U	0.85 U	0.87 U

Preliminary - Under EPA and MDEQ Review

Table A22. Summary of Semi-Volatile Organic Compounds in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026
					Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017
					Sample Type	N	N	N	FD	N	N	N
					Sample Fraction	T	T	T	T	T	T	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit							
Chrysene	--	--	--	--	ug/l	0.68 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	1.2 J
Dibenz(a,h)anthracene	--	--	--	--	ug/l	0.092 U	0.092 U	0.09 U	0.09 U	0.09 U	0.09 U	0.092 U
Dibenzofuran	3.7	--	--	DE	ug/l	0.87 U	0.87 U	0.85 U	0.85 U	0.85 U	0.85 U	0.87 U
Diethyl phthalate	210	--	--	DE	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethyl phthalate	--	--	--	--	ug/l	1 U	1 U	0.98 U	0.98 U	0.98 U	0.98 U	1 U
Di-n-butyl phthalate	19	--	--	EF	ug/l	0.84 U	0.84 U	0.82 U	0.82 U	0.82 U	0.82 U	0.84 U
Di-n-octyl phthalate	22	--	--	E	ug/l	0.7 U	0.7 U	0.69 U	0.69 U	0.69 U	1.4 J	0.7 U
Fluoranthene	**0.04**	--	--	EF	ug/l	0.73 U	0.73 U	0.72 U	0.72 U	0.72 U	0.72 U	**2.1 J**
Fluorene	3	--	--	EF	ug/l	0.82 U	0.82 U	0.8 U	0.8 U	0.8 U	0.8 U	0.82 U
Hexachlorobenzene	0.0003	--	--	E	ug/l	0.48 U	0.48 U	0.47 U	0.47 U	0.47 U	0.47 U	0.48 U
Hexachlorobutadiene	1.3	--	--	EF	ug/l	0.78 U	0.78 U	0.76 UJ	0.76 UJ	0.76 U	0.76 U	0.78 U
Hexachlorocyclopentadiene	--	--	--	--	ug/l	0.62 UJ	0.62 UJ	0.61 UJ	0.61 UJ	0.61 UJ	0.61 UJ	0.62 UJ
Hexachloroethane	12	--	--	DE	ug/l	0.092 U	0.092 U	0.09 U	0.09 U	0.26 J	0.09 U	0.092 U
Indeno[1,2,3-cd]pyrene	--	--	--	--	ug/l	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.28 J	0.21 U
Isophorone	--	--	--	--	ug/l	0.68 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	0.68 U
Naphthalene	1.1	--	--	EF	ug/l	0.82 U	0.82 U	0.8 U	0.8 U	0.8 U	0.8 U	0.82 U
Nitrobenzene	--	--	--	--	ug/l	0.5 U	0.5 U	0.49 U	0.49 U	0.49 U	0.49 U	0.5 U
N-Nitrosodi-n-propylamine	--	--	--	--	ug/l	0.85 UJ	0.85 UJ	0.83 U	0.83 U	0.83 U	0.83 U	0.85 UJ
N-Nitrosodiphenylamine	210	--	--	DE	ug/l	0.76 U	0.76 U	0.74 U	0.74 U	0.74 U	0.74 U	0.76 U
Pentachlorophenol	0.5	4	5.3	EF	ug/l	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Phenanthrene	**0.4**	--	--	EF	ug/l	0.66 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	**1.2 J**
Phenol	**4**	--	--	EF	ug/l	0.42 U	0.42 U	0.41 U	0.41 U	0.41 U	0.41 U	0.42 U
Pyrene	**0.025**	--	--	EF	ug/l	0.85 U	0.85 U	0.83 U	0.83 U	0.83 U	0.83 U	**1.6 J**

Preliminary - Under EPA or MDEQ Review

Table A22. Summary of Semi-Volatile Organic Compounds in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031	CFSWP-032	CFSWP-033
					Sample Date	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
					Sample Type	N	N	N	N	N	N	N
					Sample Fraction	T	T	T	T	T	T	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit							
1,1'-Biphenyl	14	--	--	DE	ug/l	0.66 U	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
1,2,4,5-Tetrachlorobenzene	3	--	--	E	ug/l	0.45 U	0.44 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
1,4-Dioxane	--	--	--	--	ug/l	3.2 U	3.2 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
2,2'-oxybis[1-chloropropane]	--	--	--	--	ug/l	0.97 U	0.95 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U
2,3,4,6-Tetrachlorophenol	1	--	--	F	ug/l	0.72 U	0.7 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U
2,4,5-Trichlorophenol	--	--	--	--	ug/l	0.51 U	0.5 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
2,4,6-Trichlorophenol	4.9	--	--	E	ug/l	0.55 U	0.54 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
2,4-Dichlorophenol	11	--	--	E	ug/l	0.66 U	0.64 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
2,4-Dimethylphenol	--	--	--	--	ug/l	0.95 U	0.93 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U
2,4-Dinitrophenol	--	--	--	--	ug/l	2.5 UJ	2.4 UJ	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
2,4-Dinitrotoluene	44	--	--	E	ug/l	1.1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	81	--	--	E	ug/l	0.92 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U
2-Chloronaphthalene	--	--	--	--	ug/l	0.64 U	0.62 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U
2-Chlorophenol	24	--	--	E	ug/l	0.77 U	0.76 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
2-Methylnaphthalene	4.7	--	--	E	ug/l	0.92 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U
2-Methylphenol	13	--	--	DE	ug/l	1.3 U	1.3 U	1.3 U	1.3 U	2.7 J	1.3 U	1.3 U
2-Nitroaniline	--	--	--	--	ug/l	0.68 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U
2-Nitrophenol	300	--	--	D	ug/l	0.61 U	0.6 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U
3 & 4 Methylphenol	--	--	--	--	ug/l	0.92 U	0.9 U	0.88 U	0.88 U	7.5 J	0.88 U	0.88 U
3,3'-Dichlorobenzidine	4.5	--	--	E	ug/l	1.1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
3-Nitroaniline	--	--	--	--	ug/l	0.85 U	0.84 U	0.82 U	0.82 UJ	0.82 UJ	0.82 UJ	0.82 UJ
4,6-Dinitro-2-methylphenol	--	--	--	--	ug/l	2.1 U	2.1 U	2 U	2 U	2 U	2 U	2 U
4-Bromophenyl phenyl ether	1.5	--	--	DE	ug/l	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	--	--	--	--	ug/l	0.79 U	0.78 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U
4-Chloroaniline	232	--	--	E	ug/l	0.76 U	0.74 U	0.73 U	0.73 UJ	0.73 UJ	0.73 UJ	0.73 UJ
4-Chlorophenyl phenyl ether	--	--	--	--	ug/l	1 U	0.98 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
4-Nitroaniline	--	--	--	--	ug/l	0.5 U	0.49 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
4-Nitrophenol	60	--	--	E	ug/l	4.8 U	4.7 U	4.7 U	4.7 UJ	4.7 UJ	4.7 UJ	4.7 UJ
Acenaphthene	5.8	--	--	EF	ug/l	0.92 U	0.9 U	0.88 U	0.88 U	0.88 U	0.88 U	0.88 U
Acenaphthylene	--	--	--	--	ug/l	0.68 U	0.66 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U
Acetophenone	--	--	--	--	ug/l	1.1 U	1.1 U	1 U	1 U	1 U	1 U	1 U
Anthracene	0.012	--	--	EF	ug/l	0.59 U	0.58 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U
Atrazine	1.8	--	--	EF	ug/l	0.8 U	0.79 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U
Benzaldehyde	--	--	--	--	ug/l	0.9 U	0.88 U	0.86 U	0.86 U	2.3 J	0.86 U	0.86 U
Benzo[a]anthracene	**0.018**	--	--	EF	ug/l	0.57 U	0.56 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U
Benzo[a]pyrene	**0.014**	--	--	D	ug/l	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Benzo[b]fluoranthene	--	--	--	--	ug/l	0.46 U	0.45 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
Benzo[g,h,i]perylene	--	--	--	--	ug/l	0.78 U	0.77 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Benzo[k]fluoranthene	--	--	--	--	ug/l	0.19 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Bis(2-chloroethoxy)methane	--	--	--	--	ug/l	0.72 U	0.7 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U
Bis(2-chloroethyl)ether	--	--	--	--	ug/l	0.13 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Bis(2-ethylhexyl) phthalate	3	--	--	D	ug/l	0.75 U	0.73 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U
Butyl benzyl phthalate	19	--	--	ED	ug/l	0.63 U	0.61 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Caprolactam	--	--	--	--	ug/l	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Carbazole	--	--	--	--	ug/l	0.89 U	0.87 U	0.85 U	1.9 J	2.9 J	0.85 U	0.85 U

