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0037446

July 14, 1994

MEMORANDUM via Electronic Mail

SUBJECT: 100-KR-1 LFI/QRA Comment Responses for Which EPA Requests Further Discussion.

FROM: Larry Gadbois, EPA *LEG*

TO: 100-KR-1 Unit Managers:
Eric Goller, DOE
Steve Veitenheimer, DOE
David Holland, Ecology

CC: Alan Krug, CH2M-Hill
Administrative Record, 100-KR-1



The EPA has reviewed the comment responses provided by DOE to regulator comments on Draft A of the 100-KR-1 LFI and Revision 0 of the 100-KR-1 QRA. In the following, I have noted, by comment number, items that warrant further discussion. As preparation for a comment resolution meeting, I am providing this information in advance. I hope that it helps clarify the technical issues that need resolution. There are a number of additional comment responses that may benefit by minor clarifications or editorial changes. I can point these out in our upcoming discussion on the following more significant items:

- 2) Our understanding of the screening process for eco risk is that all nonradioactive constituents which exceed Hanford Site background and all detected radioactive constituents are considered to be of concern in the ecological evaluation. This is supported by the response provided to comments #52 and #78. An alternate approach is stated in the resolution to comment #2.

- 10) In general, this response is very valuable. Thanks. Two clarifications however: The last sentence of the 1st paragraph ("Consequently, this QRA...") should be dropped. Until a detailed quantitative baseline risk assessment is performed, we do not know if the QRA approach is biased towards or away from conservatism. Also, the state of the science does not provide us with a good method to quantify the interactive effects of multiple contaminants. Currently, we look at the individual effects of contaminants and sum these individual effects for the total impact. No interactive factors are considered. This is a generally understood shortcoming of risk assessment that may or may not be highly significant. Ignoring interactive factors casts further doubt on our ability to state whether the QRA is biased towards or away from conservatism.

60, 118, 162, 163, 184, 185, 193, 204)

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A nearby control site for the purposes of calibrating a background reading for a VOC meter is appropriate and sanctioned in the DOW for this operable unit investigation. The project documentation did not envision taking grab samples at this location. I can understand the field-team's initiative to take grab samples for laboratory analysis of VOCs for confirmatory purposes for the field instrument. In fact that was a prudent decision.

This was not a good local control site for radiation, especially the surface soil. Surface soil at this site, in the immediate proximity to the reactor area is not a fair depiction of local background radiation levels. Efforts are underway to determine the background radiation levels for Hanford soil, but in the interim the comment #163 provides an alternate approach to use. Surface soils at the VOC meter calibration site are not appropriate to use for local background radiation.

The credibility of the LFI/QRA documents are important in the defense of the upcoming 100-KR-1 remedial decisions. The statistical manipulation performed on the two control site grab samples is almost meaningless at best, and misleading at worst. I am sure that there are statistical packages that will generate a best-fit log-normal population distribution given just two samples. If that statistical package could generate the error/uncertainty range associated with that population curve derived from two samples, the curve would be shown to be pretty meaningless.

The statistical analysis continues with the calculation of a 95th percentile threshold of the statistically-hypothetical population. All this is based on two samples. A reason for calculating a threshold is for ease in screening waste site data. However, in DOE's responses to comments 185 and 193, data that exceeds the threshold is dismissed because it was not exceeded by a certain amount. 1st: the threshold should be used as an over/under concept, and 2nd: exceedance of the threshold should not be defined as some percent of the threshold value. It should be stated in terms of the alternate point on the population distribution curve to determine the likelihood of having come from that population.

I have provided the above argument to show that dropping the reference to the rad data from the VOC meter calibration site makes good sense. I prefer that tact rather than strict citation of regulations such as WAC 173-340-708(11)(d) that requires at least 20 samples to determine area background.

Conclusion: drop all reference to the rad data from the VOC meter calibration site.

- 85) The comment response states that "risks were not characterized based on data from duplicate samples". Data from split samples is legitimate data. It should not be discarded in the risk assessment process. Let me try to illustrate why this makes sense with a parallel example.

