EPA comments to the Phase I Site Characterization Data Summary Report
Columbia Falls Aluminum Company NPL Site
Columbia Falls, Montana
Prepared for Columbia Falls Aluminum Company, LLC by Roux Associates, Inc.
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General Comments

Overall, the Phase I Site Characterization Data Summary Report (DSR) is well written and fairly comprehensive. The data collected during the first round of sampling will be invaluable in completing the site remedial investigation. The specific comments below are intended to provide clarification to how the DSR provides a description of the field sampling activities and data evaluation methodologies, as well as directions/suggestions on future site characterization activities.

The summary of findings and conceptual site model presented in Section 4 makes several conclusive statements such as "These findings suggest that the Sanitary, Center and East Landfills are not contributing sources to the cyanide and fluoride in groundwater." It is premature to make such presumptions based on one round of sampling data, especially when that sampling occurred during seasonally low water table conditions. Similarly, it is premature to dismiss contaminants of potential concern (COPCs) from further evaluation, as discussed in the accompanying Screening Level Ecological Risk Assessment, until all four rounds of sampling specified in the Sampling and Analysis Plan (SAP) are completed.

Specific Comments

Section 1.1 (Page 1) – Site Boundary – Should this be referred to as the "Study Area" until the extent of contamination has been determined?

Section 2.4.4.1 (Page 9) – Although the field methods used to collect soil gas samples were presented in the SAP Addendum, a brief description of the field methods should be included in this section.

Section 2.4 (Page 10) – Selection of drainage structures that were to be further evaluated – It is stated that "the three drainage structures with the highest concentrations of COPCs in soil, CFDS-005, CFDS-007, and CFDS-013, were selected for further investigation as part of the Phase I drilling Scope of Work to evaluate the subsurface soils beneath each structure". Why were only three selected? Would it be appropriate to evaluate more drainage structures in Phase II? What were COPC concentrations relative to screening levels? Which COPCs were the highest? More detail is needed in this section so that the rationale for further investigation, as well as whether more sampling is needed, is clear.

Section 2.6 (Page 11) – Please outline the drilling technique(s) used to minimize cross-contamination in the deeper monitoring wells and soil borings. Please also describe the criteria used to determine what material, grout and/or bentonite chips, was used to abandon soil borings.

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Section 2.6 (Page 12) – Please add a brief description to the opportunistic sampling bullet list of where soil boring CFSB-131 was located with respect to prominent features. This has been provided for CFMW-028a.

Section 2.7 (Page 14) – Description of ISM Sampling Methodology – The description of the sampling method performed for the first 15 DUs is not accurate. It is stated that "ISM field processing methods" were used. The soil samples collected failed to comply with several key aspects of field collection and processing (e.g., field processing did not include drying and breaking up of soil aggregates, soil was mixed by hand allowing smaller particles to settle, subsamples were not collected in accordance with ITRC ISM guidance). All inadequacies should be outlined in the text. The current presentation downplays the method inconsistencies that occurred for the first 15 DUs.

Section 2.8 (Page 16) – Background Sample Collection Methodology – It is stated that boring grab samples were collected from the background area for comparison to site boring grab samples. How were samples that were collected using an ISM approach compared to those collected using a grab approach?

Section 2.11.1 (Page 18) – The text states that the screened intervals for deeper monitoring wells were "typically set below the first low-permeability unit observed during drilling". Please add a discussion of what criteria were used to construct deep well screens if this typical condition was not met.

Section 2.11.2 (Page 20) – Please list the monitoring wells that were equipped with pressure transducers, and describe the selection criteria used to determine which wells would be monitored by transducer.

Section 2.11.3 (Page 23) – Surface Water Collection Technique – It appears that a grab sample was collected without consideration of collection depth. Because concentrations may vary according to depth, as a result of groundwater interacting with surface water, a depth-integrated sampling technique is suggested for future sampling.

Section 2.13 (Page 26) – Corrective Actions for QA/QC Audit Findings – It is unclear if corrective actions were implemented to address the findings of the QA/QC audits. Were issues immediately addressed? Did field personnel require follow-up training regarding processes and procedures? It would be useful to have a discussion of whether issues result in a bias, and, if so, what is the direction and magnitude of this bias? It would be beneficial to expand the text to address this missing information.