Preliminary - Under EPA Review

Table A22. Summary of Semi-Volatile Organic Compounds in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031	CFSWP-032	CFSWP-033
					Sample Date	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
					Sample Type	N	N	N	N	N	N	N
					Sample Fraction	T	T	T	T	T	T	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit							
Chrysene	--	--	--	--	ug/l	0.7 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U
Dibenz(a,h)anthracene	--	--	--	--	ug/l	0.094 U	0.092 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Dibenzofuran	3.7	--	--	DE	ug/l	0.89 U	0.87 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U
Diethyl phthalate	210	--	--	DE	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethyl phthalate	--	--	--	--	ug/l	1 U	1 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U
Di-n-butyl phthalate	19	--	--	EF	ug/l	0.85 U	0.84 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
Di-n-octyl phthalate	22	--	--	E	ug/l	0.72 U	0.7 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U
Fluoranthene	**0.04**	--	--	EF	ug/l	0.75 U	0.73 U	**1.1 J**	**3.7 J**	**2.5 J**	**1 J**	**1.1 J**
Fluorene	3	--	--	EF	ug/l	0.83 U	0.82 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Hexachlorobenzene	0.0003	--	--	E	ug/l	0.49 U	0.48 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U
Hexachlorobutadiene	1.3	--	--	EF	ug/l	0.79 U	0.78 U	0.76 UJ	0.76 U	0.76 U	0.76 U	0.76 U
Hexachlorocyclopentadiene	--	--	--	--	ug/l	0.64 UJ	0.62 UJ	0.61 UJ	0.61 UJ	0.61 UJ	0.61 UJ	0.61 UJ
Hexachloroethane	12	--	--	DE	ug/l	0.094 U	0.092 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Indeno[1,2,3-cd]pyrene	--	--	--	--	ug/l	0.22 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Isophorone	--	--	--	--	ug/l	0.7 U	0.68 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U
Naphthalene	1.1	--	--	EF	ug/l	0.83 U	0.82 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Nitrobenzene	--	--	--	--	ug/l	0.51 U	0.5 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
N-Nitrosodi-n-propylamine	--	--	--	--	ug/l	0.86 UJ	0.85 UJ	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
N-Nitrosodiphenylamine	210	--	--	DE	ug/l	0.77 U	0.76 U	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
Pentachlorophenol	0.5	4	5.3	EF	ug/l	2.3 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Phenanthrene	**0.4**	--	--	EF	ug/l	0.68 U	0.66 U	0.65 U	**1.9 J**	**1.8 J**	0.65 U	0.65 U
Phenol	**4**	--	--	EF	ug/l	0.43 U	0.42 U	0.41 U	0.41 U	**5.2 J**	0.8 J	0.41 U
Pyrene	**0.025**	--	--	EF	ug/l	0.86 U	0.85 U	0.83 U	**1.8 J**	**1.4 J**	0.83 U	0.83 U

Preliminary - Under EPA and DEQ Review

Table A23. Summary of Metals in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-003	CFSWP-003	CFSWP-004	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-019	CFSWP-020	CFSWP-020	CFSWP-026	CFSWP-026
					Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017
					Sample Type	N	N	N	N	N	N	FD	FD	N	N	N	N	N	N
					Sample Fraction	DI	T	DI	T	DI	T	DI	T	DI	T	DI	T	DI	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit														
Aluminum	**87**	87	750	A	ug/l	18.2 U	800	18.2 U	1180	18.2 U	33.9 J	18.2 U	23.6 J	2360	4330	**265**	24500	18.2 U	41.1
Antimony	30	--	--	DE	ug/l	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	**3.1**	150	340	D	ug/l	0.64 U	0.66 J	0.64 U	0.95 J	0.64 U	0.64 U	0.64 U	0.64 U	1.7 J	1.9 J	0.64 U	**4.4**	0.64 U	0.64 U
Barium	**4**	--	--	DE	ug/l	**127**	**154**	**191**	**216**	**191**	**192**	**200**	**196**	**527**	**713**	**334**	**2710**	**115**	**119**
Beryllium	**0.66**	--	--	DE	ug/l	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	**1.5**	0.24 U	0.24 U
Cadmium	**0.09**	0.238	0.52	F	ug/l	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	1 J	0.71 U	0.71 U
Calcium	**116000**	--	--	CE	ug/l	33300	32700	59100	58000	61900	59700	63000	61300	**147000**	**200000**	58400	**506000**	28800	27700
Chromium	85	74.700	--	E	ug/l	1.3 U	1.3 U	1.3 U	1.6 J	1.3 U	1.3 U	1.3 U	1.3 U	1.5 J	5.9	1.3 U	27.2	1.3 U	1.3 U
Cobalt	**5.1**	--	--	C	ug/l	1.3 U	1.3 U	1.3 U	1.7 J	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	2.6 J	1.3 U	**15.5**	1.3 U	1.3 U
Copper	**0.23**	8.038	3.790	C	ug/l	1.4 U	**4.3**	1.4 U	12.3	1.4 U	1.4 U	1.4 U	1.4 U	33.4	75.9	**3.6 J**	183	1.4 U	**2 J**
Cyanide, Free	--	5.2	22	EF	ug/l	12.5	12.5	20.3	21.5	5.3	5.3	4.8 J	4.8 J	2.5 J	2.3 J	4.9 J	1.8 J	1.6 J	2 J
Cyanide, Total	**5**	5	22	EF	ug/l	88.3	74.6	328	323	303	327	300	329	2 U	4.3 J	58.8	57.2	22.7	**17.8**
Iron	**158**	1000	--	C	ug/l	56.7 J	**1110**	150	**1620**	106 J	**188**	99.9 J	**181**	**768**	**2790**	139	**22500**	42.4 U	77.4 J
Lead	**0.54**	2.548	13.98	A	ug/l	0.38 U	**1 J**	0.38 U	**1.6**	0.38 U	0.38 U	0.38 U	0.38 U	**5.2**	**8.3**	**0.63 J**	35.2	0.38 U	0.38 U
Magnesium	82000	--	--	CE	ug/l	8410	9610	15700	17900	17300	17500	17200	17800	21900	22200	18300	47800	7060	7870
Manganese	**120**	--	--	DE	ug/l	22.7	44.9	63.7	77.4	2.5 U	2.5 U	2.5 U	2.5 U	56.7	75.8	6.1 J	**337**	5.4 J	8.7
Mercury	**0.026**	0.910	1.7	EF	ug/l	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	**0.26**	0.17 U	0.17 U
Nickel	**5**	45.009	145	C	ug/l	1.4 U	1.6 J	1.4 U	2.2 J	1.4 U	1.4 U	1.4 U	1.4 U	4.2	**10.7**	1.4 U	**51.7**	1.4 U	1.4 U
Potassium	53000	--	--	CE	ug/l	507	696	974	1200	1040	973	1040	1000	9310	9100 J+	849	3570 J+	415	439
Selenium	**1**	5	20	EF	ug/l	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	1 J	0.73 U	**2 J**	0.73 U	0.73 U
Silver	0.067	--	0.374	B	ug/l	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	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	680000	--	--	CE	ug/l	8780	8210	32700	34900	34900	37200	36800	37700	49000	45900	6810	7010	169000	3650
Thallium	0.8	--	--	EF	ug/l	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	0.33 J	0.26 U	0.26 U
Vanadium	**20**	--	--	DE	ug/l	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	3.6 J	1.9 U	**24.8**	1.9 U	1.9 U
Zinc	**30**	103.361	37	CF	ug/l	7 U	9.3 J	7 U	19.1	7 U	7 U	7 U	7 U	**58.8**	**86.3**	7 U	179	7 U	8.5 J

Preliminary Under Draft

Table A23. Summary of Metals in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-027	CFSWP-027	CFSWP-028	CFSWP-028	CFSWP-029	CFSWP-029	CFSWP-030	CFSWP-030	CFSWP-031	CFSWP-031	CFSWP-032	CFSWP-032	CFSWP-033	CFSWP-033
					Sample Date	10/31/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
					Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N
					Sample Fraction	DI	T	DI	T	DI	T	DI	T	DI	T	DI	T	DI	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit														
Aluminum	**87**	87	750	A	ug/l	18.2 U	**154**	18.2 U	**617**	18.2 U	**383**	**245**	11800	**614**	888	**586**	32000	50.4	5090
Antimony	30	--	--	DE	ug/l	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	**3.1**	150	340	D	ug/l	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.72 J	**4.6**	**5.5**	**5.6**	**3.9**	**18.5**	1 J	**4.4**
Barium	**4**	--	--	DE	ug/l	**115**	**123**	**114**	**134**	**174**	**182**	**130**	**347**	**401**	**424**	**333**	**1230**	**340**	**466**
Beryllium	**0.66**	--	--	DE	ug/l	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.62 J	0.24 U	0.24 U	0.24 U	**2**	0.24 U	0.27 J
Cadmium	**0.09**	0.238	0.52	F	ug/l	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	0.9 J	0.71 U	0.71 U
Calcium	**116000**	--	--	CE	ug/l	27900	29400	28300	29800	65700	64900	39400	72800	82100	86800	64600	**219000**	66500	78300
Chromium	85	74.700	--	E	ug/l	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	13.1	1.3 U	1.3 U	1.3 U	36.4	1.3 U	5.5
Cobalt	**5.1**	--	--	C	ug/l	1.3 U	1.3 U	1.3 U	1.3 U	1.4 J	1.7 J	1.3 U	**8.8**	1.8 J	2.4 J	1.5 J	**22.7**	1.3 U	3.9 J
Copper	**0.23**	8.038	3.790	C	ug/l	1.4 U	1.4 U	1.4 U	**1.9 J**	1.4 U	1.4 U	**1.8 J**	**24.7**	**1.4 J**	**3.1 J**	**1.6 J**	67.7	1.4 U	13.8
Cyanide, Free	--	5.2	22	EF	ug/l	2.6 J	3.2 J	5.7	6.1	63.5	65.1	26.1	26.1	1.8 J	3.4 J	2.2 J	4.4 J	3.4 J	3.4 J
Cyanide, Total	**5**	5	22	EF	ug/l	23.2	25.7	27.3	24.1	245	253	104	113	**9.9 J**	13.7	26.6	98.6	91.4	95.8
Iron	**158**	1000	--	C	ug/l	42.4 U	**224**	42.4 U	**875**	74.7 J	**655**	**296**	**15900**	**10200**	**13000**	**2160**	**52100**	**1250**	**11100**
Lead	**0.54**	2.548	13.98	A	ug/l	0.38 U	0.38 U	0.38 U	**0.74 J**	0.38 U	0.41 J	0.49 J	**12.5**	**0.8 J**	**0.88 J**	**1.1 J**	38.5	0.38 U	**5.6**
Magnesium	82000	--	--	CE	ug/l	6970	8490	6980	8620	17100	18200	15200	31500	21800	27100	19300	63900	15400	22100
Manganese	**120**	--	--	DE	ug/l	6 J	13.4	7.3 J	31	**367**	**405**	22.7	**321**	**2420**	**2570**	**583**	**1450**	**675**	**869**
Mercury	**0.026**	0.910	1.7	EF	ug/l	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	**0.19 J**	0.17 U	0.17 U
Nickel	**5**	45.009	145	C	ug/l	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	**16.8**	2.2 J	3.1 J	1.6 J	**47**	1.4 U	**7.6**
Potassium	53000	--	--	CE	ug/l	393	453	406	561	1110	1150	2500	4240	4750	4800	4240	7320	1840	2650
Selenium	**1**	5	20	EF	ug/l	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	0.96 J	0.73 U	0.73 U
Silver	0.067	--	0.374	B	ug/l	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	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	680000	--	--	CE	ug/l	3460	5460	25500	4420	35800	37200	39900	45600	24600	30000	31300	29500	23200	25300
Thallium	0.8	--	--	EF	ug/l	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	0.32 J	0.26 U	0.26 U
Vanadium	**20**	--	--	DE	ug/l	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	17.2	1.9 U	1.9 U	1.9 U	**46.8**	1.9 U	7.9
Zinc	**30**	103.361	37	CF	ug/l	7 U	12.6 J	7 U	8.1 J	7 U	8.1 J	8.3 J	**76.3**	13.5 J	16.5	7 U	192	7 U	**36.2**

