

United States Government

Department of Energy

Rocky Flats Office

memorandum



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DATE: JUN 10 1991

REPLY TO:
ATTN OF: ERD:BKT:4388

SUBJECT: Comments on the Preliminary Draft RFI/RI Work Plan for OU3

TO: Robert H. Birk
Environmental Restoration Division

Please find enclosed my comments on the DOE document entitled, "Preliminary Draft RFI/RI Work Plan for OU3", dated May 8, 1991. As requested, these comments have been submitted by June 5, 1991.

<u>Location</u>	<u>Comment</u>
p. ES-3	Why is wetlands vegetation included under <u>terrestrial biota</u> rather than <u>aquatic biota</u> ?
p. ES-3	Why is plankton not included under <u>aquatic biota</u> ? Plankton is likely to be an important <u>primary producer</u> at the three reservoirs in OU3. Also, note that an Ecology SOP exists for plankton.
p. 1-10, last par.	Plankton and amphibians are also important components of aquatic ecosystems. Why are they not included?
p. 2-16, Sec. 2.1.3.4	The following excerpt from page 2-23 of the IM/TRA/EA document for OU2 should be included:

"The U.S. Fish and Wildlife Service has indicated that the two endangered species of interest in the RFP are the bald eagle and the black-footed ferret (Rockwell International, 1988c). Prairie dog towns provide the food source and habitat for ferrets."

Since a prairie dog town is known to exist at OU3, we need to consider the possibility that ferrets exist in the investigation area. The U.S. Fish and Wildlife Service should be consulted and the results of their consultation should be incorporated in the RFI/RI work plan and report for OU3. Also, during ecology field investigations, investigators should be alerted to watch for their presence and record observations in their field notebooks.

- Figure 2-7,
p. 2-40 Why is inhalation not considered to be an exposure route for biota (i.e., prairie dogs)?
- p. 2-46,
Sec. 2.5.1.6,
par. 1 It is stated that Pu "at IHSS 199 most likely exists in the thermodynamically stable solid state, Pu O₂". (emphasis added)
Is it important that this be verified? If it is important, how will it be done? If not, why?
- p. 2-47,
Sec. 2.5.2 Why have the off-site portions of Walnut and Woman Creeks not been included in this *conceptual model*? It would be appropriate either to include them with the reservoir conceptual model or create an additional conceptual model.
- p. 2-49,
par. 3, 2nd sen. Specify typical temperature, pH and Eh (or dissolved O₂) ranges of environmental concern.
- p. 2-49,
par. 3, last sen. Will the identification and quantification of potential complexing agents be addressed in the work plan? If not, why? If so, how?
- p. 2-49,
Sec. 2.5.2.2 Has the mineralogy (or composition) of the clay-rich sediments been determined? If so, a brief review would be appropriate. If not, will it be determined and how will it be determined?
- p. 2-50,
Sec. 2.5.2.3 It is stated that Figure 2-8 identifies potential release mechanisms and transport media, and their identification is not meant to imply that they will occur or be significant at the reservoirs. For the sake of completeness, shouldn't density stratification (see p. 2-50, par. 2) be included?
- p. 2-50,
Sec. 2.5.2.3 Why is Pu fate and mobility in sediments not included in this subsection? It is discussed under the existing headings, but a separate section should be considered.
- p. 2-52,
Sec. 2.5.2.3.4 How will filtration of *influent water at water treatment plants* impact Pu transport via colloidal particles? Is this transport mechanism considered to be significant?
- It would be a good idea to collect samples of filter backwash sludge from Standley Lake for laboratory analysis of radionuclides, etc. Is this a planned activity for the OU3 RFI/RI work plan? If not, why?
- p. 2-54,
last sen. It is stated that Pu "most likely exists as the thermodynamically stable solid hydroxide, Pu (OH)₄" (emphasis added). Is it important that this be verified? If so, how will it be done? If not, why?

