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August 25, 2004

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Subject: EPA Comments on "Risk Assessment Work Plan for the 100 Area and 300 Area Component of the RCBRA", DOE/RL-2004-37, Draft A, Dated June 2004

Dear Mr. Sands: *John:*

Enclosed are comments from the U.S. Environmental Protection Agency (EPA) on the subject document for the River Corridor Baseline Risk Assessment. If you have any questions, you are welcome to contact me at 509-376-9884.

Sincerely,

Larry Gadbois
Environmental Scientist

Enclosure

Cc: John Price, Ecology
Darci Teel, Bechtel
Administrative Record, 100 Area and 300 Area

Mr. John Sands

Enclosure: EPA Comments on

August 25, 2004

“Risk Assessment Work Plan for the 100 Area and 300 Area Component of the RCBRA”, DOE/RL-2004-37, Draft A, Dated June 2004

General Comments

1) The Risk Assessment Work Plan for the 100 Area and 300 Area is generally of sufficient scope to address the task of conducting a Risk Assessment for the 100 and 300 Areas, however it is not clear in this draft document that groundwater is covered sufficiently to assess risk (see subsequent comments). Perhaps necessarily so, the work plan is rather general in its discussion and readers are referred to the DQO process for specifics about how the risk assessment will proceed and what information will be needed. Work Plans and SAPs are submitted to the regulators for approval. The regulatory status of DQO documents is not clearly stated. In the past, regulators have typically been involved in certain portions of the DQO process but the regulators have focused their approval efforts on the SAP. EPA would propose that same model for this project.

2) Groundwater use in scenarios.

Section 3.1.4.1 makes the following statement which EPA supports: “for the purpose of the baseline risk assessment, a human exposure pathway for drinking water and irrigation obtained from a groundwater source will be evaluated in some of the identified exposure scenarios.” Section 3.1.5.1 identifies three exposure areas – an approach EPA supports; namely, the upland zone, the riparian zone, and the near-shore river zone.

Putting these two ideas together, EPA would expect groundwater use – including drinking water and irrigation – to be included in upland exposure scenarios. Groundwater as drinking water should be included in riparian scenarios.

3) Apparent bias.

In initial planning meetings among the Tri-Parties there was agreement that a variety of human exposure scenarios would be evaluated in this risk assessment. This list wouldn't be exhaustive but would represent a variety of human exposure regimes. That would provide information for subsequent steps in the cleanup and land use processes. The Tri-Parties acknowledged that those are future steps that happen beyond the risk assessment, and that they are controversial, and we would avoid those issues by keeping this just a risk assessment and not make judgement statements about which scenarios we think are more or less likely.

Unfortunately this document is biased in discussing scenarios. Bringing that controversy into this risk assessment will poison it. There are lots of examples, such as section 3.1.5.2 which makes statements such as “*hypothetical*” future rural resident. With the exception of the industrial worker, all the scenarios describe “hypothetical” future exposure scenarios. It is not appropriate to tag one of the scenarios as hypothetical. Section 3.1.5.2 includes statements about the CLUP and Monument proclamation. As you know the CLUP is a DOE land use document for DOE's use while DOE manages the property. The CLUP identified several land uses for the

100 Area including mining. Mining would result in exposure to contaminants in the deep vadose zone. This work plan has not proposed evaluating the risk to a mining worker or future uses of the material from the mine. Section 3.1.3 of this work plan is largely centered on the CLUP which is not consistent with the existing CERCLA cleanups (which generally would not support mining waste sites). It is not clear that the intent of the national monument declaration was to use the area for mining.

4) Most of the scenarios in this work plan are intended to evaluate land uses post DOE ownership/control of the site. Regarding the Monument proclamation, although the boundaries in the proclamation weren't clearly articulated, subsequent actions involving the USFWS make it clear that none of the waste sites are in the monument, and the USFWS have been more than clear that they aren't eager to pick up these waste sites when we say we're done. So neither of these documents provide a good basis to undermine the validity of any of the risk scenarios. Conversely, there are CERCLA RODs that are legally binding and do apply to the waste sites. The RODs specify unrestricted (rural resident) for the 100 Area and some of the 300 Area, and industrial for the rest of the 300 Area. It is good to evaluate a variety of scenarios in addition to those, but these CERCLA-ROD selected scenarios are core scenarios for this risk assessment project.

5) If this project and this document strays from the Tri-Parties' earlier agreement to steer clear of this issue of who thinks which scenarios are more likely, this is going to be a whole lot harder than it should be. EPA hopes DOE runs the reasonable assortment of scenarios in an objective manner.

6) For each scenario the components of the scenario and the contribution to risk should be presented. This will allow the risk results to be more broadly applied and will help cleanup decision making. For example, if the groundwater ingestion risk to a Native American is broken into the component from the existing plume, vs the component from the leaching of residual contamination in the vadose zone, it helps us focus the remedial response to that risk. Another use would be to construct other scenarios by adding or subtracting components from the base set of scenarios.

7) In the recent Tri-Party sponsored 100 Area end states workshop, one scenario was brought up that I don't believe we had considered before. That is the resident USFWS ranger with family. The USFWS indicated their desire to have the monument ranger/manager live on site, and that they often have their family with them. We should consider adding that scenario. Alternatively it may be that this additional exposure scenario is sufficiently similar to the rural resident that we could just make the statement in the risk assessment that the resultant risk calculation applies to both scenarios. This way DOE would only have to do the serious number crunching for one scenario.