Preliminary - Under Review

Table A24. Summary of General Chemistry in Surface Water – Ecological Screening Levels
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

					Sample Location	CFSWP-003	CFSWP-004	CFSWP-005	CFSWP-005	CFSWP-019	CFSWP-020	CFSWP-026	CFSWP-027	CFSWP-028	CFSWP-029	CFSWP-030	CFSWP-031	CFSWP-032	CFSWP-033
					Sample Date	10/31/2017	10/31/2017	11/01/2017	11/01/2017	11/07/2017	11/07/2017	10/31/2017	10/31/2017	10/31/2017	11/01/2017	11/03/2017	11/03/2017	11/03/2017	11/03/2017
					Sample Type	N	N	N	FD	N	N	N	N	N	N	N	N	N	N
					Sample Fraction	T	T	T	T	T	T	T	T	T	T	T	T	T	T
Parameter	Minimum ESV	DEQ-7 Chronic	DEQ-7 Acute	ESV Source	Unit														
Alkalinity	--	--	--	--	ug/l	128000	259000	259000	259000	335000	276000	104000	104000	105000	259000	228000	339000	288000	281000
Ammonia	--	--	--	--	ug/l	72 U	72 U	72 U	72 U	8550	207	72 U	80.8 J	72 U	72 U	511	345	448	218
Chloride	120000	--	--	F	ug/l	885	2620	2540 J+	2580 J+	25900 J-	1630 J-	570	601	596	2590 J+	4140	4150	5330	3960
Fluoride	**120**	--	--	F	ug/l	**646**	**2470**	**2440 J+**	**2640 J+**	**9240 J-**	**418 J-**	**308**	**320**	**311**	**2400 J+**	**2580**	**3420**	**2720**	**2160**
Hardness as calcium carbonate	--	--	--	--	ug/l	125000	222000	222000	222000	535000	1740000	107000	101000	103000	230000	176000	329000	257000	238000
Nitrate Nitrite as N	--	--	--	--	ug/l	396	1940	2210	2230	100 U	306	182	202	522	1870	1160	100 U	100 U	100 U
Orthophosphate as P	--	--	--	--	ug/l	62 U	62 U	62 U	62 U	62 UJ	62 UJ	62 U	62 U	62 U	62 U	NA	NA	NA	NA
Sulfate	--	--	--	--	ug/l	7840	20000	19700 J+	19600 J+	19900 J-	6460 J-	5150	5360	5420	25800 J+	29000	12200	19900	11900

Preliminary - Under EPA and MDEQ Review

Table A25. Summary of Grain Size in Soil
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

Sample Location		CFSB-151	CFSB-151	CFSB-151	CFSB-152	CFSB-152	CFSB-152	CFSB-153	CFSB-153	CFSB-153
Sample Date		11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017	11/08/2017
Sample Type		N	N	N	N	N	N	N	N	N
Parameter	Unit									
Gravel	percent	46	69.8	49.7	50.4	24.8	39.3	38.1	5.1	42.7
Coarse Sand	percent	13	2.6	15.7	8.3	2.1	14.4	14.2	4.2	19
Medium Sand	percent	15.4	7.5	13.5	6.3	3.1	15.5	8.1	10.2	8.1
Fine Sand	percent	17.3	13.5	12.6	9.1	11.3	13.9	15.4	21.3	7.4
Silt	percent	5.4	5.6	4.3	19.5	49.4	12.1	20.8	55.1	19.8
Clay	percent	3	1	4.2	6.4	9.3	4.8	3.4	4.1	3
%Total Gravel	percent	46	69.8	49.7	50.4	24.8	39.3	38.1	5.1	42.7
% Total Sand	percent	45.7	23.6	41.8	23.7	16.5	43.8	37.7	35.7	34.5
% Total Fines	percent	8.4	6.6	8.5	25.9	58.7	16.9	24.2	59.2	22.8

Total Fines includes Sit and Clay
Total Sands includes Coarse Sand, Medium Sand, and Fine Sand

Preliminary - Under EPA and MDEQ Review

Table A26. Summary of Soil Moisture Content and Bulk Density
Columbia Falls Aluminum Company, LLC, 2000 Aluminum Drive, Columbia Falls, MT

			Sample Location		CFSB-151	CFSB-151	CFSB-151	CFSB-152	CFSB-152	CFSB-152	CFSB-153	CFSB-153	CFSB-153
			Sample Date		11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/07/2017	11/06/2017	11/06/2017	11/08/2017
			Sample Depth (ft bls)		0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4	0 - 0.5	0.5 - 2	2 - 4
			Sample Type		N	N	N	N	N	N	N	N	N
Parameter	EPA Residential Soil RSL	EPA Industrial Soil RSL	EPA Protection of Groundwater Risk-Based Soil RSL	Unit									
In Place Density	--	--	--	g/cc	1.79	1.87	1.85	0.69	1.69	1.83	0.673	1.22	1.61
Moisture Content	--	--	--	percent	9.6	10.6	7.3	75.7	17.2	9.4	87.1	39.3	23.1

Preliminary - Under EPA and MDEQ Review

ATTACHMENT B

Soil Thematic Maps

B1. Concentrations of Free Cyanide and Total Cyanide in Surface Soil from South Percolation Pond

B2. Concentrations of Fluoride in Surface Soil from South Percolation Pond

B3. Concentrations of Selected PAHs in Surface Soil from South Percolation Pond

B4. Concentrations of Metals in Surface Soil from South Percolation Pond

B5. Concentrations of Total Cyanide in Shallow Soil from South Percolation Pond

B6. Concentrations of Fluoride in Shallow Soil from South Percolation Pond

B7. Concentrations of Selected PAHs in Shallow Soil from South Percolation Pond

B8. Concentrations of Metals in Shallow Soil from South Percolation Pond

B9. Concentrations of Total Cyanide in intermediate Depth Soil from South Percolation Pond

B10. Concentrations of Fluoride in intermediate-Depth Soil from South Percolation Pond

B11. Concentrations of Selected PAHs in intermediate-Depth Soil from South Percolation Pond

B12. Concentrations of Metals in intermediate-Depth Soil from South Percolation Pond

Preliminary - Under EPA and MDEQ Review

Preliminary - Under Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Cyanide	2.3	15	0.0015

N

325 0 325 Feet

Title: **CONCENTRATIONS OF FREE CYANIDE AND TOTAL CYANIDE IN SURFACE SOIL FROM SOUTH PERCOLATION POND**

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 16MAR18
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: M.R.	Project: 2476.0001Y006
File: 2476.0001Y206.1.mxd	

ATTACHMENT **B1**

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Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Fluoride	310	4700	12

N

325 0 325 Feet

Title:
CONCENTRATIONS OF FLUORIDE IN SURFACE SOIL FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	B2
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.2.mxd		