Section 2.14 (Page 26) – Data Verification and Validation Activities –What "data verification" procedures were completed? If appropriate, the nomenclature should be simplified to state that only data validation was performed.

Section 2.16 (Page 28) – SLERA Field Reconnaissance – While it is noted that a field reconnaissance effort was completed to support the SLERA, a brief synopsis of the findings of this field effort should be added.

Section 3.2.1 (Page 30) – VOC Soil Gas Screening Results Interpretation – It is stated that "only one detection of VOCs was above 1.0 ppm". Can the significance of this threshold of 1.0 ppm be included

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in the text? Also, it may be helpful to identify the locations were VOC detections were present and where they were absent to aid in interpretation of the data (e.g., The Sanitary Landfill, the West Landfill, and the Industrial landfill all had VOC detections in soil gas screening sampling. The West Scrubber Sludge Pond and the West Landfill Vent did not have any VOC detections in soil gas screening sampling.).Section 3.2.3.2 (Page 32) – Landfill GPR Survey Findings – The last bullet indicates areas that the GPR did not have any clear signals present. However, similar to the other bullets in this section, there are no conclusions drawn regarding this observation. Is it assumed that no cap is present? What do historical documents indicate?

Section 3.3.1; Cross-Sections – It would be beneficial to the user if the stratigraphic descriptions in the text and on the cross-sections directly correlated. For example, the legend on the cross-sections should show that the uppermost unit (fine to coarse sand…) comprises the 'Glacial Outwash and Alluvium' stratigraphic section, while the units between the outwash and bedrock comprise the 'Glacial Till' section, and so on.

Sections 3.3.2 and 3.3.2.1 – The description of the aquifer contained within the upper hydrogeologic unit (outwash deposits) as 'perched' needs to be further supported in the text of Section 3.3.2. A perched aquifer is the result of a discontinuous aquitard or series of aquitards occurring in the unsaturated zone above the water table upon which infiltrating water mounds. This results in groundwater 'perching' above and flowing down into the generally recognized water table aquifer. Upon review of the cross-sections and potentiometric surface maps, it appears that the upper hydrogeologic unit aquifer is continuous across the site, and that fine-grained material in the lower hydrogeologic unit (till) may act as an aquitard, as evidenced by the observation of dry soil beneath saturated outwash. It is noted in Section 3.3.2.1 that groundwater elevations in the lower hydrogeologic unit wells are below the groundwater elevations in paired upper hydrogeologic unit wells, implying that a downward vertical gradient exists, and offering support to the definition of the upper hydrogeologic unit as a perched aquifer. To add clarity to this discussion, please combine these sections and use the groundwater elevation data to support the hydrogeologic model. Also, future investigation activities should include aquifer pumping tests at wells completed in both the upper and lower hydrogeologic zones to estimate aquifer characteristics including transmissivity, interconnectivity within and between zones, and any existing boundary conditions.

Section 3.3.2.1 (Page 38, last paragraph, 1st sentence) – Please revise the sentence as follows: "The ~~potentiometric surfaces~~ **groundwater elevations** measured in…"

Section 3.3.2.2 – Please add a discussion of which wells were equipped with pressure transducers including which hydrogeologic unit each is completed in, and the rationale for the choice.

Section 3.4 (Page 43) – Soil Quality – The last sentence of the paragraph states that "further evaluation of that particular analyte and exposure scenario <u>may</u> be warranted during the risk assessment phase of the RI/FS". In what situation would further evaluation not be warranted? Can this statement (and all similar statements in the report) be strengthened to state that further evaluation <u>is</u> warranted? Also, can this paragraph be clarified to state that analytical results are being compared to the most conservative screening criteria? The utility of having a variety of screening value sources is lost if the most conservative screening value for each chemical for each exposure media is not used. It should also be clarified that only human health screening values are being presented.

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Section 3.4.1 (Page 44) - Please indicate that the target risk level for cancer is 1E-06 and for non-cancer the target hazard quotient is 0.1 for the screening values.

Section 3.4.1 (Page 45) – Statistical Summary of Analytical Results (for soil) – This statistical summary should evaluate the adequacy of the detection limits achieved relative to the screening values. This is a global comment for the document.

Section 3.4.1 (Page 45) – Statistical Summary of Analytical Results (for soil) – The treatment of non-detects has not been noted in the text. Please clarify how statistics were computed in cases where a portion of the analytical results for an individual chemical were non-detect.