- p. 3-29,
par. 1 The Superfund Public Health Evaluation Manual has been superceded by the Risk Assessment Guidance for Superfund: Volume I, Human Health (EPA/540/1-89/002). Additional guidance on ARARs can be found in Chapter 4 of Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites (EPA/540/6-88/003).
- p. 4-1 I recommend that Tasks 7, 9 and 10 be deleted from the OU3 RFI/RI work plan. These are primarily feasibility study tasks and it does not set a good precedent to discuss them an any detail prior to the DOE, EPA and CDH discussing the need to conduct a feasibility study based on the baseline risk assessment results which are included in the RFI/RI report.
- p. 4-6,
par. 2 Add a bullet for "future site conditions (no action alternative)".
- p. 4-6,
par. 3 See my previous comment regarding page 4-1. This should be reworded to state that ".....OU3 must be remediated, a Feasibility Study Work Plan will be prepared".
- p. 4-6,
Sec. 4.7 See my previous comment regarding page 4-1.
- p. 4-9,
Sec. 4.9 See my previous comment regarding page 4-1.
- P. 4-10,
Sec. 4.10 See my previous comment regarding page 4-1.
- p. 5-1,
par. 1 If the five general goals of an RFI/RI are as shown in the bullets, why have Tasks 7, 9, and 10 been included in Section 4.0? An additional goal of an RFI/RI is to generate data required to prepare a Feasibility Study, if it is necessary based on the baseline risk assessment. Note that the baseline risk assessment includes the environmental evaluation.
- p. 5-1,
last par. Add an additional bullet stating: "Collect data to support a Feasibility Study, if necessary".
- p. 6-1,
par. 1 The second bullet states "To characterize the nature and extent of plutonium and americium at the IHSSs, if present" (emphasis added). Both Pu and Am have been determined to be present at the IHSS within OU3.
- p. 6-1,
par. 1 See my previous comment regarding page 5-1, last paragraph.

- p. 6-3,
par. 1
- Add "OU2 - 881 Hillside". Also, a paragraph devoted to OU1 should be included in Section 6.1.2 as was done for OUs 2, 5 and 6.
- p. 6-19,
par. 2
- It is stated that drainage sediment samples will be analyzed for Pu and Am and that one (composited) drainage sample associated with each reservoir will be analyzed by a full analytical suite. At this state of the OU3 RFI/RI investigation, I do not believe it to be appropriate to composite the drainage samples into a single sample for non-Pu and Am analytes. I strongly recommend that all drainage samples be analyzed (without compositing) for an analytical suite based on contaminants observed on-site. One objective of an RFI/RI is to define the nature and extent of contamination. Compositing will not help to achieve this objective.
- DOE will be better off to conduct a complete investigation at this stage, rather than have the public and regulators determine later (e.g., during the RI report review stage) that our investigation is inadequate. We already have a problem with our public image and do not need to risk making it worse.
- p. 6-21,
par. 1
- See my previous comment regarding page 6-19, paragraph two. This applies also to reservoir sediment samples.
- p. 6-20,
Sec. 6.2.2.2.2
- Are three sediment samples sufficient to characterize the nature and extent of contamination in the reservoirs? What is the statistical basis for selecting three samples for each reservoir? Based on size alone, Standley Lake should be sampled more than Great Western Reservoir which should be sampled more than Mower Reservoir. Is three samples even sufficient for Mower Reservoir based on statistics?
- p. 6-23,
par. 1
- Drainage surface water samples should be analyzed for the same parameters as the sediment samples. Again, this should be based on contaminants observed on-site. See my comments for page 6-19, paragraph 2.
- p. 6-23,
Sec. 6.2.3.2,
par. 1
- In addition to temperature and dissolved O₂, reservoir stratification should also include pH measurements. Note that the Hydrolab can perform the above measurements in-situ.
- p. 6-23,
Sec. 6.2.3.2,
par. 2
- A complete list of analytes based on on-site occurrence of contaminants should be collected for analyses and analyzed for a minimum of two sampling rounds (quarterly would be preferable).
- p. 6-25,
Sec. 6.2.5,
par. 1
- Add "americium and other potential contaminants" to Pu. Reword.
- p. 6-29,
par. 2, line 5
- Add "dissolved O₂" to the in-situ measurements.

p. 6-30,
Sec. 6.2.6.2,
par. 1,
lines 2, 3 & 10
(see also
Table 6-2)

Why is plankton, an important primary producer, not included under quantitative aquatic sampling in the reservoirs? Note that on SOP exists for plankton.

p. 6-31,
Table 6-2

Why is no aquatic sampling for fish being conducted at Standley Lake? This is the only reservoir where public access is allowed for recreation. Does the previous sampling by CDH meet standards in Guidance For Data Useability in Risk Assessment (EPA/540/6-90/008)? Were bottom-feeding fish adequately characterized? Were the analytes consistent with those of interest to the RFI/RI for OU3? If the answer to any of these latter questions is no, I strongly recommend that aquatic sampling of fish be conducted as part of the RFI/RI.

p. 6-34,
par. 3,
first sen.

