

EPA Review Comments - OU2 Bedrock Workplan

GENERAL COMMENTS -

The subject plan represents a distinct improvement over those presented previously in the overall understanding of and technical approach to the RI process. However, given that this is the second (bedrock) half of what will be a single OU 2 Phase II RI, it seems corpulent in some areas and skeletal in others. Background information (largely taken from the alluvial plan) makes up a much larger portion of the document than the Field Sampling Plan, which is really the heart of the matter. It would seem that sections 1-6 could be greatly abbreviated without the presentation losing anything. Section 5.0, for example, presents 14 pages of generic RI guidance, and little if any information directly relevant to design or execution of a remedial investigation in the OU2 bedrock. By contrast, Section 8.0 offers only a minimal description of the logic and procedures to be applied in well drilling and completion, perhaps the key item in the investigation.

In several instances (Sections 3.4.5, 8.1, 8.3.2, etc.) the discussion becomes very confusing due to inconsistent use of the terms "initial step" and "first step". Apparently they are sometimes intended to distinguish the program outlined from some other effort which may or may not take place later. At other times, the "20 clusters" are referred to interchangeably by both terms. Please understand that the Phase II Bedrock investigation is not a prelude for a full scale RI. This plan should lay out the investigation necessary to characterize bedrock conditions to the extent required for risk assessment and remedial action decision making. The plan can be amended if necessary based on early findings, but the full anticipated RI scope must be identified in this plan.

Fieldwork-related portions of this document (FSP and SOPA) need to be carefully examined in conjunction with the final sitewide SOP's, to make certain all necessary information is provided in a clear, concise format which allows field geologists (who have only these documents to go by as a guide) to make correct, consistent and timely judgments as the drilling program proceeds. As we have said before, these plans should be written and formatted for use in the field. Simple steps such as moving the lengthy data tables to an appendix, as in other such plans, would greatly improve readability. It appears a great deal of thought went into working out problems relating to isolating and placing monitoring points in distinct formations, but this is not clearly reflected in the discussion presented, due to awkward

writing and flawed organization.

In presenting the conceptual model of the OU 2 subsurface structure, an important step has been taken toward the understanding of contaminant transport and fate in this area; EPA applauds that effort. Yet much of the information (such as the seismic work) on which this model is based was not subject to regulatory review and is, by its nature, open to varying interpretations. We maintain that it is of paramount importance that the data obtained as a result of this RI effort be capable either of supporting this model against outside scrutiny or providing a basis for another one. DOE is apparently continuing research and investigations into subsurface conditions, and should propose any plan additions or changes warranted by information which comes to light during the review process.

At several points within the plan, conclusions are presented on levels of certain constituents that constitute contamination. In addition to being premature and unnecessary, this poses a particular problem in the case of radionuclides, for which the data are unvalidated and/or reflect unacceptably high detection limits. Neither the data nor the evaluation procedures used to calculate a "background" level, including the use of "tolerance intervals" appear adequate to support the conclusion made, which is basically that there is no radionuclide problem in this area. This raises a number of questions, including why interim actions are underway to address exactly such a problem. These unsupported conclusions must be removed, and DOE must completely reexamine the question of background levels for radionuclides. In so doing, please reference our comments on the Background Geochemical Characterization Report.

Although DOE acknowledged that it is "appropriate to identify location-specific ARARs early in the RI process" to identify possible restrictions on ER activities in a certain area, the work plan doesn't mention how this will be done, or where the findings will be reported. Chapter 5 must be amended to show that the RI report specifically addresses ARARs. In fact, action specific (and to some extent location specific) ARARs may be pertinent to RI activities; particularly those governing management of investigation-derived wastes, which will directly impact the conduct of the investigation. These ARARs must be identified in the Work Plan.

#### SPECIFIC COMMENTS

Section 1.0, Page 1-1. - References to the IAG must be updated to indicate it is now signed and in force.

Section 1.4.1.4 - Various materials were "destroyed". What does that mean, burned? Can you be more specific?

Section 1.2, Page 1-5. - The Geologic Characterization and Seismic Reflection Profiling reports referenced here must be made available for both regulatory and public review to the extent that they impact remedial action decisions, which is apparently considerable. This need not involve issue and distribution of unreasonably cumbersome items, but must include dissemination of information sufficient to allow parties outside DOE to make a critical evaluation of the decision.

Section 2.1.1.2, Page 2-5. - The alluvial activities described in existing plans do not appear to address discrepancies between the geologic and seismic reports, which apparently didn't exist when the alluvial plan was written. Please specify how, when, and under what program field efforts necessary to resolve these discrepancies will be completed.