Section 3.4.1 (Page 45) – Statistical Summary of Analytical Results (for soil) – There is a lack of discussion of analytical results relative to the USEPA Protection of Groundwater Risk-Based Soil Screening Levels in this entire section. Discussion is focused on the USEPA Industrial and Residential RSLs which are not the most conservative values.

Section 3.4.2.4 (Page 55) – Comparison of Field vs. Lab Processing of Incremental Soil Samples – In the introductory paragraph for this section it is stated that resampling occurred to allow for "comparison of the results from the two methods (field processing vs. laboratory processing), and for assessment of whether or not the initial field processing approach could have resulted in either a low or high bias relative to the laboratory processing methods". The evaluation of this bias is not presented in the text. Rather, an evaluation of the results is performed relative to screening levels to decide if re-sampling is warranted. It does not investigate the apparent variability between results for the samples as an indicator for re-sampling. The variability between the samples is important because future nature and extent of contamination evaluations would rely upon having data that are of high quality. In addition, risk calculations will also require reliable estimates of chemical concentrations in soil. If the need to resample is dismissed because an area was found to exceed screening values using either the field- or laboratory- processed sample, future risk estimates for these areas will be biased unless adjusted. Because it is unknown what the proper adjustment factor would be because results are highly variable, re-sampling of areas with highly variable analytical results (an RPD greater than 35% for field vs. laboratory processed samples) should be performed. The current conclusions, which are based on results adjusted by the maximum RPD plus 10%, should be removed. It is unclear how this adjustment strategy was developed. Can it be demonstrated that this adjustment properly considers the variability in the data?

Of importance to note, and as discussed during the comment period of the RI/FS workplan, there is additional source of error to consider for the ISM samples that were processed correctly. Per ITRC guidance, for any ISM sample, the reported concentration will underestimate the true mean about half of the time due to inherent sampling variability and analytical uncertainty. However, because only one ISM replicate was collected, there is no way to account for this source of error (i.e., it is not possible to compute upper concentration limits for a single sample).

The future utility of the field processed samples should be discussed in the report. There is likely little utility given that the field processing impacted concentrations and results were biased low by such a large fraction.

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If retained in its current format, the note in Appendix M regarding highlighted cells should be revised to indicate that cells are highlighted if the original sample (with field processing) was below the lowest screening level and the second sample (with laboratory processing) is above the lowest screening level.

Section 3.4.4 (Page 57) – Please add to the section a discussion of the potential source(s) of cyanide, fluoride, and SVOCs in background soil.

Section 3.4.4 (Page 61) – Background Soil Evaluation – The utility of evaluating the background data using BTVs and UTLs is acknowledged, however, because additional evaluation methods are being considered, it would also be appropriate to perform a comparison of the background and site soil borings using hypothesis testing. This type of comparison can also be made using ProUCL to determine if two datasets are statistically significantly different from one another.

Section 3.4.5 (Page 64) – Borrow Pit Soil Comparison to Background – Similar to the comment above, the evaluation could be enhanced through the inclusion of hypothesis testing. Also, please clarify the depth of borrow pit soil and background soil that were compared.

Section 3.5.2 (Page 68) – Please include a discussion of how high pH from grout infiltrating well screens may or may not affect groundwater analytical results.

Section 3.5.2 (Page 69) – Groundwater Screening Values – The text does not list all screening values that are presented in the accompanying tables. "CFMW-001 Standard" is listed in the tables, but not the text. Please add and clarify the basis of this source. In addition, the EPA Tapwater RSL is not included in the discussion in the text. Please add.

Section 3.5.2 (Page 70) - Discussion of USEPA Tapwater RSLs – This discussion needs to be modified to remove discussion of the conservative nature of the USEPA Tapwater RSL. It is acknowledged that the MCL is greater that the USEPA Tapwater RSLs, however, MCL values are often not risk-based and are derived with financial consideration of implementation. A detected value above the USEPA Tapwater RSL means that the detection limits are adequate to perform this evaluation, not that the value is overly conservative. Moreover, because a human health risk assessment is going to be performed for the Site, it is premature to dismiss or reduce the utility of the USEPA Tapwater RSLs in this document. These values should be included throughout, and in conjunction with, the initial discussion of the groundwater statistics. By isolating the discussion (i.e., presenting it second), it implies that these are not worthwhile values, when in fact they are much more relevant than the MCLs to human health risk. This is a global comment and applies to the surface water evaluation (Page 75).