How were eight reservoir stations for benthic macroinvertebrates determined? See the previous comments regarding sediment samples (page 6-20, Section 6.2.2.2.2) as they apply equally to benthic macroinvertebrates.

p. 6-35,
Sec. 6.2.6.2.3

How were six reservoir stations for fish determined? See the previous comments regarding sediment samples (page 6-20, Section 6.2.2.2.2) as they apply equally to fish.

p. 6-36,
par. 4

With regard to gill nets, I am not aware of an Ecology SOP that discusses them. Thus, if an SOP does not exist, it should be prepared and inserted in the Ecology SOP document.

p. 6-38,
par. 2, line 3
& par.3, last
bullet, p. 6-39

Why are fish and benthic macroinvertebrates included in Section 6.2.7 (Terrestrial Biota)?

Why are the second and third bullets at the top of the page included in Section 6.2.7 (Terrestrial Biota)?

p. 6-40,
par. 3,
first sen.

I recommend that a reference to a technical memorandum be deleted. First, it is not required under CERCLA, RCRA, or the IAG. Second, we do not want to set a precedent for the other OUs. Third, we are already drowning in paperwork.

As an additional note, at a recent meeting of the Risk Assessment Technical Working Group both EPA and CDH indicated that results of the initial qualitative survey (particularly the habitat survey) should be incorporated in the RFI/RI Work Plan since SOPs exist for these activities. This is a result of the fact that the EE work plans for OUs 2 and 5 were too general and not specific enough. Thus, the work plan should include the results of the initial qualitative survey.

- p. 6-40,
Sec. 6.2.7.1.2,
line 6
- How will natural variability be characterized if only one reference area is chosen for each major ecosystem? Based on previous Risk Assessment Technical Group discussions regarding OUs 2 and 5, I recommend that multiple reference areas be chosen in order to define the variability. This variability will, in turn, define the biota sampling requirements.
- p. 6-41,
par. 3,
second sen.
- All references to "the landfill" should be deleted from the OU3 RFI/RI Work Plan.
- p. 6-43,
par. 2, line 8
- See my previous comment regarding paragraph 3, second sentence.
- p. 6-46,
Sec. 6.3.1
- What are the sample designations for biota samples?
- p. 6-46,
Sec. 6.3.2,
second sen.
- See my previous comments regarding drainage sediment samples (page 6-19, paragraph two), reservoir sediment samples (page 6-21, paragraph one), drainage surface water samples (page 6-23, paragraph one), and reservoir surface water samples (page 6-23, Section 6.2.3.2, paragraph 2). The analyte list at OU3 needs to be defined based on on-site contaminant occurrences.
- p. 6-47,
last par.
- The analyte list for biotic samples should be based on the results of the OU3 abiotic media (soil, sediment, water, air) contaminants identified. Note that this list could contain organics (e.g., pesticides/herbicides, PCBs, other semi-volatile organics) as well as additional radionuclides and metals. It is inappropriate to screen out (or partially screen out) contaminants other than Pu and Am at this early stage of the RFI/RI.
- p. 6-57,
par. 1,
first sen.
- Why will uranium be analyzed for only "some" of the abiotic samples for OU3? The same question applies to VOCs and semi-VOCs in the next paragraph. The initial sampling and laboratory program should be based on on-site contaminants. Screening of contaminants at OU3 at this early stage of the RFI/RI is not appropriate.
- Field Sampling
Plan, Sec. 6.0
- The ecology portion of the field sampling plan is not consistent with the Ecology SOPs. In addition, the biota sampling frequencies do not appear to be consistent with the OU5 EE work plan. The revised EE work plan (including the field sampling plan) for OU3 must be consistent with both the Ecology SOPs and the OU5 EE work plan (and field sampling plan).
- However, note that evaluation of historical data, data quality objectives, and the results of the initial qualitative field survey should be incorporated into the Work Plan (and Field Sampling Plan) to maximize the specificity. This results from a recent meeting of the Risk Assessment Technical Working Group which includes DOE, EG&G, EPA, CDH and HAZWRAP.

p. 7-1, bullets Chapter 10 of the Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A) (EPA/540/1-89/002) on page 10-3 (paragraph two) discusses a two-phase evaluation for radiation risk assessment. It is stated that "procedures established by the ICRP (ICRP, 1979) and adopted by EPA in Federal Guidance Report No. 11 are used to estimate the radiation dose equivalent to humans from potential exposures to radionuclides through all pertinent exposure pathways at a site".

