

memorandum

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DATE: ~~MAR~~ 2 1992
REPLY TO: EM-453 (A. Rampertaap, 3-8191)
ATTN OF:

SUBJECT: Comments on Technical Memorandum Addendum to Final Phase III Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Work Plan and Surface Soil Sampling and Analysis Plan for 881 Hillside Area Operable Unit 1

TO: Frazer Lockhart, Rocky Flats Office

The Office of Southwestern Area Programs, Rocky Flats/Albuquerque Production Division (EM-453), has reviewed the above-referenced document and is providing the attached comments. Please address these comments before the document is finalized.

Call me at FTS 233-8191 if you have any questions related to this request.

Autar Rampertaap

Autar Rampertaap
Rocky Flats/Albuquerque Production Division
Office of Southwestern Area Programs
Environmental Restoration

Attachment

cc w/o attachment:
R. Greenberg, EM-453

ADMIN REC'D

A-DU01-000860
MHS
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DOCUMENT REVIEW: TECHNICAL MEMORANDUM, ADDENDUM
TO FINAL PHASE III RFI/RI WORK PLAN;
DRAFT SURFACE SOIL SAMPLING AND
ANALYSIS PLAN, ROCKY FLATS,
881 HILLSIDE AREA (OPERABLE UNIT NO. 1)

MAJOR CONCERN

The document presents two objectives:

- to determine the nature and extent of contamination, and
- to provide physical and chemical soil data that is representative of the operable unit (OU).

These two objectives are compatible. To achieve each objective requires a different sampling strategy. The first objective was defined on the basis of known releases to the surface. The second objective is defined on the basis of wind and surface water transport of contaminants from this site and from other sites outside the OU1, i.e., 903 Pad. To address the first objective, the sampling strategy is based on existing knowledge, especially information describing the geographic extent of contamination. The second objective is addressed by making the assumption that predicting *where* the contamination may be is difficult to impossible.

The sampling strategy discussed here is designed to meet objective two, development of a representative picture of contaminants at OU-1. However, "biased" samples appear to be included in an attempt to meet objective one. The problem that arises is that the sampling is not comprehensive enough to define the extent of contamination, and that the biased samples represent a significant portion (16%) of the total sample population, that skews the statistical analysis towards a higher, potentially much higher, mean. For example, see Table 102, the U-238 column where four "hits" provided a mean of 287 pCi/g, although 15 samples were less than 2 pCi/g.

It would appear that what is required are two separate strategies. Each strategy should be designed around each objective. A site-specific sampling plan for Individual Hazardous Substance Sites (IHSSs) 106, 107, 130, 119, and 177, where surface soil is known to have been contaminated, should be developed (107 may be deleted if the asphalt sufficiently covers the site).

The sampling plan presented in this report, minus the biased sampling, appears adequate to define the representative conditions at the site, although the assumption that all contaminants can be tied to uranium concentrations needs further justification.

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ANNEX D

GENERAL COMMENTS

1. Because this is an addendum to the Phase III RFI/RI Work Plan for OU-1, it would appear appropriate to focus this plan on the surficial soils and any discussion dealing with other media should be left to the appropriate work plan.
2. The document does not include all of the appropriate references to standard operating procedures (SOPs).
3. The risk assessment should be presented as a separate section.
4. When discussing results of previous investigations, general statements should be avoided and specifics should be included where possible. The document does not include any specific results of previous investigations. Referencing the Phase III Work Plan would address this concern.

SPECIFIC COMMENTS

1. Section 1.1, p. 1-1, second paragraph: Figure 1-1 refers to "proposed" locations, while the sentence is in the past tense. The reference should be clarified.

The reference to the current sampling strategy being inadequate to characterize the surficial sampling would indicate that modification of that sampling strategy would be useful. It would appear that when boring discrete samples of the top 1 to 2 ft of soil would be very useful. We recommend that this modification be examined.

2. Section 1.2.1.2, p. 1-8, first paragraph: The third sentence is somewhat misleading. Concentration levels mentioned in the sentence occur in only three wells along the southern boundary of IHSS 119.1 (Phase III RFI/RI work Plan-881 Hillside Area). We recommend that a site specific definition of background be given (i.e., natural background).
3. Section 1.2.1.2, p. 1-8, second paragraph: The sentence refers to Fig. 1-3. It implies that chemical data are contained on the figure. Because Fig. 1-3 the figure does not show any chemical data, please rephrase the sentence or add chemical data to the figure.

The discussion on soil contamination should include specifics such as levels found and locations. The reference to methylene chloride, acetone, and phthalates requires additional information as these contaminants had not been mentioned previously. Also, it is unclear how their presence will ever be related to laboratory artifacts if this link has not been

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previously verified. We recommend that this discussion be expanded and the relationship to surface soils presented.