Section 3.5.2 (Page 70) – Chemicals Selected for Review in Groundwater – All chemicals for which analytical data are available should be compared to screening levels, rather than only evaluating those chemicals that have exceedances of screening levels in soil. The risk assessment will need to evaluate total risk at the Site, not just a portion. Parsing the evaluation in this manner may be appropriate in the uncertainty discussion, which will be presented in the future risk assessment. It is not appropriate to limit the scope of the evaluation of groundwater data at this time.

Section 3.5.2 (Page 70) – VISL Calculations – The groundwater concentration for benzene is 0.0E+00 µg/L as presented in Appendix U. Please confirm this is correct. The target HQ used in the

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VISL calculator appears to be 1. In order to consider the cumulative effects of chemicals, for screening purposes this should be 0.1. Please clarify what the basis is for the "Site Groundwater Concentration". Is this the maximum concentration for each chemical?

Section 3.5.2.3 (Page 73) – Please present general chemistry data for all wells in trilinear plots (Piper diagrams) and Stiff diagrams to facilitate evaluation of hydraulic flow and connectivity in the hydrogeologic regime. This is a global comment and applies to the surface water evaluation (Page 77).

Section 3.6.2 (Page 75) – Evaluation of Surface Water Data – This discussion and presentation in tables/figures/plates should also include a comparison of surface water results to the USEPA Tapwater RSLs. It should be clarified if total and/or dissolved results were used in the comparison and the rationale for doing so.

Section 3.6.2 (Page 76) – Inclusion of MDEQ Circular DEQ-7 Values – It is confusing why the chronic and acute Aquatic Life Numeric Water Quality Standard values have been included when it is consistently stated throughout the document up until this point that any and all ecological evaluation will be presented in the SLERA. A consistent presentation of this type of information across media types is preferred.

Section 3.7 (Page 77) – Sediment Quality – There is mention of surface water data in the first paragraph, it is suggested that this paragraph is revised as appropriate.

Section 3.8 (Page 80) – Laboratory Data Validation – It would be helpful to include a more detailed synopsis of the data validation. Currently, rejected samples and analytes are detailed in a list of bulleted items. It would be helpful for the reader if there was a summary of this information beyond the approximate 0.1% overall rejection rate. Are there chemicals that consistently had analytical/sampling issues in certain media? Are there any trends that can be identified? This information would be helpful in moving forward with sample collection and analysis as well as help identify any potential data gaps that may have arisen due to consistent rejection of results (if applicable).

Section 4.1.1 (Page 84); Plates 15 and 16 – The text states that the origin of cyanide and fluoride in groundwater is centered at the Wet Scrubber Sludge Pond. While it is apparent that the highest concentrations of cyanide and fluoride are found in this area, it is important to note that elevated concentrations of these analytes are present elsewhere and decreased concentrations downgradient of the highest concentration wells are bracketed by increased concentrations further downgradient, suggesting multiple source areas. For example, on Plate 15 (cyanide in groundwater), an estimated concentration of 961J micrograms per liter (µg/L) is found in well CFMW-019. Directly downgradient of CFMW-019, well CFMW-028 shows a concentration of 104 µg/L, while downgradient of CFMW-028, well CFMW-034 is shown with a concentration of 327 µg/L. Please add a discussion of this nature to the section, and modify isoconcentration contours on Plates 15 and 16 to better present this scenario.

Section 4.1.1 (Page 85) – Landfills Results Compared to Background – There is a statement regarding comparability of groundwater concentrations to background that is ultimately used to dismiss the Sanitary, Center, and East Landfills as contributing sources to cyanide and fluoride in groundwater. A rigorous statistical comparison of an adequate dataset should be performed prior

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to making such conclusions. Simply stating that two values (2.9 µg/L and 2.4 µg/L) are similar is not an adequate evaluation and the conclusion to dismiss these areas is premature.

Section 4.1.1 (Page 85-86) – Landfills as a Contributing Source of COPCs to Soil – Again, a rigorous statistical evaluation would be necessary to properly draw conclusions regarding the impacts landfills have on the surrounding soil. In addition, the mobility of COPCs should be considered rather than visual comparison of vegetation. The lack of visible plant toxicity is not necessarily an indicator of other ecological or human health toxicity.

