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**EN-453 COMMENTS ON: DRAFT PHASE I RCRA FACILITY
INVESTIGATION/REMEDIAL INVESTIGATION WORK PLAN
ROCKY FLATS PLAT, 700 AREA OPERABLE UNIT 8**

CRITICAL COMMENTS:

1. The risk assessment plan does not include a discussion of how risk assessment will be conducted across an aggregate area which includes a number of sites. A plan for statistically analyzing data and organizing risk assessment activities both within and across the sites needs to be included. The field sampling plan is focused on site specific investigations. The data that are being collected on an operable unit basis, such as stream and sediment data should be integrated into a facility-wide scenario.

2. The methodology for selecting contaminants of concern is inadequate. According to the flow chart presented in Figure 8-2, a contaminant could be excluded from the risk assessment if the contaminant is detected in only one sample (data set of 20) and the contaminant is not detected in an area where concentrations exceed 10 times the mean concentration for that contaminant. However, these criteria are not meaningful, especially for a data set of 20 because concentration for contaminants detected only once can never exceed 10 times the mean concentration. Thus, the contaminant would always be excluded, even if it exceeds background or health-based criteria. In addition, concentrations that do not exceed 1/10 health/environmental criteria will be excluded. These criteria are defined in the text as including such criteria as reference dose-based criteria or drinking water standards. These criteria need to be further defined. If risk/hazard-equivalent concentrations are to be used, the risk level/hazard quotient on which they are based needs to be presented, as well as the pathways they include. The use of 1/10 MCLs for this purpose is inappropriate because it could result in the exclusion of contaminants based only on their presence in groundwater, even if they are carcinogens and occur at concentrations above background in soils. The methodology does not indicate that contaminants will be selected separately for each medium.

3. The workplan attempts to control future work by using technical memoranda. This approach was apparently developed in order to promote a more efficient site investigation, i.e., sampling, will not be locked in place prior to site survey information. In general, this is a good approach, however what is lacking is clear direction regarding how the stages will interact. Criteria should be provided as to how decisions for each step will be made. For example, how will the soil-gas results be used to guide the borings, or determine if borings are needed at all.



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2

GENERAL COMMENTS:

1. The discussion on bedrock geology in Section 1 is confusing, presents information that should be factual in contradictory fashion, and generally does not provide information that is utilized in the development of the work plan. Recommend that this section be deleted, or reduced as it adds little to the text.
2. Recommend that section 2.3 and 2.4 be combined. These sections should also be reviewed for consistency. Commonly, a site description will refer to a leak, then a spill without clarifying whether these are the same or different events. Drums and tanks are also used interchangeably though they mean different things.
3. The discussion on the Rocky Flats Environmental Database (RFED) in section 2.4 presents concerns regarding the reliability of the data presented in this report. While recognizing the problem, a plan should be presented to verify or validate the information in RFEDs. This forum the OU-8 work plan is probably not the place for such a discussion, but until that problem is solved, all the historical data is highly questionable.

SPECIFIC COMMENTS:

1. Section 1.4.1, p. 1-5, first paragraph, third sentence: "OU" in this context is misleading, use division, or something similar.
2. Section 1.4.2, p. 1-5, second paragraph, fifth sentence: Please delete "radioactive" in front of "mixed," mixed wastes are by definition radioactive.
3. Section 1.6.7.2, p. 1-22, first paragraph, sixth sentence: A "reliable or recognizable lithologic marker" cannot be determined by palynology or biographic studies. By definition a lithologic marker is something that can be observed and correlated without relying on microscopic or exhaustive paleontological work.
4. Section 1.6.7.2, p. 1-23, third and fourth paragraphs: The depositional history of the No. 1 Sandstone described here does not relate to current knowledge of how depositional environments are preserved in the stratigraphic record. It is extremely unlikely that a meandering river depositional system would be reflected in the rock record by simple, sinuous, continuous, channels. Also isopach maps are not based on geologic models, models are based on isopach maps. The maps and cross-sections provided (Figures 1-19 to 1-26) do not consistently present the presence and thickness of the sands. These data are facts that should not be modified to fit models.
5. Section 1.6.7.2, p. 1-24, fourth paragraph: Please clarify the statement regarding "more than one fining upward sequence." The

2

following discussion implies that each location had a fining upward sequence.

