Colorado Department of Health

Comments

FINAL DRAFT

PHASE 1 RFI/RI WORK PLAN

ROCKY FLATS PLANT

SOLAR EVAPORATION PONDS

(Operable Unit No. 4)

JUNE 1991

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General Comments:

Standard operating procedures (SOPs) should be referenced throughout the revised document.

Specific Comments:

Section 1.1: Per the Interagency Agreement (IAG), Attachment 2 Statement of Work (SOW), Section I. B. 11. b, Phase I RFI/RI workplans "shall implement field work designed to characterize the sources/soils of each interim status unit...". Phase II workplans are "to evaluate the nature and extent of contamination resulting from the release of hazardous substances...". To avoid confusion, please limit the use of the phrase "nature and extent" to Phase II activities. The objective of this Phase I RFI/RI, the Division agrees, is to "characterize" contamination in surficial soils, vadose zone materials, pond liquids & sediments, and pond liner materials. Information on the transport and fate of contaminants, although a Phase II objective, may be incorporated into a Phase I RFI/RI report if available.

Section 1.1.1: On the last paragraph of page 1-2 it is stated that "subsequent Phase II activities are the Corrective Measures

Study/Corrective and Remedial Action Proposed Plan...." These activities are an overall part of corrective action but not part of the RFI/RI process. The described activities are "subsequent to" the RFI/RI effort.

Section 1.1.2: In the last paragraph of page 1-3 it is stated that "Groundwater, air, surface water and biota will be addressed in a later phase, or as part of plantwide investigations." The Division believes that contamination of these media from operation of the solar evaporation ponds must be addressed as Phase II activities; a statement to that effect should be incorporated in this section.

Section 2.1.2.1: Figure 2-2, referenced in this section, does not clearly or completely define the area of the original evaporation pond. Please review this drawing and amend it as necessary to clarify the appropriate location of this facility.

Section 2.1.2.2: The last sentence of page 2-3 states that the side slopes of Pond 207-A was changed from 1:3.7 to 1:2; however, Figure 2-6 suggests that 1:3.7 was the final grade.

Section 2.1.2.7: The depths of the French drains are described as ranging from 1 to 27 feet. Please explain the basis for the variable depth. Are they keyed into the bedrock?

Section 2.1.4: Statements in the first and second paragraphs of this section may be misconstrued. If the routine placement of waste into the ponds ceased in 1986, the statement in the second paragraph should be amended to "Pond 207-C has continued to store and treat pre-1986 process wastes." This would relieve the potential for confusion.

Section 2.2.1: The discussion on topography should be expanded. Although topographic dissection is discussed, both the gentler eastward slopes and topographic dissection play an important role in the exposure or subcropping of bedrock at and in the vicinity of Rocky Flats. Topographic relief, although seemingly inconsequential, may increase the potential for contamination of stratigraphically lower units (like the Laramie Formation). The Division believes that the interrelationship of geologic structure and topography have not been fully considered in the determination of potentially contaminated strata. An insightful discussion on the significance of topography should help foster a better understanding of site geology, any associated contamination and help focus data needs. Please discuss this with the Division before updating.

Section 2.2.2.1: This section refers to the "700" and "300" Building Complex(es). These buildings are not discernable on Figure 2-18.

Section 2.2.2.2: This section refers to the "Mound and 903 Pad areas". Please locate these areas on the appropriate figure.

Section 2.2.3.2: This section states that a discussion of the "deeper Laramie Formation is omitted" from the workplan. The upper portions of the Laramie Formation, however, should be discussed in greater detail and should provide information on the depth of the formation below the solar ponds. The upper Laramie is more than a "thick upper claystone unit" as reported by the U. S. Geological Survey (Hurr, 1976). Sandstone bodies within the upper part of the formation may demonstrate higher permeabilities than the blanket statement of Hurr. Please refer to Weimer (1973, referenced in Hurr, 1976) and comparable studies for more detailed geologic information.

Arapahoe Formation: The last paragraph on page 2-17 discusses the potential presence of a paleo-channel within the Arapahoe Formation. Please indicate the depth of this "channel" below the base of the evaporation ponds. Also Figure 2-21 lacks both a scale and the geologic data upon which the interpretation of a channel is based. This figure is of very limited value and does not meet "professional standards" for such interpretations.

Rocky Flats Alluvium: The thickness of the Rocky Flats Alluvium is reported as variable across the plant site. The Division believes that the alluvium should be discussed in respect to its site specific occurrence at the evaporation ponds. Please discuss the thickness and nature of the alluvium at the ponds as determined from available data.

Section 2.2.4.1: A bedrock ridge and its affects upon the potentiometric surface is discussed in the second paragraph under "Groundwater Flow". Figure 2-23 and 2-24 do not support the statement that "much of the area south an east of the ... ponds is unsaturated." Several of the wells are labeled as "ND-No Data well not yet completed". Figure 2-23 shows only two dry wells, one to the south and one to the northwest of the ponds, while other wells to the east were either ND or showed a water level. The dry well to the south, incidentally, is down slope of the ridge depicted in Figure 2-25. Figure 2-24 shows an additional dry well to the east, Well # 2986, but other wells further west show water levels. This data refutes the narrative statement quoted above.