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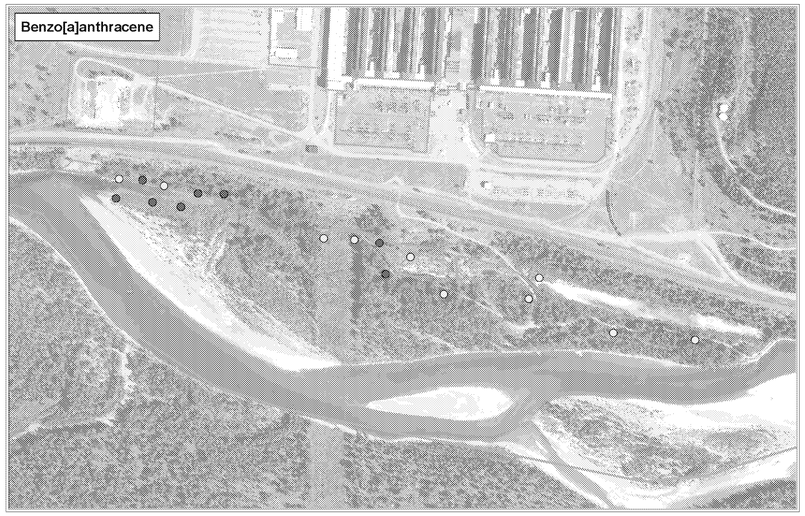
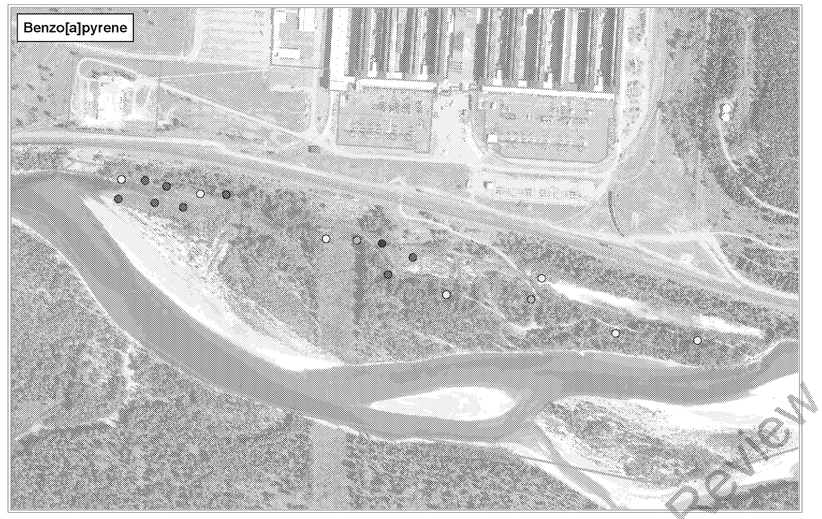
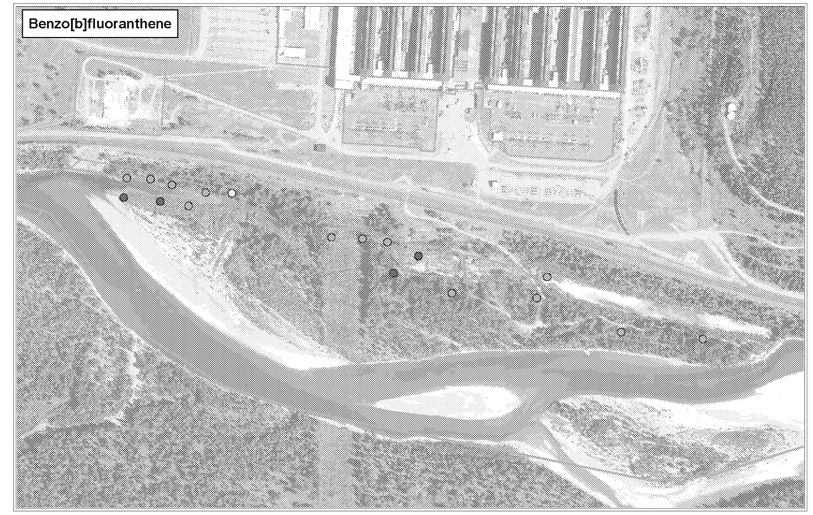
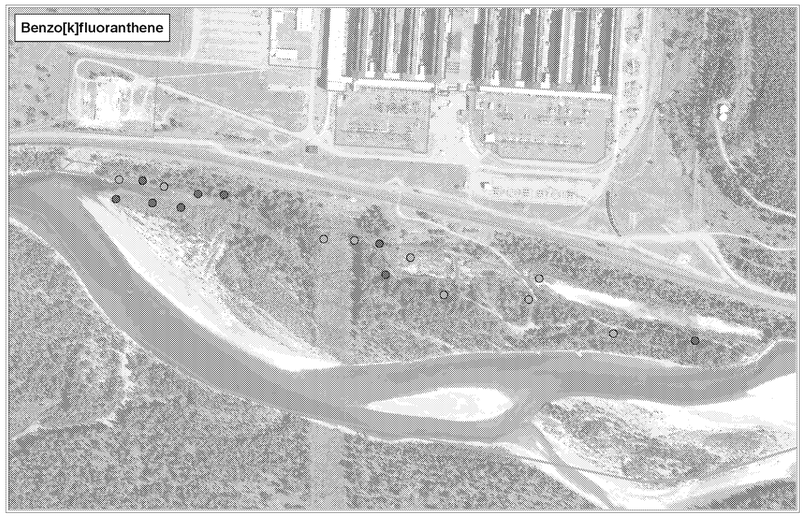
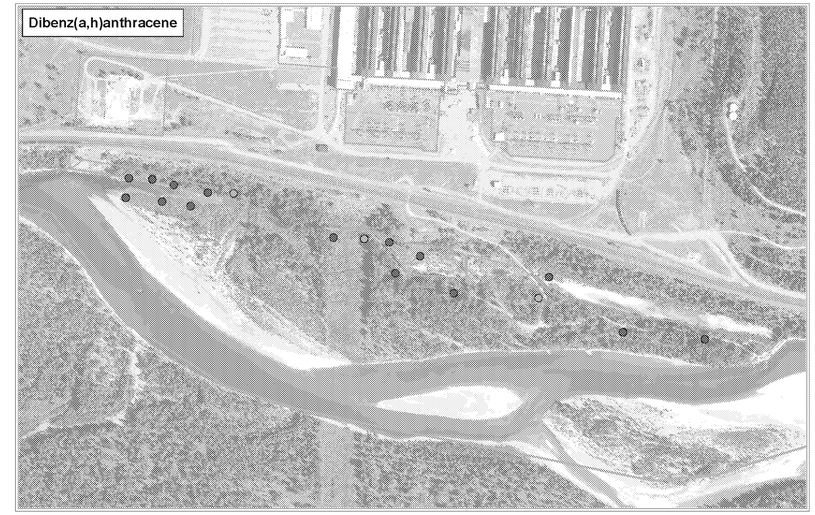










Preliminary - Under EPA and MDEQ Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Benzo[a]anthracene	1.1	21	0.011
Benzo[a]pyrene	0.11	2.1	0.029
Benzo[b]fluoranthene	1.1	21	0.3
Benzo[k]fluoranthene	11	210	2.9
Chrysene	110	2100	9
Dibenz(a,h)anthracene	0.11	2.1	0.096
Fluoranthene	240	3000	8.9
Indeno[1,2,3-cd]pyrene	1.1	21	0.98

475 0 475 Feet

N

Title:

CONCENTRATIONS OF SELECTED PAHS IN SURFACE SOIL FROM SOUTH PERCOLATION POND

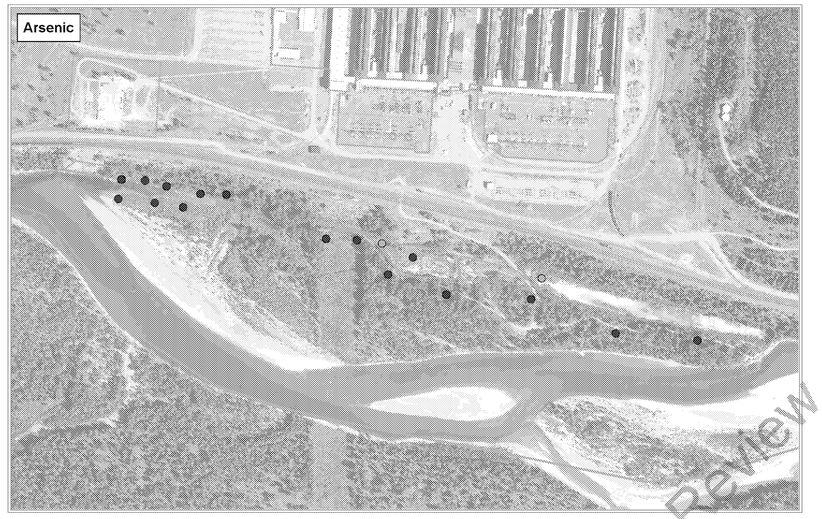
2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

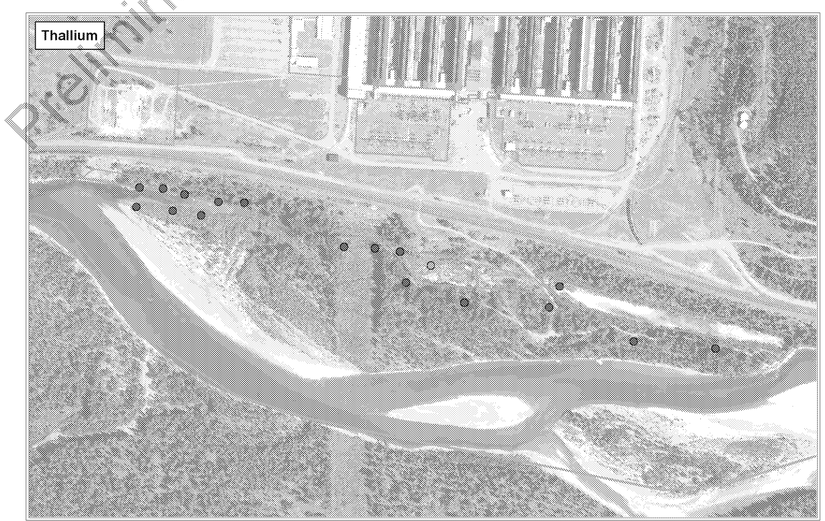
Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	B3
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.3.mxd		