Section 4.1.2, 4.1.3 (Page 86) – Former Drum Storage Area as a Source Area, Percolation Ponds – Levels of chemicals in soil should also be compared to the USEPA Protection of Groundwater Risk-Based Soil Screening Levels.

Conclusive statements regarding concentrations being higher or lower should be statistically derived or the statements should be removed (see last sentence in Section 4.1.3).

Section 4.1.4 (Page 88) – For completeness, text should be revised to include discussion of levels of chemicals in soil relative to the USEPA Protection of Groundwater Risk-Based Soil Screening Levels for the protection of groundwater rather than just including a discussion of USEPA Residential and Industrial soil RSLs.

Section 4.1.5.3 (Page 90) – Pesticides and PCBs – Please expand this section to include discussion of detection limit adequacy. These compounds are being dismissed as being potential COPCs for some locations because the samples collected in these areas were all non-detect. It should be confirmed and presented in this section if achieved detection limits resulted in data adequate for comparison to the most stringent screening levels. Additionally, focus is being placed on three DUs in the operational area for future sampling due to detections of PCBs. Can it be confirmed that other DUs should not be included when taking into account the field processing techniques that were employed and the resulting variability around those results?

Section 4.1.5.4 (Page 91) – Dioxins and Dibenzofurans - For completeness, text should be revised to include discussion of levels in soil relative to the USEPA Protection of Groundwater Risk-Based Soil Screening Levels rather than just including a discussion of USEPA Residential and Industrial soil RSLs.

Section 4.2.1 (Page 90), 2nd paragraph, 1st sentence – Cyanide and Fluoride Concentrations in Groundwater – Please revise this sentence to state, "…~~elevated~~ **the highest observed** concentrations of cyanide and fluoride **in groundwater** appear to be ~~present within groundwater that originates in the~~ **centered in monitoring wells adjacent to the** West Landfill/Wet Scrubber Sludge Pond area**. Impacted groundwater in this area appears to** generally migrate~~s~~ southward, in the upper hydrogeologic unit, towards the Flathead River," (emphasis added).

Section 4.2.1 (Page 92) – Cyanide and Fluoride Concentrations in Groundwater – Conclusions based on the comparison of analytical results for cyanide and fluoride to the MCL should be revised to be presented based on a comparison to the EPA Tapwater RSL. Also, please remove the statement in the 2nd full paragraph on the page dismissing the existence of secondary sources (see comment regarding page 84 and Plates 15 and 16 above).

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Section 4.2.1 (Page 93) – PAHs in Groundwater - Please expand this section to include discussion of detection limit adequacy. Please clarify the sentence "the complete absence of PAHs in groundwater despite the widespread exceedances of the Groundwater RSLs is reflective of the conservative nature of the RSLs". How is it possible that PAHs are completely absent, yet there are widespread exceedances of the Groundwater RSLs? Also, how can there be widespread exceedances of the Groundwater RSLs and the inclusion of the following statement "These findings indicate that the PAHs observed in soil are not impacting groundwater quality"? Please revise the text accordingly.

Section 4.2.2 (Page 94) – Cyanide in Surface Water (seep area, Flathead River, etc.) – The text states that all samples were non-detect or below all screening levels for cyanide and further conclusions are then drawn. Inspection of Table W3 reveals that even the MCL (the least conservative screening level) was exceeded for the seep areas and that the detection limits were inadequate for evaluation of non-detects versus screening levels. Please confirm these are the data being referenced or clarify the correct data source. If these are the correct data that are being referenced, please correct the text to reflect this information.

Section 4.2.2 – (Page 95) – Evaluation of Sediment Analytical Results – It is stated that "evaluation of the sediment sampling results from these areas will be provided in the SLERA". However, in the RI/FS Work Plan, it is stated that sediment data will be compared to EPA Residential RSLs.

Section 4.2.3 (Page 96) – Soil Vapor – Similar to the selection of other screening values, chemicals that exceed a hazard quotient of 0.1 should be retained as COPCs to take into account potential cumulative risk.

Tables General - Please add a footnote to indicate that the target risk level for cancer is 1E-06 and for non-cancer the target hazard quotient is 0.1 for the screening levels.

