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November 9, 2000

Mr. Jim Christiansen
Remedial Project Manager
U.S. Environmental Protection Agency
Region VIII, Mail Code (EPR-SR)
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Denver, CO 80202-2466

Project:	RAC Contract No. 68-W5-0022 Work Assignment No. 088-RSBD-0894
DCN:	3280-088-CO-EPOU-09345
Subject:	Comments on the Draft Sampling and Analysis Plan for Richardson Flats, Dated October 24, 2000.

Dear Mr. Christiansen:

CDM Federal Programs Corporation (CDM Federal) is pleased to submit one unbound copy of Comments on the Draft Sampling and Analysis Plan for Richardson Flats Tailings Site. An electronic version is also included for your use.

If you have any questions or comments regarding these comments, please feel free to call.

Sincerely,

CDM FEDERAL PROGRAMS CORPORATION

Jeff Montera
Project Manager

Attachment

cc: Linda Brown, CDM Federal Project Officer
Jodie Powell, EPA Project Officer
Document Control

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COMMENTS ON
DRAFT SAMPLING AND ANALYSIS PLAN
FOR
RICHARDSON FLAT
Dated October 24, 2000

General Comments:

1. The Sampling and Analysis Plan (SAP) was generally consistent with the requirements in QA/R-5.

2. The project objectives (e.g., sample collection) were listed, but the data gaps and the additional characterization needs (i.e., program goals) were not outlined. An understanding of how these data will meet big picture goals would be helpful.

3. The SAP needs to be thoroughly reviewed for typographical and grammatical errors. Also, the document needs to be reviewed for consistency within it (e.g., acronyms are defined differently in separate parts of the document).

4. The data quality objectives (DQOs) seem focused on validity rather than on decision-making. EPA's seven-step DQO process (QA/G-4) should be incorporated into the document.

5. Decontamination and sample identification procedures must be addressed. Also, the SAP should indicate how changes to governing documents will be handled.

Specific Comments:

1. Section 2.2. The remedial measures implemented by United Park should be explained or summarized.

2. Section 2.2.1.1. There is no discussion of water quality from seeps. Seeps could be a contributor of load to the local rivers/creeks, or to groundwater if the seeps infiltrate before reaching other surface water. This migration pathway should be addressed.

3. Section 2.2.1.1. The water quality standards should be stated and whether the analytes were above or below these standards. The 1999 findings should be briefly summarized.

4a. Section 2.2.1.2. The standards should be stated and the concentrations or increase in concentrations should be noted. This section states that the well allows mixing of two aquifers. Wells should not allow mixing of two aquifers. It is recommended to abandon wells that allow mixing and install new wells at those locations. It should be noted which metals are elevated and how elevated they are.

4b. In addition, the report states that monitoring well MW-2 has been buried. This should be located and properly abandoned so it does not create a preferential pathway to groundwater.

5. Section 2.2.1.3. This section states that the tailings were covered with clean soil or vegetation. An explanation of how the tailings were covered with vegetation and not soil needs to be explained. The data used to determine desorption of metals should be included. Also, it should be stated that it will be verified that the metal concentrations will not adversely affect the wetland ecosystem.

6. Section 2.2.2. The elevated and low concentrations of the analytes should be reported. The standards that the concentrations were compared to should be listed or referenced. It should be noted whether mercury does or doesn't exceed water quality standards. It needs to be explained why a TMDL process is being conducted for cadmium and mercury when the SAP does not indicate that these are the problems. It should be noted which analytes have Utah ground water quality standards. If there is no standard, it should not be insinuated that a concentration was below a standard. Also to clarify, Arsenic should be referred to as an inorganic or metalloid; it is not a metal.

7. Section 2.4. The 7-step DQO process is used to ensure that the data and data quality are acceptable and useful. The DQO process provided in "Guidance for the Data Quality Objectives Process" dated August 2000 (EPA QA/G-4) should be used. This section needs to be rewritten to follow this guidance document. DQOs are not expressed in terms of precision, accuracy, representativeness, completeness, and comparability, these terms are data quality indicators.

8. Section 3.1. This section notes that both the existing wells and the wells associated with the evaluation of the shallow aquifer will be sampled. The difference between and location of these two sets of wells should be identified. It is unclear whether or not the soils below the tailings are going to be sampled.

9. Section 3.1.1 describes surface water sampling. Will the surface water sampling event be synoptic (i.e., sampling the same slug of water as it travels along the flow path)?

10. Section 3.1.2. Previously, the text discussed two aquifers and this section discusses three aquifers, please explain. If there were actually three aquifers, it should be noted if this third aquifer was sampled and what the results were. This section also states that there is no hydraulic connection between aquifers, but the text previously noted that the wells allow mixing of aquifer waters. This should be explained.