In addition, DOE Order 5400.5 (Radiation Protection of the Public and the Environment) establishes standards and requirements for operations of the DOE and DOE contractors with respect to protection of members of the public and the environment against undue risk from radiation. This order applies to all Departmental elements and contractors performing work for the Department as provided by law and/or contract and as implemented by the appropriate contracting officer.

Bullets should be added in the OU3 RFI/RI Work Plan for the underlined in the above two paragraphs. In addition, adequate text should be provided to incorporate this "second phase" of risk evaluation which is, incidentally, required by DOE Order 5400.5.

p. 7-2,
Figure 7-1

With regard to the risk characterization box, see my previous comments on the bullets on page 7-1.

p. 8-3,
Sec. 8.1.2,
par. 1, line 2

Add "or has occurred" after "adverse effect will occur".

p. 8-6,
par. 2, line 10

Add OU1 to OUs 2, 5, and 6.

p. 8-9,
first bullet

Add "possible organics" to "(radionuclides and possible heavy metals)".

p. 8-11,
par. 1,
lines 2 - 4

Biota sampling frequency and qualitative observation frequency should be consistent with that specified in the OU5 EE work plan.

p. 8-11,
par. 2, last bullet

Add "temperature and dissolved O₂" to "pH and conductivity".

p. 8-13,
last par., line 3

Add OU5 to OU6.

- p. 8-14,
Sec. 8.2.3.3 Add the following bullet: "Source of food for endangered or commercial species".
- p. 8-17,
par. 2,
lines 9 & 10 I recommend that both secondary and tertiary consumers be investigated during this study qualitatively through field observations.
- p. 8-21,
Sec. 8.2.4.2,
par. 2, lines 1 & 2 Should "communities" be "populations"?
- p. 8-22,
par. 1, line 1 Why will selected radionuclides not be included in bioaccumulation studies?
- p. 8-22,
Sec. 8.2.4.3,
par. 1, line 2 Should "communities" be "populations"?
With regard to the absence of plankton, see my previous comments on page ES-3, page 1-10 (last paragraph), page 6-30 (Section 6.2.6.2, paragraph one).
- p. 8-23,
last bullet What do you mean by "geophysical" as opposed to "physical"?
- p. 8-24,
Sec. 8.2.5.2,
par. 1, line 2 How will the seasonal behavior be evaluated if the qualitative study is conducted only in the Spring (page 6-28, Section 6.2.6.1). What frequencies are planned for the quantitative surveys? If not at least quarterly, how can the seasonal behavior be evaluated?
- p. 8-24,
Sec. 8.2.5.2,
par. 2, line 1 Insert "contaminant" in between "or" and "fate".
- p. 8-24,
Sec. 8.2.5.2,
par. 2, line 6 Should worst-case be RME?
- p. 8-26,
Sec. 8.2.6.2,
par. 3 Is the slope factor used for human health risk assessment meaningful for vertebrates with life spans significantly shorter than humans?
- P. 8-27,
par. 2, line 3 Should "LD50s" read "LD50"?
- p. 8-31,
par. 2, lines 1
& 2 Why will potential bioaccumulation not be measured in plankton for the reservoirs?

p. 8-36,
Sec. 8.2.8.2.3,
line 2

Should "small variable" read "small number of variables"?

p. 8-36,
Sec. 8.2.8.2.3

Additional major sources of model errors are variability, quantity and quality of input data. (How well does the data describe the actual physical, chemical and biological environment?) Also, the assumptions inherent in any model relative to the actual physical, chemical, and biological environment introduce model error. Additional sources include temporal and spacial discretization in numerical models. These sources should be included in the discussion on model errors.

p. 8-36,
Sec. 8.2.9

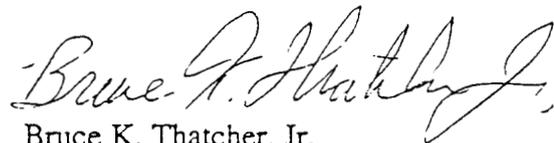
The outline of the environmental evaluation report should be included in this section.

p. 9-2,
Figure 9-1

I recommend that Tasks 7, 9, and 10 be deleted from the conceptual schedule. See my previous comments on page 4-1. Since these FS tasks are not required for an RFI/RI work plan, why run the risk of committing ourselves to schedules for them? This will increase our flexibility should the Baseline Risk Assessment indicate that an FS is necessary. The appropriate location for the FS task schedule is in an FS/CMS work plan.

Sec. 8, EE
Work Plan

See my comments on the Field Sampling Plan, (Section 6.0).



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cc:
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