Preliminary - Under EPA and MDEQ Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Aluminum	7700	110000	3000
Arsenic	0.68	3	0.0015
Cobalt	2.3	35	0.027
Copper	310	4700	2.8
Iron	5500	82000	35
Lead	400	800	--
Manganese	180	2600	2.8
Thallium	0.078	1.2	0.0014

475 0 475 Feet

N

Title:

CONCENTRATIONS OF METALS IN SURFACE SOIL FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: M.R.	Project: 2476.0001Y006
File: 2476.0001Y206.4.mxd	

ATTACHMENT B4

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Cyanide	2.3	15	0.0015

N

325 0 325 Feet

Title: **CONCENTRATIONS OF TOTAL CYANIDE IN SHALLOW SOIL FROM SOUTH PERCOLATION POND**

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 15MAR18
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: M.R.	Project: 2476.0001Y006
File: 2476.0001Y206.5.mxd	

ATTACHMENT B5

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Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Fluoride	310	4700	12

N

325 0 325 Feet

Title:
CONCENTRATIONS OF FLUORIDE IN SHALLOW SOIL FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	B6
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.6.mxd		

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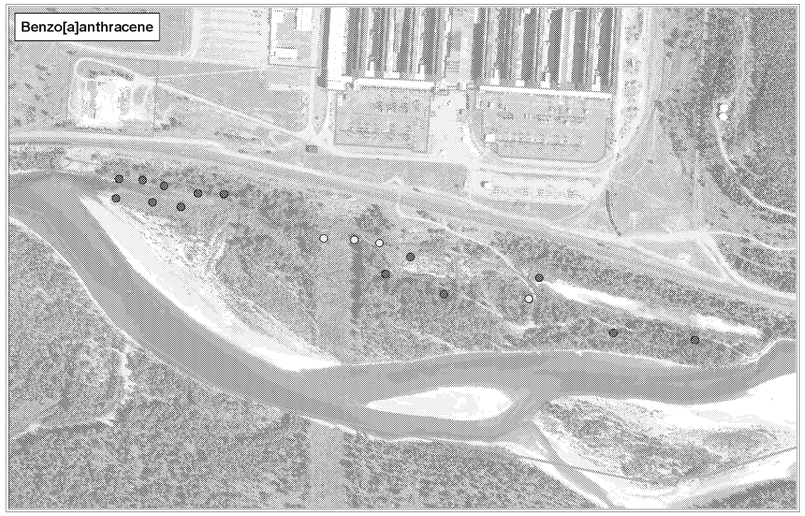
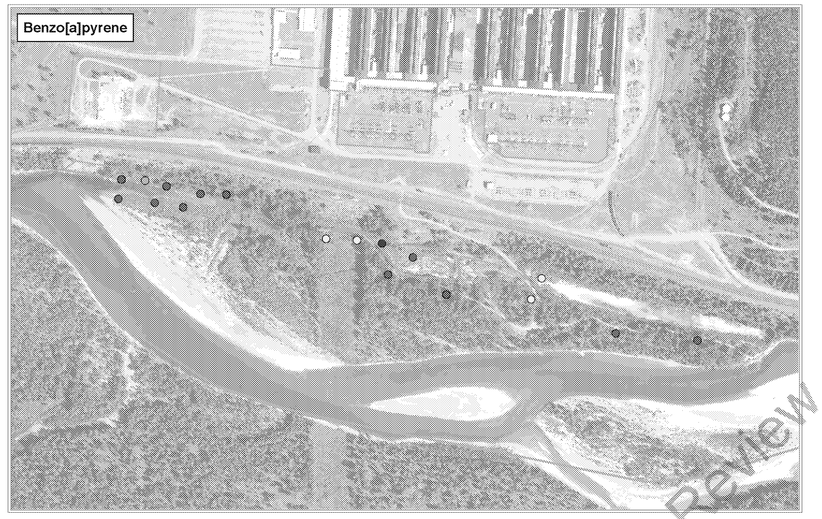
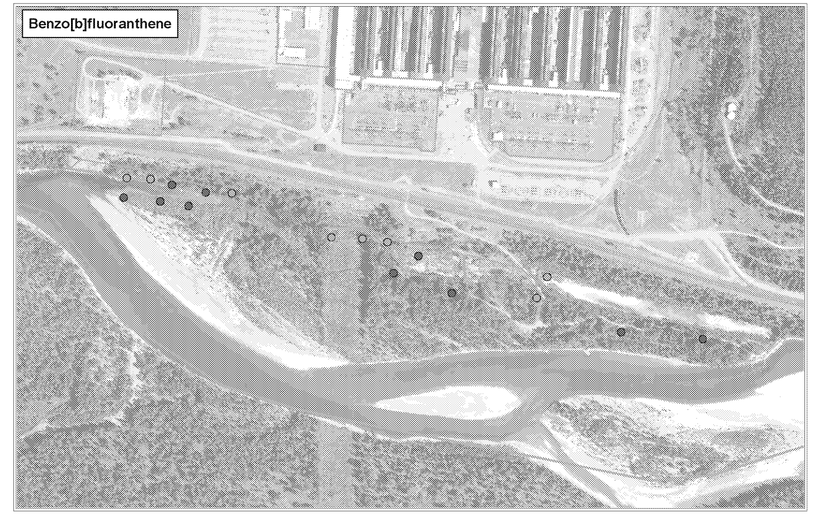
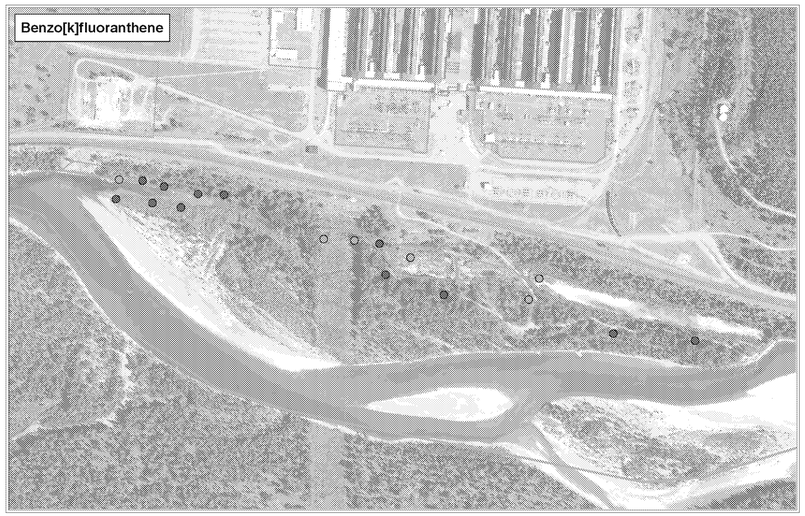
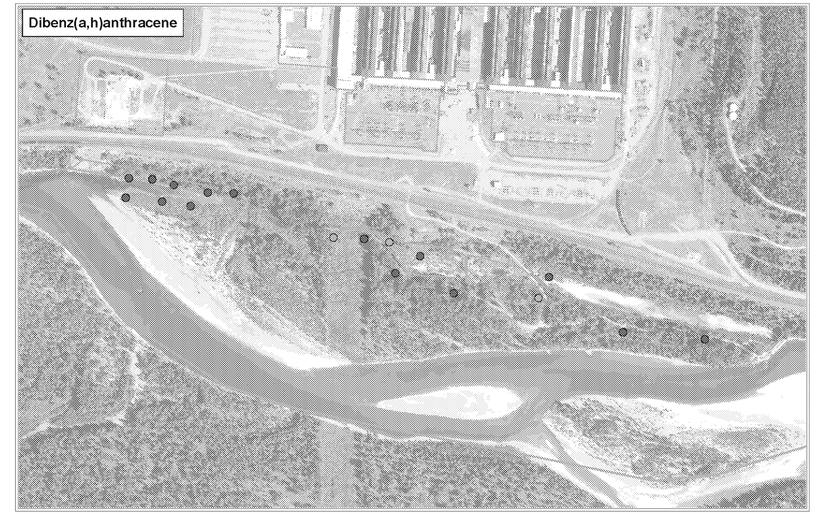










Preliminary - Under EPA and MDEQ Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Benzo[a]anthracene	1.1	21	0.011
Benzo[a]pyrene	0.11	2.1	0.029
Benzo[b]fluoranthene	1.1	21	0.3
Benzo[k]fluoranthene	11	210	2.9
Chrysene	110	2100	9
Dibenz(a,h)anthracene	0.11	2.1	0.096
Fluoranthene	240	3000	8.9
Indeno[1,2,3-cd]pyrene	1.1	21	0.98

475 0 475 Feet

N

Title:

CONCENTRATIONS OF SELECTED PAHS IN SHALLOW SOIL FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

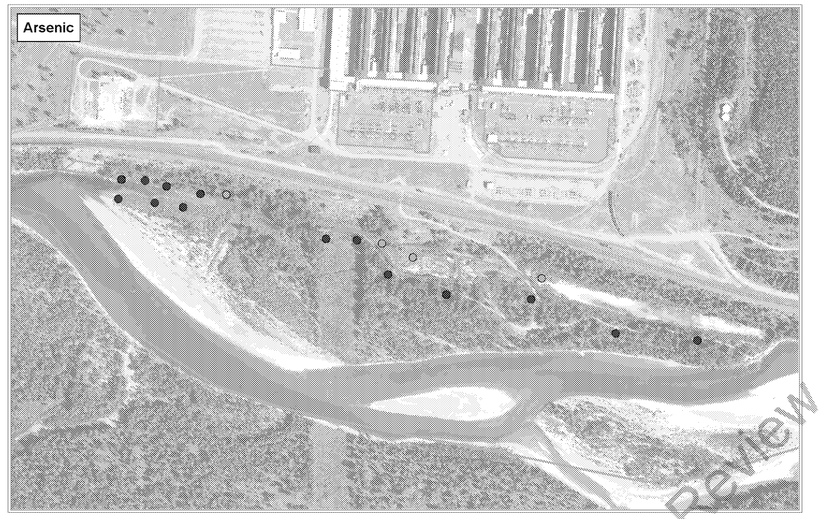
Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: M.R.	Project: 2476.0001Y006
File: 2476.0001Y206.7.mxd	