Section 2.2. - The hillside seeps in this area have been a major source of concern, and the subject of two interim actions. They were mapped and discussed in Section 2.1. However, this section makes no mention of the significance of, or even consideration given to, the seep data in assessing the nature and extent of contamination. Please include such a discussion, or explain why it is not considered relevant, especially in light of statements that the seeps represent water discharging from subcropping sandstones.

Section 2.2.2. - This section requires revision in accordance with the general comments above and the comments on the Background Geochemical Characterization Report.

Tables 2-2A thru 2-5A. - For the amount of space they take up, this series of tables seem to present very little germane information. They should either be put in an appendix or left out, unless it can be clearly described how this information impacts the design and scope of the Phase II (Bedrock) RI.

Section 2.2.2.3, Page 2-52. - Please see general comments relative to definitions of contamination, the one provided here is not appropriate or acceptable.

Section 2.2.2.4, Page 2-59. - An illustration, or example, or some other format is required to explain the concept being discussed here; it is inherently difficult to grasp based on a textual description, no matter how adroitly written.

Section 2.2.3. - This section requires revision in accordance with the general comments above and the comments on the Background Geochemical Characterization Report.

Section 2.3.1, Page 2-114. - If the bedrock beneath OU 1 has not been characterized sufficiently to determine its possible effect on OU 2, collection of this information must be incorporated in

the OU 1 RI plans. If this has not already been done, coordination with the OU 1 management and field team is required to see that the appropriate investigations are conducted during the OU 1 field investigation.

Section 2.3.2. - If these wells serve no useful purpose and there is good reason to believe they represent a release mechanism, they should be properly abandoned without delay.

Table 3-1. - Is the standard for Carbon Disulfide an ARAR or a TBC? Subpart F standards should be classified consistently.

Section 3.4.1, Page 3-13. - EPA disagrees with DOE's assertion that "it is inappropriate to apply such [Federal Water Quality] criteria to groundwater"... "since they are intended for the protection of surface water." CERCLA Section 121(d)(2)(B)(i) states that "[i]n determining whether or not any criteria under the Clean Water Act is relevant and appropriate under the circumstances of the release or threatened release, the President shall consider the designated or potential use of the surface or groundwater, the environmental media affected, the purposes for which such criteria were developed, and the latest information available" [emphasis added]. The criteria are intended to protect drinking water and aquatic biota. Since the bedrock aquifer is hydraulically connected to the surface waters and thereby directly affects their quality, the criteria must be identified and evaluated as potential ARARs.

Section 3.4.4, Page 3-14. - The status of RFP groundwater as reflected here and in Table 3-1 needs to be updated in accordance with recent Colorado WQCC classification actions.

Section 3.4.5. - Please explain what Phase II is, how this abbreviated list of contaminants was selected for inclusion in it (without benefit of "Phase I" we presume), and when and by whom the scope of the FS was decided on.

Section 5.7. - This narrative indicates that the technology screening process has been completed. No information is provided on how and when this was done, or by whom. Please explain how it is possible that this work is complete when the Treatability Study Plan for RFP has not yet been submitted, nor has the RI been submitted or approved. In any event these (apparently independent) efforts must be coordinated.

Figure 8-1. - The proposed investigation ignores the area north of a line through borings 1, 2, and 3, where there is little control, and where channels and depressions in the bedrock surface are indicated. The pattern for the #1 sand mapped here reflects mostly a speculative depositional pattern and contestable data extrapolation. The lack of any attempt to substantiate conditions in this area must be justified.

The location of boring #19 does not match the description provided in Table 8-1.

Figure 8-2. - As this figure correctly illustrates, the Field Sampling Plan should be based on characterization of pathways of concern in this OU. Success in this endeavor seems unlikely unless the pathways of concern are identified prior to, and considered in, design of the sampling and analysis program. This has apparently not been done; this analysis must be completed, and pathways explicitly identified in the revised Work Plan. Please reference the Risk Assessment Guidance for Superfund for appropriate procedures.

Section 8.2.1, Page 8-5. - This paragraph indicates a high degree of coordination with the alluvial RI will be required in placing borings, but it is not at all clear that the locations selected reflect this. Please explain if this is to be done later, and if so how the schedules of the two efforts fit together to allow for this; the information we have indicates problems here.