6. Section 1.6.7.2, p. 1-26, first and second paragraphs: The discussions on possible groundwater flow directions are not sufficiently developed or supported. The general statement that it is more likely that groundwater be present in the sandstone rather than claystone is probably correct, providing that the sandstone and claystone differ in overall porosity and permeability. The statements regarding flow directions following the channels is not supported by any evidence. If this sandstone is confined, then hydraulic head differences will control the flow direction.
7. Figures 1-19 and 1-20: The data between these figures do not match. For instance, Figure 1-20 shows a ten foot isopach in the southern channel, while figure 1-19 shows no contours in that area. Also the area in the north shows the same boreholes in different contour intervals for each map. Please provide a consistent isopach map for the area.
8. Figure 1-21 to 1-25: The thickness of the units presented at each borehole should not vary between interpretations. Please provide one set of stratigraphic thicknesses per borehole used on the core description.
9. Table 1-5 and 1-7: This information could be presented in an appendix.
10. Section 2.3, p. 2-3: The information in this section could be combined with the information presented in 2.4. This section brings up many topics at each site, which are not discussed until 2.4. Also, this section includes a discussion of historical information which is also covered in 2.4. The only way for a reader to fully understand each site to take apart the report and read 2.3 and 2.4 side-by-side.
11. Section 2.3.3, p. 2-6, fourth paragraph: Please provide information on how IHSS 123.2 is being investigated.
12. Section 2.3.3, p. 2-6, fifth paragraph: The actions taken, dikes and dams, appear to indicate that the problem was larger than a "leak." Please clarify.
13. Section 2.3.7, p. 2-10, second and third paragraphs: Please clarify the dates of tank construction and the references provided. It would seem that it would be possible to refine an estimated construction date than a range of nine years.
14. Sections 2.3.9, p. 2-13, second and third paragraphs: The values presented of the depth to the bottom of these tanks do not add-up. Please clarify the various depths presented here.
15. Tables 2-7 to 2-36: These tables could be provided in an appendix.

16. Section 3.0, p. 3-1: The term Chemical Specific Benchmarks (CSBs) is being used incorrectly. CSBs are developed based on toxicological information when there are not standards. In this case, it appears ARARs are being called CSBs. While in a sense ARARs are CSBs in that they are partially based on toxicological data, they do not fit the term. Please clarify the intent of the standards/benchmarks provided.
17. Section 5.1.1.2, p. 5-3, third paragraph: The first and second sentence conflict. Please provide the requirements criteria for installing groundwater wells.
18. Section 5.1.1.2, p. 5-4, first paragraph: The interconnection of the groundwater system appears to be a larger problem than what is scoped in this plan. Recommend investigations in this area be coordinated through the site-wide characterization study.
19. Section 6.4.1, p. 6-17, first paragraph: Please clarify the "informal" meetings and field sampling plans at this stage of the investigation. Any meeting or plan relating to investigation results or scope-of-work will be considered "formal" the sense that they will document the work to date or to be completed.
20. Section 6.4.1, p. 6-22, third paragraph: The analytical suite limitations of the BAT sampler should be discussed in Section 5.0, with an appropriate discussion of how its limitations will effect the decision making at the sites.
21. Table 6-1: Please provide minimum and maximum number of borings, if possible, for each IHSS.
22. Figure 7-1: Please add preparation of the CMS/FS.
23. Section 8.2.2, p. 8-8, second paragraph: The discussion on tentatively identified compounds (TICs) does not appear adequate. The criteria provided are vague (what is the difference between "few" and "numerous" occurrences) and potentially incorrect. This area should either be better developed or deleted from the work plan completely.
24. Section 8.2.4, p. 8-9, first paragraph: Recommend deleting this paragraph. This paragraph appears to indicate that there is not methodology for chosen contaminants-of-concern (COCs), however, the rest of the section describes such a methodology.
25. Section 8.2.4, p. 8-10, first bullet. Please define infrequently.
26. Section 8.2.4, p. 8-11, first paragraph: The flowchart (Figure 8-3) does not include mobility, persistence, or decay products as discussed here, please add to figure.