8) Work Plans are supposed to be submitted with a milestone change package. The EPA wasn't able to find the milestone change package for this work plan. Please provide this document as directed by the TPA.

Based on the information contained in section 3, appropriate milestones would be:

- Conduct conductivity survey of 100/300 Area
Fall 2004
- Complete phase I biological sampling in near-shore river zones of 100/300 Area
Fall 2004.
- Complete phase I biological sampling of riparian and upland zones of the 100/300 Area
Spring 2005.
- Complete phase II biological sampling in near-shore river zones of 100/300 Area
Fall 2005
- Complete phase II biological sampling of riparian and upland zones of the 100/300 Area.
Spring 2006
- Issue draft 100/300 Area risk assessment to Ecology and EPA December 2006.
- Issue final 100/300 Area risk assessment to Ecology and EPA April 2007

With the exception of the fall 2004 sampling which is already upon us, sampling will be in accord with a regulator-approved SAP.

9) On July 15 the EPA was interviewed as part of the DQO scoping for this project. Many of EPA's comments during the DQO are relevant to this work plan. Please consider the minutes, as reviewed and revised, from that interview as part of EPA's comments on this work plan.

Specific Comments

10) It appears that the work plan will be a "living" document with regular revisions and amendments as the risk assessment process proceeds, particularly following the DQO process. This is an important point that readers should be reminded of and could be stated more explicitly in the introduction of this work plan.

11) Page 2-38, 2nd paragraph of 2.4.1. The document states that "All CERCLA actions in the 100 Area...are being completed to attain the same RAOs." "Most" would be a better term than "All." The groundwater RODs and the K Basins ROD have different RAOs. Alternatively, the sentence could begin "All CERCLA actions in the 100 Area waste sites."

12) Figure 3-2. For "past or current sources of contamination" existing groundwater contamination should be included. The current figure does provide useful information of the impacts of residual contamination in waste sites on future groundwater conditions. That will be valuable in making final cleanup decisions for the waste sites. Without also including an analysis of the risks from existing groundwater plumes, this risk assessment could erroneously make the conclusion that it is safe to drink the groundwater where we have well documented plumes above drinking water standards.

13) Figure 3-2 doesn't show inhalation of volatilized contaminants. This pathway is included in the text on the preceding pages.

14) As a general editorial comment, a few sentences more expanding what the citations concluded, or why it was important would be more helpful to the reader, rather than just summarizing what information the citation contains. For example, the review of the previous studies in Section 2.5 was informative, but completing the thought, as was done in section 2.5.2 with Appendix C and somewhat in 2.5.4 with "...volatile organic compounds were near or below the detection limits" was the most helpful and could be done in numerous other instances in the work plan.

15) The list of citations provided and referenced as 'guidance' is unnecessarily long and leads to confusion. This list should be abbreviated to eliminate past versions of current guidance. For example, the current "Guidelines for Ecological Risk Assessment" (EPA'98) state that the "Guidelines expand upon and replace the previously published EPA report Framework for Ecological Risk Assessment" and yet the Framework document is referenced in the work plan. Likewise, with the Superfund Ecological Risk Assessment guidance, earlier versions of that guidance are also unnecessarily referenced. Ecological risk assessment is a relatively young field with rapid advancements in the way they are conducted. As result, references should be limited to the most recent guidance.

16) Page 2-39, 1st paragraph. "Because radionuclide cleanup levels that meet remedial action goals (RAG's) for the protection of human health are generally more conservative than ecological cleanup levels, it was concluded at that time that meeting human health standards for contaminants would also protect ecological receptors. ... However, this assumption is now being reevaluated, as some levels of residual nonradioactive contaminants that are protective of human health may not be protective of particular ecological receptors."

Clearly, this needs further discussion with specifics, both here and with interested parties. Left as-is this text is confusing.

17) Page 3-23, last paragraph. "Near-shore river zone sampling is expected to include sediment, river water, interstitial pore water, and biota (e.g. Sculpins, clams, crayfish, and plants)." Benthic and sestonic algae may be a considerably more representative and useful measure in the Hanford reach for primary production than aquatic plants, and should be considered by the ecological monitoring team.

18) Section 3.2

The subsections of 3.2 identify important methods for evaluating ecological impacts that are established and should be pursued. The use of conductivity and gamma surveys as a screening tool to direct biological sampling to those places in space and time to most likely exposure is applauded.

However, one additional data source should also be considered; histopathology evaluation. That is, the mode of action from radionuclide contaminants is chiefly carcinogenicity; used here to include mutagenesis and teratogenesis. Population level affects are often considered the most appropriate level for evaluation in ecological risk assessments and do not typically include

histopathology. However, given the unique mechanism of toxicity with radionuclides, and the fact that ESA listed species require protection of individuals- not just populations, histological evaluation of exposed individuals would be an appropriate screening tool for many species of concern, if not a requirement for those ESA listed species.

19) Section 3.6.5.2 Histopathology should be added here as a method of characterizing ecological effects.