ATTACHMENT B7



Preliminary - Under EPA and MDEQ Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Aluminum	7700	110000	3000
Arsenic	0.68	3	0.0015
Cobalt	2.3	35	0.027
Copper	310	4700	2.8
Iron	5500	82000	35
Lead	400	800	--
Manganese	180	2600	2.8
Thallium	0.078	1.2	0.0014

475 0 475 Feet

N

Title:

CONCENTRATIONS OF METALS IN SHALLOW SOIL FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	B8
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.8.mxd		

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Cyanide	2.3	15	0.0015

N

325 0 325 Feet

Title: **CONCENTRATIONS OF TOTAL CYANIDE IN INTERMEDIATE-DEPTH SOIL FROM SOUTH PERCOLATION POND**

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	B9
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.9.mxd		

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Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Fluoride	310	4700	12

N

325 0 325 Feet

Title: **CONCENTRATIONS OF FLUORIDE IN INTERMEDIATE-DEPTH SOIL FROM SOUTH PERCOLATION POND**

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18	ATTACHMENT B10
Prepared by: M.S.R.	Scale: AS SHOWN	
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.10.mxd		

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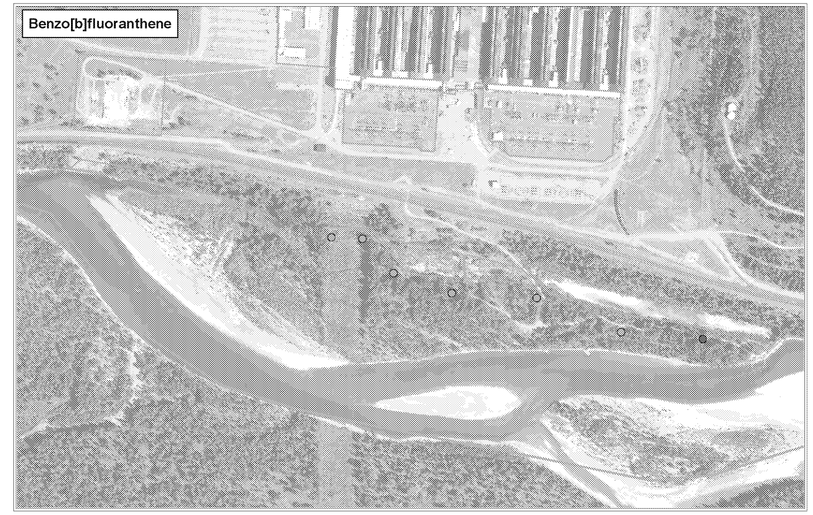
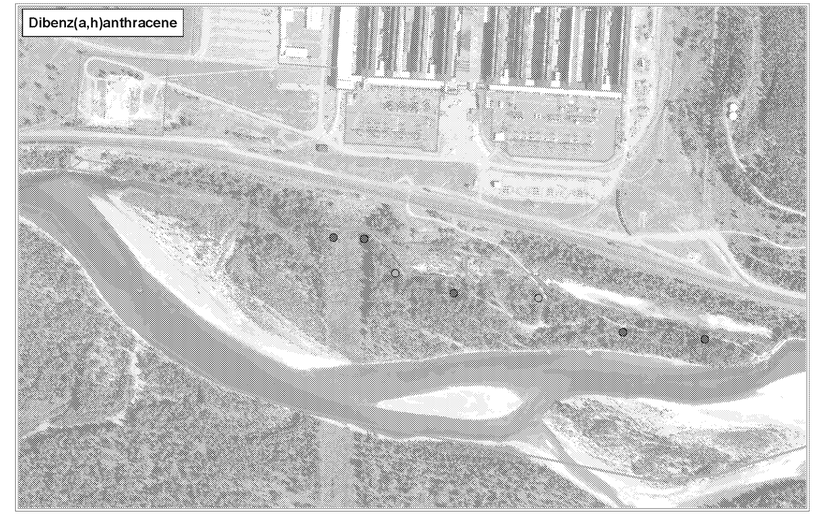




Preliminary - Under EPA and MDEQ Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Benzo[a]anthracene	1.1	21	0.011
Benzo[a]pyrene	0.11	2.1	0.029
Benzo[b]fluoranthene	1.1	21	0.3
Benzo[k]fluoranthene	11	210	2.9
Chrysene	110	2100	9
Dibenz(a,h)anthracene	0.11	2.1	0.096
Fluoranthene	240	3000	8.9
Indeno[1,2,3-cd]pyrene	1.1	21	0.98

475 0 475 Feet

N

Title:

CONCENTRATIONS OF SELECTED PAHS IN INTERMEDIATE-DEPTH SOIL FROM SOUTH PERCOLATION POND

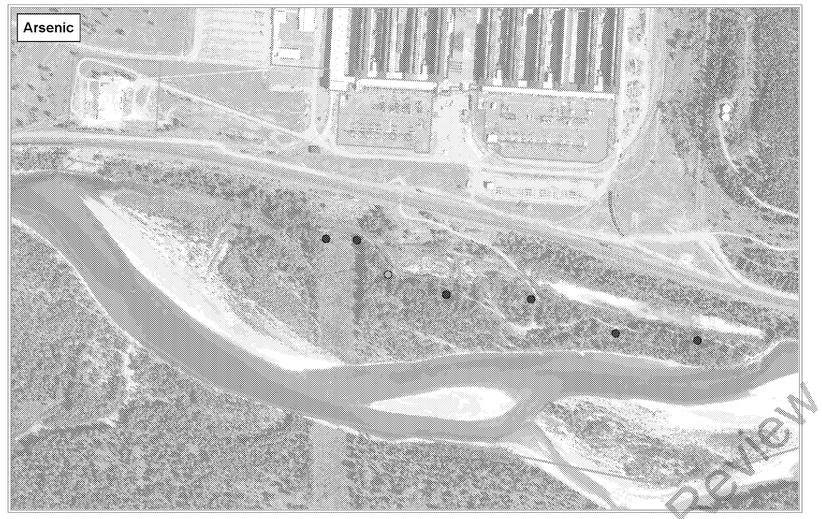
2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	B11
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.11.mxd		



Preliminary - Under EPA and MDEQ Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Aluminum	7700	110000	3000
Arsenic	0.68	3	0.0015
Cobalt	2.3	35	0.027
Copper	310	4700	2.8
Iron	5500	82000	35
Lead	400	800	--
Manganese	180	2600	2.8
Thallium	0.078	1.2	0.0014

475 0 475 Feet

N

Title:

CONCENTRATIONS OF METALS IN INTERMEDIATE-DEPTH SOIL FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 14MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	B12
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.12.mxd		

ATTACHMENT C

Sediment Thematic Maps

C1. Concentrations of Free Cyanide and Total Cyanide in Sediment from South Percolation Pond

C2. Concentrations of Fluoride in Sediment from South Percolation Pond

C3. Concentrations of Selected PAHs in Sediment from South Percolation Pond

C4. Concentrations of Selected Metals in Sediment from South Percolation Pond

Preliminary - Under EPA and MDEQ Review

Preliminary - Under Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Cyanide	2.3	15	0.0015

N

325 0 325 Feet

Title: **CONCENTRATIONS OF FREE CYANIDE AND TOTAL CYANIDE IN SEDIMENT FROM SOUTH PERCOLATION POND**

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 16MAR18
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: M.R.	Project: 2476.0001Y006
File: 2476.0001Y206.13.mxd	

ATTACHMENT C1

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Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Fluoride	310	4700	12

N

325 0 325 Feet

Title:
CONCENTRATIONS OF FLUORIDE IN SEDIMENT FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 15MAR18
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: M.R.	Project: 2476.0001Y006
File: 2476.0001Y206.14.mxd	