Section 8.2.2. - This section should include a table containing all information on samples/analyses to be taken/performed. If it is well thought through and properly designed, a table of no more than a few pages can be provided that will enable the field geologist to see at a glance what samples (by number) are to come from each hole, and what analyses they should be scheduled for. Again, we stress this plan is supposed to be used in the field, not merely filed to satisfy regulatory requirements. Make it simple, clear, and complete; the field crew will do a better job, and thank you for it. As an example, this section mentions what high concentrations on the field GC might mean, but it never says what to do when the instrument registers high readings.

Section 8.2.2, Page 8-17. - The last paragraph of this section indicates that "in some instances" boreholes not previously scheduled for completion as wells may be completed, if it can be shown that this action "will not increase the chances of cross-contamination". First, headspace testing with a GC does not establish that contamination isn't present; it only gives an indication of presence/absence of selected compounds; six of them in this case. The plan must specify methods for identifying other types of contamination. Second, we have been told by DOE that field conditions make it impossible to construct wells in boreholes which extend beyond the target zone; please explain why this is no longer true. Most importantly, some accounting must be provided as to what advantage will be gained by attempting borehole completion given alleged technical and logistical obstacles. The statement is made that "wells may be completed in boreholes". This necessitates accompanying statements as to when and where this will happen, why it is necessary, and who makes the decision to abandon or complete a hole.

Section 8.2.2, Page 8-18. - This section appears to contradict earlier statements that pump-out or bail-down tests will not be used because they are impractical under prevailing field conditions. Please explain.

Section 8.2.3, Page 8-19. - If the interface probe is only used in wells where headspace GC indicates contamination, DNAPLs (the most likely contaminants according to your analysis) will be missed completely. The procedure for identifying and sampling DNAPLs needs re-thinking.

SOPs for the two alternative completion methods (which are curiously not mentioned anywhere else) must be included in either the SOP or SOPA, and must be referenced here.

Section 8.2.4. - This must be coordinated with the (yet-to-be-developed) SOP for surveying.

Section 8.2.5, Page 8-20. - This appears to be an excerpt from the contractor's scope of work, and is not appropriate here. What would be of interest is how EG&G plans to collect, maintain, and evaluate field data. This includes record keeping, QA/QC, reporting and availability, storage/retrieval, and correlation of field with analytical data; much of this should be in the QAPjP/QAA, and can be referenced or summarized here.

Section 8.3.1.1. - If only "designated" samples are to be analyzed, when, where, how, why, and by whom such designation gets made must be clearly specified in the plan.

Table 8-2. - This table is not strictly necessary here; it could at least be reformatted to take up less space.

Table 8-3 & 8-4. - These tables, (and the associated text) should appear in the QAPjP. Any adjustments to the standard information made for the OU 2 Phase II effort should be documented in the QAA. Placing the same information in too many places (and that not consistently, see VOA preservation and holding times) invites confusion and contradiction. Table 8-3 must specify the analysis method to be used, by EPA method number where applicable, i.e. 624, 625, 8240, 8270 per SW 846.

Section 9.0. - It was EPA's understanding that the QAA would contain only that information which differed from the QAPjP--a different rate of QC sample collection, or a change in validation procedures for instance--as dictated by conditions or sampling objectives within a specific OU. Thus if everything was to be done according to the QAPjP, there would be no QAA. Most of what appears here contradicts that expectation. Please explain how the plans for use of QAAs have been changed, or revise this one in accordance with the Final QAPjP.

Section 9.12.2. - Table 9-1 does not show methods, as stated; what's more, the work plan (Section 8) indicated analyses would be done according to the GRRASP. Please provide a consistent listing of specific methods, by number, and reference.

Section 9.3.2. - Section 8.0 only covers subsurface soil and groundwater, are other types of samples being taken?

Section 10.2. - This description of field GC use is extremely weak as it stands. During revisions either this SOPA or the associated SOP (3.9 is referenced, but covers primarily PID and FID use) must be revised to provide a complete description of the equipment and procedures to be used for headspace analysis. This should include, but not be limited to: 1. Instrument(s), model and pertinent features such as isothermal oven; 2. Compounds for which standards will be prepared, and procedures for preparation or commercial sources; 3. Standard and conditional intervals for running machine and sampling train blanks; and 4. Procedures for preventing/purging contamination, particularly cross-contamination between consecutive samples. \*

The plan indicates that a great deal of decision-making will hinge on the results of the field GC work. A one-page statement to the effect that the (unidentified) instrument should be operated according to the instruction manual hardly seems like sufficient guidance for so critical an activity.