11a. Section 3.1.3. Each sample should be analyzed for all parameters. There could be a situation where the sample contains lead and arsenic below the control limits and contain elevated concentrations of other elements that may pose a risk. Also, the text did not indicate that lead and arsenic are the driving elements and, therefore, this should be explained. This section should note how far is "just above. Samples should be collected above and below the interface to verify its location.

11b. In addition, will the 0 to 2-inch surface soil sample described in Sections 3.1.3 and 3.2.3.1 be split into total and 200-mesh sieved samples? Total is typically needed for evaluation loading and ecological risk; whereas, the 200-mesh fraction is typically needed for human health risk evaluation.

11c. Further, the SOP for surface soil sampling (SOP 2a) discussed in Sections 3.1.3 and 3.2.3.1 may need to be modified. It notes that in areas of roots, the surface material should be scraped away, and the underlying material sampled. This deeper material is not the soil that receptors will be exposed to. It seems that in these potentially problematic locations, a larger area of the surface sampled and the deleterious materials removed from the sample.

12. Section 3.1.4. It should be explained how the sediment samples will determine the zinc source. Also, there is a possibility of other elements in the sediment besides zinc that may adversely affect human health or the environment. This should be addressed.

13. Section 3.1.5. The samples should be collected to five feet below the interface not five feet below ground surface. It is recommended that a backhoe not be used because of the substantial disturbance and mixing that may occur.

14. Section 3.1.5.1. The ground water levels vary temporally and, therefore, it is recommended that wells be installed at locations with high ground water levels whether or not the water is in the tailings at that point in time. The number of wells installed should also be noted.

15. Section 3.2.1. Flow should be added to the list of field measurements.

16. Section 3.2.2. It should be noted which of the two or three aquifers is the Silver Creek aquifer. It is recommended to describe the aquifers at the beginning of the document and then use that terminology consistently throughout the document. The ground water should also be analyzed in the field for turbidity. It should be explained why all the existing wells associated with the Site be sampled.

17. Section 3.2.3.1. It should be noted how many samples will be collected and where they will be located.

18a. Section 3.2.3.2. It should be noted how many samples will be collected, where they will be located, and how deep they will be collected.

18b. Section 3.2.3.2. Also, this section notes that soil samples will be placed in a "plastic bag". This is inconsistent with Table 2 that lists a 4-ounce glass jar. Please clarify.

19. Section 3.2.4. It should be explained why only the < 63 micron fraction will be analyzed.

20. Section 3.4. The logbook should also include sample time and daily entries (i.e., weather, team members, etc.). This section should also include how logbook corrections and blanks should be handled.

21. Section 3.5. Laboratory duplicates should be analyzed for inorganic parameters. Extra volume of sample should be collected for water sample matrix spike/matrix spike duplicates. Also, the laboratory should report relative percent differences for all duplicate analyses (except field duplicates of which they are unaware) and percent recoveries for all spiked samples. Equipment rinsate blanks should be collected if any equipment is used between sampling locations.

22. Section 3.6.1. It is not necessary to calibrate the field equipment prior to each use, daily prior to first use is acceptable.

23. Section 4.1. It is unclear what or who UPCM is. This should be explained.

24. Section 5.1. The data should be validated in accordance with National Functional Guidelines, not what is in Tables 3 and 4.

25. Section 5.3. DQOs and data validation results are not comparable. Data validation results should be used for data quality indicators (e.g., precision, accuracy).

26. Figure 4. This figure should identify what the media are for each sample location because Section 3.1.1 notes that there are 5 sample locations as provided on Figure 4, yet, Figure 4 shows more than 5 sample locations. Also, the text states that two ground water wells will be installed, one upgradient and one downgradient. Figure 4 shows the location for only one well and it is neither up nor downgradient but crossgradient.

27. Table 1. It is noted in the text that this table lists the analytical parameters for each surface water sample. This table does not include that information and it should be added.

28a. Table 2. Acid/base potential should be added to this table. The laboratory reporting limits should be verified because usually each element has its own unique reporting limit rather that several at 5 milligrams per kilogram. I t should also be checked to ensure that the reporting limits are low enough using the 6000 methods and that the 7000 methods shouldn't be used for some of the analytes. Method 6010B should always be used instead of 6010. The units parts per million should not be used for water because these units are based on water density which varies from sample to sample. The units milligrams per liter should be used. It is also preferred that the units, milligram per kilogram, be used for solid media. The holding time for cadmium should be added to the table. The sample containers should be polyethylene and not polyurethane.

28b. Also, Table 2 and SOP 5. There is no mention of temperature blanks in coolers during shipping. The cooler temperature should be measured upon receipt by the laboratory to confirm proper temperature was maintained. In addition, EPA allows a range of temperature (i.e., 4°C ± 2°C) that is adequate for sample storage and transport. It is advisable to use this range to minimize data qualification based on storage and transport temperature.

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