Regarding the foundation drains of Building 774, first paragraph of page 2-21, what contaminants are expected from 774 processes?

Section 2.2.5.2: It is stated that Americium was found at levels above counting uncertainty values. The following sentence of the narrative describes "this background information". Unless Americium values can be statistically tied to atmospheric nuclear testing, they are indicative of contamination.

Section 2.2.5.3: Under "Metals" on page 2-27 it is stated "that metal concentrations exceeding three times the estimated background, could be indicative of contamination." RCRA cleanup standards are based on background or health based standards. Any level above background is indicative of contamination. This narrative must be revised.

Under "Organic Contamination of Soil" on page 2-32 it is stated that "It appears that organic contamination, although possible, is not of major significance in the ... Ponds area." Per the 1990 Annual Groundwater Monitoring Report, organics may be significant.

Section 2.3: The third paragraph of page 2-35 states that results of the 1987 drilling program are presented in Section 4 and 5 of the document. The information is not in Section 4 or 5 and should be included in the Site Characterization section of the amended document.

Also, this section needs to discuss the Groundwater Quality Assessment Program under which ground water is monitored (See a current version of "Groundwater Protection and Monitoring Program Plan For Rock Flats Plant, Revision 1, June 13, 1991".) Under this assessment program "Monitoring wells (at least one) installed hydraulically upgradient... " must be provided (6 CCR 1007-3, Section 265.91(a)(1)). This section of the workplan should not only name the wells that satisfy this requirement but provide potentiometric surface maps at a contour interval sufficient to demonstrate (1' preferred) that the selected well(s) are "in the direction of increasing static head". (The Division is concerned that a reported groundwater mound beneath the ponds may be affecting existing wells.) Additional data and interpretations to support the claim that the well(s) are "Representative of background ground-water quality..." and "Not affected by the facility" must be presented. (The Division acknowledges the difficulty in locating a well(s) which will not reflect contamination from other IHSSs and thus will be receptive of data or interpretations that reflect lack of contamination by constituents "common" to solar pond waters. If an acidic pH or constituent, for example, is not found in "upgradient wells" this may support higher natural levels for metals.)

Section 3.4: The five general goals of an RI (U. S. EPA, 1988, Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA Interim Final: EPA/540/G-89/004, OSWER Directive 9355.3.01, October 1988) provide a suitable framework for establishing Data Quality Objectives (DQOs). Please acknowledge these five goals as general objectives of an RFI/RI investigation but specify that nature and extent and contaminant transport and fate are Phase II RFI/RI issues as set forth in the IAG Statement of Work (See OU-7 Workplan). The DQOs should then be clearly developed to achieve the Phase I goals of characterizing site physical features, defining contaminant sources, and to provide

data for a baseline risk assessment. The data generated should also allow DOE to screen remedial alternatives.

Figure 2-2: This figure should show the boundary of Individual Hazardous Substance Site (IHSS) 101 but **should not** include the French Drain System. Likewise, Figure 4-4 incorrectly includes the French Drain within the "RCRA Waste Management Area Boundary". The Operable Unit OU-4 boundary, however, should encompass IHSS 101, the French Drain System and the location of the original solar pond (previously removed).

Table 3-1: This table needs to be updated comparable to Table 4-1 of the revised OU-7 RFI/RI workplan. Also, regarding collection of vadose zone water samples, please describe the sample collection technique or refer to an appropriate SOP.

Section 3.1: Site conceptual models, in part, are utilized to identify sampling needs to support baseline risk assessments; this use has not been discussed. It should be clearly stated that the baseline risk assessment for Phase I is intended to address the risk associated with source and soils. The IAG Statement of Work (SOW), Section I. B. 11. b, page 13, states that "... Phase I RFI/RI Workplans for interim status closure units external to buildings shall implement field work designed to characterize the sources/soils of each interim status unit **which shall provide** the information necessary to determine the risk associated with the **source of contamination** (bolds added)...." There is no indication here, or in Appendix D, that the determination of risk is a goal of data collection or that it will be limited in the Phase I effort to source and soils. (Please be aware that the discussion in the last paragraph, page 15, of the IAG SOW, states that the Phase II RFI/RI report "shall include draft **comprehensive** Baseline Risk Assessments", bold added.)

Furthermore, a thorough analysis of the site conceptual model allows the identification of sampling needs for evaluation of risks to human health and the environment. In order for the Division to determine the adequacy of sampling, it is necessary to chart the pathway from the source, through the release mechanism, transport medium and exposure route to the receptor then determine the types of samples required for risk assessment. The Division requests that a flow chart analysis for this Phase I characterization comparable to that developed for the Offsite Operable Unit (OU-3) be submitted. Although a flow chart approach generally will include the additional complexities of contaminant transport to be addressed in a Phase II study, the information is helpful in determining what sampling is appropriate to Phase I and what may be delayed to Phase II.