You've got a pizza that might have anchovy's (contamination) hidden under the cheese (clean fill) and you want to find out if this is so. You grab a slice (grab sample) and take a big bite (analyze) and don't taste anchovies. Your friend takes a big bite from the same slice (split sample analysis) and gets a strong taste of anchovy. Now for the big question: Is there anchovy on the pizza. I would say yes. Extrapolating from DOE's comment responses, it would seem that an arbitrary designation of the status of the bites determines if this is an anchovy pizza or not. If the first bite is designated as the sample, and the second bite is designated as the split, then this is not an anchovy pizza. If however the second bite is designated as the sample and the first bite is designated as the split then this is an anchovy pizza.

Conclusion: Applying the same strategy of using the highest sample concentration to calculate risk, the highest reasonable concentration between the sample and its split should be used.

127, 137, 143, 213, 226, 242)

The use of data from analogous sites does introduce uncertainty. Increased uncertainty does not translate into reduced risk. In QRA table 4-2 the effluent pipelines are given a risk rating of "medium" and the rationale for that rating is that the analogous 100-BC-1 effluent pipelines have a "high" risk estimate? Again, risk uncertainty does not equal lower risk.

Conclusion: Place the effluent pipelines on the IRM path.

155) This comment was not responded to.

177) We stand by our comment. For more detail, see for example 100-KR-4 LFI comment #19. Perhaps DOE is using a different definition of "elevated" than we are. For example, if contaminants are higher than background, we consider them elevated.

196) The response does not address the question.

198) We need to discuss the comment response. Just because a radionuclide occurs naturally does not mean its occurrence at elevated concentrations at a waste site is a natural phenomenon. Also contaminants do not need to be present at more than one waste site in order to be deemed contaminants.

206, 207)

The definition of "blank adjusted" needs to be clarified before we can determine if the response is acceptable. If "blank adjusted" means that the data qualifiers were adjusted during validation, this is acceptable. If "blank adjusted" means that the value for the blank was subtracted from the value for the samples,

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this is not acceptable. {See page 113 of "Guidance for Data Useability in Risk Assessment, (Part A)"; April 1992. EPA publication # 9285.7-09A PB92-963356}. Hopefully the latter is the case and all that is needed is a clarifying statement in the comment response.

- 232) It needs to be noted that it is the comment response from DOE (not EPA or Ecology) that is making the statement that the 56-hour per year scenario is the most likely future use scenario for the 100-KR-1 operable unit. We have often noted and it is being discussed in other forums that we do not consider this scenario to be consistent with the "Hanford Future Site Uses Working Group" recommendations under the unrestricted future use scenario. We understand that DOE is working with a different interpretation of the "unrestricted" land use scenario. Because this is being discussed in other forums, we will not pursue it in connection with the response DOE provided for this comment.
- 235) The comment response uses the 100-KR-4 LFI as the basis for only looking at C-14, H-3, and chromium in connection with groundwater impacts from waste sites. We use the same document as the basis for the need to look at the other contaminants. All the following contaminants are identified in the 100-KR-4 LFI as having a risk or ARAR basis for remaining on the IRM path: C-14, Sr-90, H-3, chloroform, trichloroethene, NO2-NO3, arsenic, cadmium, chromium, iron, lead, manganese, silver, zinc.
- 241) The 105-KE fuel storage basin has such an overwhelming influence on the 199-K-27 and 199-K-30 wells, that the smaller signal that could be coming from the 116-KE-4 basins would be lost in the comparison of these 199-K-27 & 199-K-30 wells to the 199-K-32A well in an up-gradient down-gradient comparison. The comment resolution does not fix this problem.

9/13/78.1482

[180] From: L E (Larry) Gadbois at ~TPA1 7/14/94 2:29PM (11795 bytes: 13 ln, 1 f
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To: Eric D Goller at ~DOE6, S J (Steve) Veitenheimer at ~DOE19, David P Holland
at ~TPA2

cc: Robert W (Bob) Scheck at ~MTC3, Alan D Krug at ~WHC249

bcc: L E (Larry) Gadbois

Subject: 100-KR-1 LFI/QRA Comment Resolution Meeting

----- Message Contents -----

Text item 1:

You are invited to a comment resolution meeting.

Where: EPA conference room
712 Swift Blvd, Suite #5

When: July 20, 1994 Starting at 8:00 AM

Attached I have identified the comments that I would like to discuss. Other attendees are welcome to address additional comments as well. I have tried to clarify the aspect of the comment that remains an issue. I hope this helps people prepare for the meeting.

Thanks for your time and efforts.

Larry

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