ATTACHMENT C2

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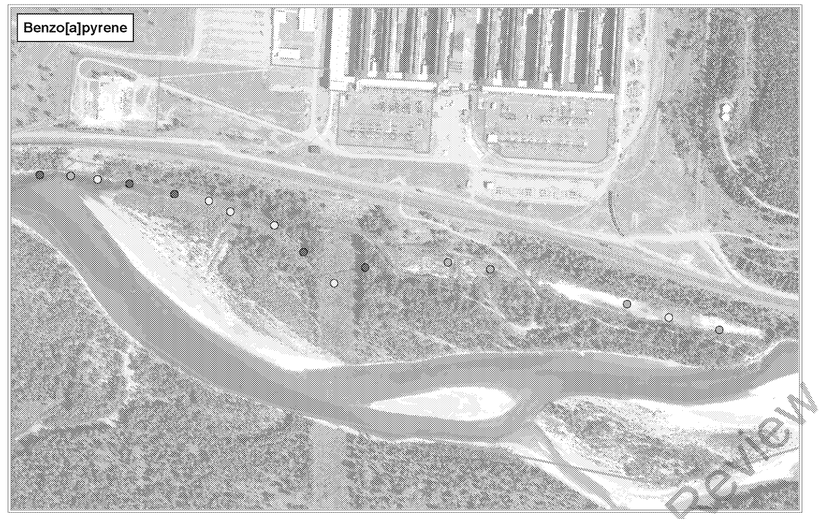
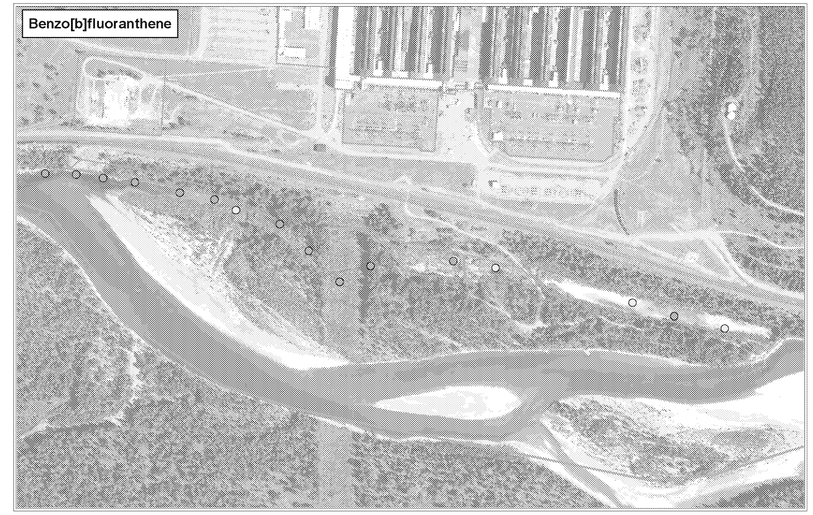
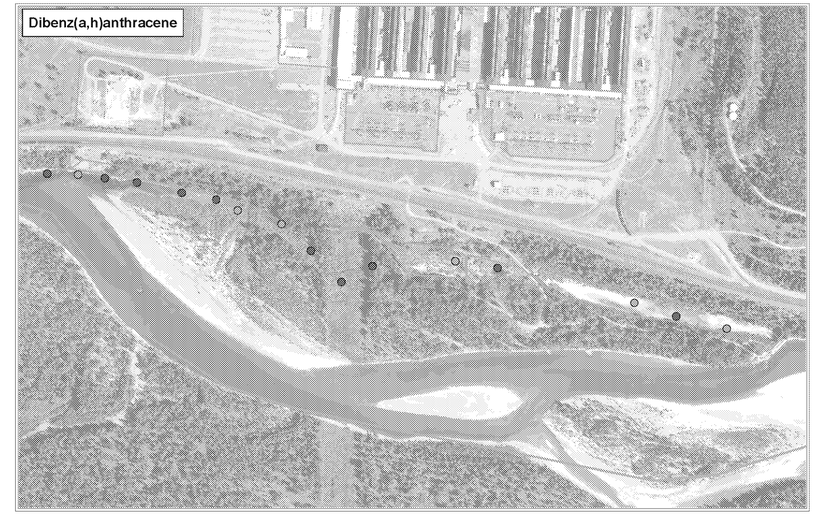
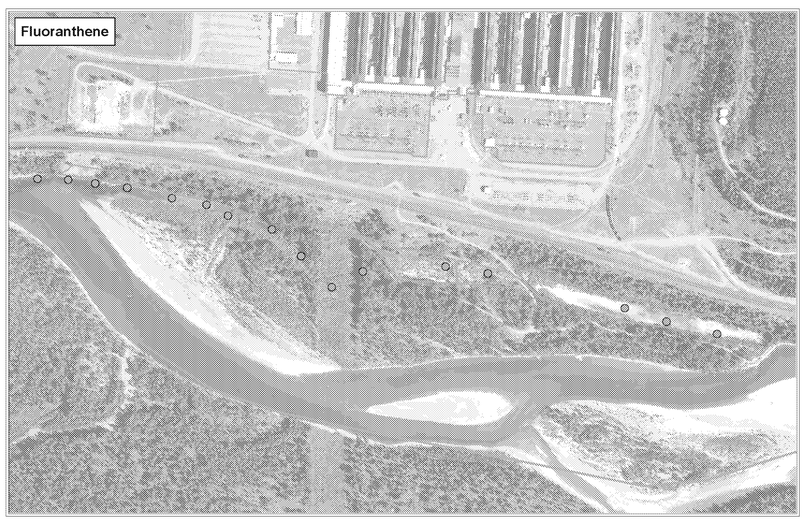








Preliminary - Under EPA and MDEQ Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Benzo[a]anthracene	1.1	21	0.011
Benzo[a]pyrene	0.11	2.1	0.029
Benzo[b]fluoranthene	1.1	21	0.3
Benzo[k]fluoranthene	11	210	2.9
Chrysene	110	2100	9
Dibenz(a,h)anthracene	0.11	2.1	0.096
Fluoranthene	240	3000	8.9
Indeno[1,2,3-cd]pyrene	1.1	21	0.98

475 0 475 Feet

N

Title:

CONCENTRATIONS OF SELECTED PAHS IN SEDIMENT FROM SOUTH PERCOLATION POND

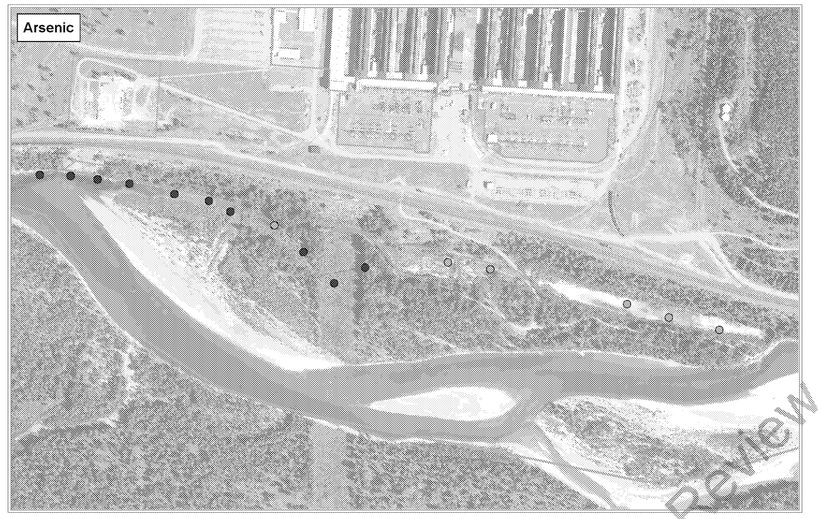
2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 15MAR18	ATTACHMENT C3
Prepared by: M.S.R.	Scale: AS SHOWN	
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.15.mxd		



Preliminary - Under EPA and MDEQ Review

Concentration Legend

- Analyte Not Detected
- Below Protection of Groundwater
- Below EPA Residential RSL
- Exceeds EPA Residential RSL
- Exceeds EPA Industrial RSL
- Result is 10x or Greater than Industrial RSL

Analyte	Residential mg/kg	Industrial mg/kg	Protection of Groundwater mg/kg
Aluminum	7700	110000	3000
Arsenic	0.68	3	0.0015
Cobalt	2.3	35	0.027
Copper	310	4700	2.8
Iron	5500	82000	35
Lead	400	800	--
Manganese	180	2600	2.8
Thallium	0.078	1.2	0.0014

475 0 475 Feet

N

Title:

CONCENTRATIONS OF SELECTED METALS IN SEDIMENT FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 15MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	C4
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.15.mxd		

ATTACHMENT D

Surface Water Thematic Maps

D1. Concentrations of Free Cyanide and Total Cyanide in Surface Water from South Percolation Pond

D2. Concentrations of Dissolved Free Cyanide and Dissolved Cyanide in Surface Water from South Percolation Pond

D3. Concentrations of Fluoride in Surface Water from South Percolation Pond

D4. Concentrations of Total Metals in Surface Water from South Percolation Pond

D5. Concentrations of Dissolved Metals in Surface Water from South Percolation Pond

Preliminary - Under EPA and MDEQ Review

Preliminary, Under Editorial Review

Concentration Legend

- Analyte Not Detected
- Below Tapwater RSL
- Below DEQ Human Health
- Exceeds DEQ Human Health
- Exceeds Drinking Water MCL
- Result is 10x or Greater than Drinking Water MCL

Analyte	DEQ Human Health ug/L	Drinking Water MCL ug/L	Tapwater RSL ug/L
Cyanide	140	200	0.15

N

325 0 325 Feet

Title: **CONCENTRATIONS OF FREE CYANIDE AND TOTAL CYANIDE IN SURFACE WATER FROM SOUTH PERCOLATION POND**

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 16MAR18
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: M.R.	Project: 2476.0001Y006
File: 2476.0001Y206.17.mxd	

ATTACHMENT D1

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Preliminary, Under Review

Concentration Legend

- Analyte Not Detected
- Below Tapwater RSL
- Below DEQ Human Health
- Exceeds DEQ Human Health
- Exceeds Drinking Water MCL
- Result is 10x or Greater than Drinking Water MCL

Analyte	DEQ Human Health ug/L	Drinking Water MCL ug/L	Tapwater RSL ug/L
Cyanide	140	200	0.15

N

325 0 325 Feet

Title: **CONCENTRATIONS OF DISSOLVED FREE CYANIDE AND DISSOLVED CYANIDE IN SURFACE WATER FROM SOUTH PERCOLATION POND**

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 16MAR18
Prepared by: M.S.R.	Scale: AS SHOWN
Project Mgr: M.R.	Project: 2476.0001Y006
File: 2476.0001Y206.18.mxd	