Tables General - Missing values – Soil– It is recognized that the valence state of chromium in soil at this site is not known. In COPC selection or for the initial comparison of site values to screening values, it should be conservatively assumed that all chromium is present as the hexavalent form, since this has a lower toxicity value than the trivalent form of chromium. It is also recognized that most chromium in soils tends to be in the trivalent form (ATSDR 2012). Therefore, for actual risk calculations, it may be appropriate to assume some fraction of the chromium in soil exists in the trivalent form, and the remaining fraction exists in the hexavalent form. Please add the appropriate screening values for hexavalent chromium to Table 8.

Tables General – Water missing values – For groundwater, cadmium and manganese are missing. The cadmium (water) and manganese (non-diet) values presented in the EPA RSL table should be included. For surface water, cadmium and nickel are missing. The cadmium (water) and nickel (nickel soluble salts) values presented in the EPA RSL table should be included. Again, chromium (IV) values should be used for screening purposes.

Table 21 and Table 22 – Groundwater Statistics Versus Screening Levels – There is a mixture of total and dissolved fractions presented. Is this intentional? What is the rationale for this? What statistic is the fraction presented in the table associated with? Is it the maximum concentration?

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Because human health standards are included for comparison purposes, it would be appropriate to only present statistics for the total fraction. It would be worthwhile performing a comparison of the total versus dissolved results to confirm the trend that the total fraction is greater than the dissolved fraction.

Table 23 – Surface Water Statistics Versus Screening Levels – Please confirm the fraction used to compute the summary statistics.

Plates with Thematic Maps – Maps should be revised to include all screening levels, with symbols representing ranges that correspond with all screening levels. For example, as seen in Appendix N, Plate N1 (Cyanide and Fluoride in Soil) does not present the screening level for soil for the protection of groundwater. This is a global change that needs to be made to all thematic maps. The current presentation is misleading because it does not identify sampling locations that exceed the most conservative screening level. It is also recommended that the color scheme be revised such that green is not chosen to present results that exceed a screening level.

Appendix N and Z – Color Scheme for Comparison to Screening Levels – The established order for perceived level of potential risk is confusing because of a mixture of themes/comparisons for the various colored symbols. Currently, a result could fall into multiple categories and the severity of exceedances is lost when mixing screening levels in the categories. A suggested revision to the color codes is presented below for Appendix N (also applies to other appendices):

Blue – Analyte not detected
Green – < than the most conservative value
Yellow – > than the most conservative value (1-5x)
Orange – > than the most conservative value (6-10x)
Red – > than the most conservative value (>10x)

The relationship between residential and industrial values for each chemical is not linear, therefore, mixing the two screening levels and only evaluating the magnitude of exceedances in the color designation for one chemical is confusing. It is suggested that the color scheme be related to the exceedance magnitude for the most conservative screening level and other screening levels (as available) are presented as a frame of reference.

**A consistent presentation of MDLs in the appendices would be ideal. It would aid in the interpretation of detection limit adequacy. There should be a section in the text devoted to evaluating detection limit adequacy. Including limits here in the appendices would help tie it together.

Appendix V – Category Value Ranges – The ranges selected do not assist the reader in determining which samples are above or below the screening values presented. It cannot be deciphered which locations exceed the USEPA Tapwater RSL given the current designations for symbols. How do the blue and green dots differ?

Appendix V1 – the detection limit for cyanide presented in the dataset provided to USEPA is 10 µg/L, not 2 µg/L. Please confirm and correct as needed throughout the appendices. Fluoride

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(Appendix V2) does not look to be correct either. Presenting the correct detection limit is important in interpreting the data in terms of adequacy of the detection limit.

Plates 7 through 10 – Geologic Cross-Sections – While these cross-sections present the generalized stratigraphy underlying the facility, they lack sufficient detail to assess the presence of any preferential pathways of groundwater transport. For example, the shallowest stratigraphic unit is presented as an undifferentiated 'fine to coarse sand with varying amounts of gravel and silt'. Each of these soil types should have been broken out (sand, silt, gravel) to better visualize the subsurface. As more data become available, the cross-sections should be updated with differentiated lithologic units (i.e., gravel, sand, silt, clay) to more clearly assess the potential for preferential groundwater flow.

Plates 15 and 16 – Please review the comments above regarding Section 4.1.1 and Section 4.2.1 and revise the plates accordingly.

References

ATSDR. 2012. Toxicological Profile for Chromium. September 2012. ATSDR Toxicological Profiles Web Site. http://www.atsdr.cdc.gov/toxprofiles/tp7.pdf

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