Provide additional information on the current data suggesting that the Pu and Am at 881 Hillside are the result of transport of contaminated soil by wind from the 903 Pad. The 903 Pad is east of the 881 Hillside and, therefore, dominantly downwind, from the 881 Hillside.

4. Section 1.2.1.2, p. 1-10, first paragraph: The high concentrations of Pu appear to be more closely associated with IHSS 119.2 than the 903 Pad. If there is direct evidence of linking the 903 Pad to the Pu at 881 Hillside, data should be provided; if not, these references should be deleted.
5. Section 1.2.1.2, p. 1-10, second paragraph: The third sentence is unclear. Please clarify what sampling events are being referenced.
6. Table 1-2, p. 1-11: The error on the values reported for U-233 and U-234, samples 881-16 and 881-19, would indicate that these values are meaningless (i.e., the error is larger than the reported values). Please verify that the values in the table are correct. Also, please clarify why two values are reported for the variance in the U-238 column.
7. Section 1.2.1.4, p. 1-14, first paragraph: The quotation marks around "near-surface" should be deleted and a depth limit should be included.
8. Figure 1-5, p. 1-15: The conceptual model appears to be incorrect as it shows the groundwater surface intersecting the South Interceptor Ditch and Woman Creek. Data presented in earlier reports show the groundwater surface being 10 to 15 ft below the base of these drainages. This discrepancy should be examined.
9. Section 1.2.1.4, p. 1-16, first paragraph: The sampling objective of developing an analysis representative of the area, is not consistent with the objective stated in the first sentence of the document, determine the nature and extent of contamination. These two objectives are compatible but they do require different sampling strategies. The random sampling scheme described is consistent with the objective of developing an analysis representative of the area. The biased sampling or site specific sampling is consistent with the objective of evaluating nature and extent. These two strategies should be separated.

Table 1-1 includes sites 106, 107, and 177 as being potential sources of surface contamination and these sites should also be included for biased sampling.

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10. Table 1-3, p. 1-18: The rates in the Mobility column need to be defined (i.e., how were these determined).
11. Section 1.2.2.3, p. 1-21, Detection Limits: This section includes a preliminary risk assessment. The risk assessment should be presented in a separate section.
12. Table 1-8, p. 1-32: The table should include the reference source for the contents presented.
13. Section 1.2.2.3, p. 1-38, Critical Samples: It is unclear why this paragraph is labeled "critical samples," as it relates to background sampling. The statement that the background data refers to "spatial variability" of a constituent appears to be incorrect. Background data provides the naturally occurring ranges in concentrations not spatial variability.
14. Section 1.2.3, p. 1-39: This section does not address documentation requirements. More discussion on documentation requirements and how these requirements will be accomplished is needed. The general statement that "... implementation of the DQO process, components required for completion of Stage 3 should be available," should be revised to show that the documentation must be available.
15. Section 2.12, p. 2-6, first paragraph: The justification for the random sampling approach requires further clarification. The statement that there is an equal likelihood that human or biotic exposure will occur in any one polygon of interest does not appear correct. Certain areas have more human traffic than others at the site, for instance the area around Building 881. This also assume that there are no areas that have substantially higher concentration of contaminants. This assumption is known to be false as the data in Table 1-2 shows that there is higher uranium values around IHSS 119.1.

The title of this section should show the sampling scheme is both for radioactive and non-radioactive contaminants.

16. Section 2.1.2, p. 2-7, first paragraph: This objective does not match, the objective in the first sentence of the document. Present a clear consistent objective for this sampling effort.
17. Section 2.1.2, p. 2-8, first paragraph: Reference appropriate Standard Operating Procedure (SOP) for soil sample description.

References to background samples should be deleted as they are discussed in Sect. 2.1.3.

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18. Section 2.1.2, p. 2-10, second paragraph: The association of uranium to other waste constituents needs further clarification. The site history would indicate that radioactive, organic, and inorganic wastes were handled and disposed differently. A larger sample set may be required to adequately define organic and inorganic contamination.
19. Section 2.1.2, p. 2-11, third paragraph: The introduction of biased samples would appear to invalidate the representative model. It would appear taking more random samples, rather than sampling where there is known contamination would be more appropriate. Also, Sect. 1.2.1.4, p. 1-16, first paragraph, states that IHSS 130 will have biased sampling and does not mention IHSS 106 please clarify.

These documents are to be written for the general public. Terms such as anthropogenic should be used only when simpler terms is not possible. In this case, the sentence should refer to man related activities.

20. Figure 2-5, p. 2-12: A large-scale location map should be included for the purpose of determining where this site is located.
21. Table 2-1, p. 2-15: The purpose of taking Ph, specific conductance and carbonate tests on only background samples needs justification. The inclusion of oil and grease testing needs to be justified.