ATTACHMENT **D2**

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Concentration Legend

- Analyte Not Detected
- Below Tapwater RSL
- Below DEQ Human Health & Drinking Water MCL
- Exceeds DEQ Human Health & Drinking WaterMCL
- Result is 10x or Greater than DEQ Human Health & Drinking water MCL

Analyte	DEQ Human Health ug/L	Drinking Water MCL ug/L	Tapwater RSL ug/L
Fluoride	4000	4000	80

N

325 0 325 Feet

Title:
CONCENTRATIONS OF FLUORIDE IN SURFACE WATER FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 16MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	D3
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.19.mxd		

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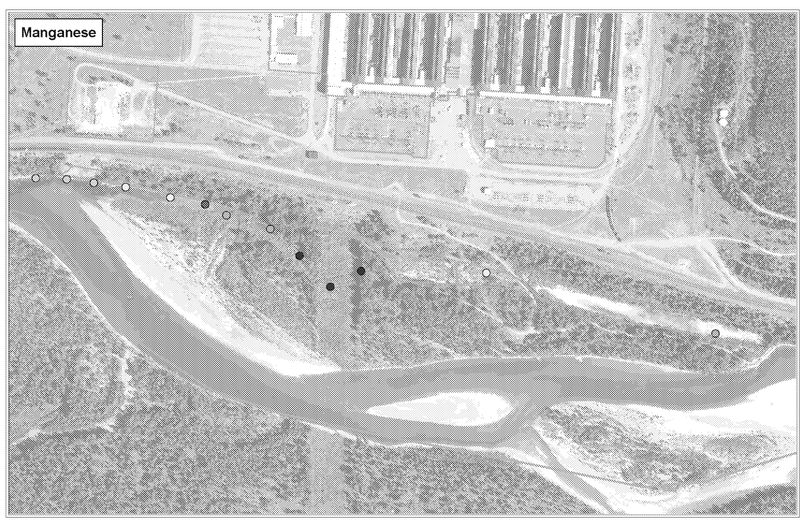


Preliminary - Under EPA and MDEQ Review

Aluminum Concentration Legend
- Analyte Not Detected
- ND – 2000
- 2000 – 4000
- 4000 – 20000
- >20000

Arsenic Concentration Legend
- Analyte Not Detected
- ND – 0.052
- 0.052 – 10
- 10 – 100
- >100

Cobalt Concentration Legend
- Analyte Not Detected
- ND – 0.6
- 0.6 – 2
- 2 – 4
- >4

Copper Concentration Legend
- Analyte Not Detected
- ND – 80
- 80 – 1300
- 1300 – 13000
- >13000

Iron Concentration Legend
- Analyte Not Detected
- ND – 1400
- 1400 – 2800
- 2800 – 14000
- >14000

Lead Concentration Legend
- Analyte Not Detected
- ND – 15
- 15 – 30
- 30 – 150
- >150

Manganese Concentration Legend
- Analyte Not Detected
- ND – 43
- 43 – 86
- 86 – 430
- >430

Thallium Concentration Legend
- Analyte Not Detected
- ND – 0.02
- 0.02 – 0.24
- 0.24 – 2
- >2

Analyte	DEQ Human Health ug/L	Drinking Water MCL ug/L	Tapwater RLS ug/L
Aluminum	--	--	2000
Arsenic	10	10	0.052
Cobalt	--	--	0.6
Copper	1300	1300	80
Iron	--	--	1400
Lead	15	15	15
Manganese	--	--	43
Thallium	0.24	2	0.02

475 0 475 Feet

N

Title:

CONCENTRATIONS OF TOTAL METALS IN SURFACE WATER FROM SOUTH PERCOLATION POND

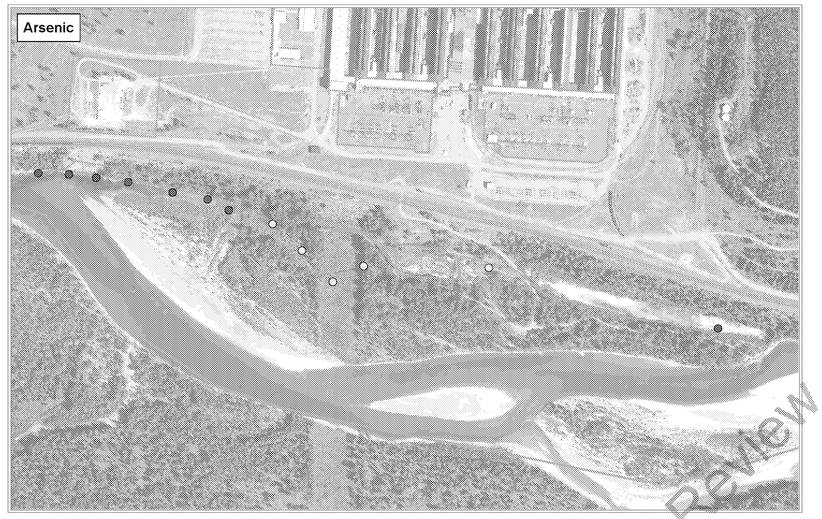
2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

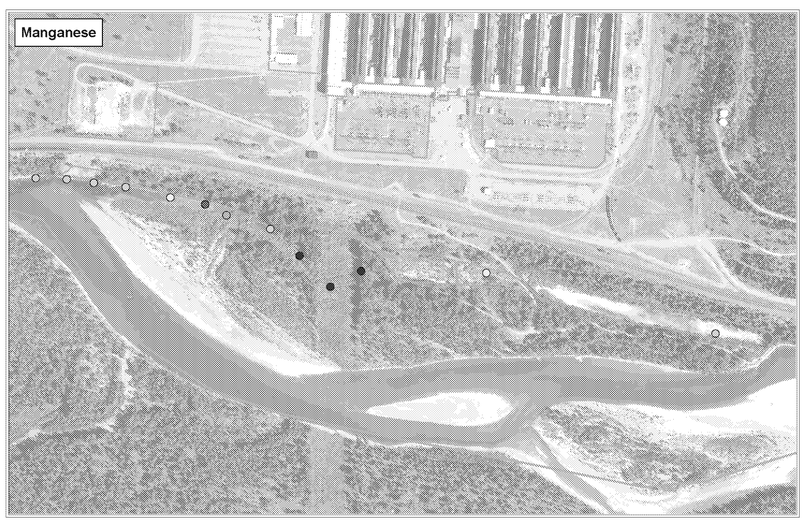
Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 16MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	D4
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.20.mxd		





Preliminary - Under EPA and MDEQ Review

Aluminum Concentration Legend
- Analyte Not Detected
- ND – 2000
- 2000 – 4000
- 4000 – 20000
- >20000

Arsenic Concentration Legend
- Analyte Not Detected
- ND – 0.052
- 0.052 – 10
- 10 – 100
- >100

Cobalt Concentration Legend
- Analyte Not Detected
- ND – 0.6
- 0.6 – 2
- 2 – 4
- >4

Copper Concentration Legend
- Analyte Not Detected
- ND – 80
- 80 – 1300
- 1300 – 13000
- >13000

Iron Concentration Legend
- Analyte Not Detected
- ND – 1400
- 1400 – 2800
- 2800 – 14000
- >14000

Lead Concentration Legend
- Analyte Not Detected
- ND – 15
- 15 – 30
- 30 – 150
- >150

Manganese Concentration Legend
- Analyte Not Detected
- ND – 43
- 43 – 86
- 86 – 430
- >430

Thallium Concentration Legend
- Analyte Not Detected
- ND – 0.02
- 0.02 – 0.24
- 0.24 – 2
- >2

Analyte	DEQ Human Health ug/L	Drinking Water MCL ug/L	Tapwater RLS ug/L
Aluminum	--	--	2000
Arsenic	10	10	0.052
Cobalt	--	--	0.6
Copper	1300	1300	80
Iron	--	--	1400
Lead	15	15	15
Manganese	--	--	43
Thallium	0.24	2	0.02

475 0 475 Feet

N

Title:
CONCENTRATIONS OF DISSOLVED METALS IN SURFACE WATER FROM SOUTH PERCOLATION POND

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:
COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: M.S.R.	Date: 15MAR18	ATTACHMENT
Prepared by: M.S.R.	Scale: AS SHOWN	D5
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.21.mxd		

PLATES

Plate 1. South Percolation Pond Expedited Risk Assessment Sample Locations

Preliminary - Under EPA and MDEQ Review

LEGEND

- SOIL BORING
- SURFACE WATER SAMPLE LOCATION
- SEDIMENT SAMPLE LOCATION
- EXISTING MONITORING WELL
- PHASE I SOIL BORING
- PHASE I SURFACE WATER SAMPLE LOCATION
- PHASE I SOIL COLLECTED AT PROPOSED SEDIMENT SAMPLE LOCATION
- PHASE I SEDIMENT SAMPLE LOCATION

225 0 225 Feet

N

Title:

SOUTH PERCOLATION POND EXPEDITED RISK ASSESSMENT SAMPLE LOCATIONS

2000 ALUMINUM DRIVE
COLUMBIA FALLS, MONTANA

Prepared For:

COLUMBIA FALLS ALUMINUM COMPANY, LLC

ROUX

Compiled by: L.J.	Date: 16MAR18	PLATE
Prepared by: M.S.R.	Scale: AS SHOWN	1
Project Mgr: M.R.	Project: 2476.0001Y006	
File: 2476.0001Y206.22.mxd		

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