



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 HANFORD/INL PROJECT OFFICE
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May 17, 2010

Matthew S. McCormick
Assistant Manager for the
Central Plateau
U.S. Department of Energy
P.O. Box 550, A5-11
Richland, Washington 99352

Re: EPA Comments on "Remedial Investigation/Feasibility Study for the 200-MW-1
Miscellaneous Waste Sites Operable Unit," DOE/RL-228-38, Draft A

Dear Mr. McCormick:

The subject document was received by the U.S. Environmental Protection Agency (EPA) for review on February 25, 2010. EPA took an extension of an additional 30 days beyond the 45-day review period to complete the review and comment on the document. We expect the U.S. Department of Energy (DOE) to respond to comments within the timeframe required by the Tri-Party Agreement primary document review cycle. Since comments will likely be addressed in a new remedial investigation/feasibility study (RI/FS) report for the planned 200-EA-1 (200 East Area) operable unit rather than a revised version of this document, EPA has decided to focus comments on policy level issues.

Since no proposal (proposed plan) was provided with the RI/FS report, formal supporting comments from the Washington State Department of Ecology (Ecology) are not called for under our Memorandum of Understanding with the state. Under the proposed realignment in the current Tri-Party Agreement change package, Ecology will take over as the lead regulatory agency for the sites currently in 200-MW-1 after creation of the 200-EA-1 operable unit. EPA comments on the report are included as an enclosure.

We are putting DOE on notice that we expect from here on out that all 200 Area inner zone FSs and work plans will utilize the MTCA industrial scenario as the reasonable maximally exposed (RME) individual for the development of cleanup levels (PRGs and Remedial Action Goals) and that this industrial scenario be evaluated in the alternatives analysis. We are willing to entertain a different RME as allowed for under MTCA if it can be shown that costs are disproportionate for meeting cleanup requirements based on a standard RME. We have also not agreed to an alternative point of compliance for ecological risk and such alternative points of compliance should not be applied until agreement is reached between the Tri-Party agencies.

If you have any questions, please contact me at (509) 376-8665.

Sincerely,

A handwritten signature in cursive script that reads "Craig Cameron".

Craig Cameron
Project Manager

Enclosure: Comments

cc: Briant Charboneau, DOE
Frank Roddy, DOE
Mike Hickey, DOE
Nina Menard, Ecology
Ken Niles, ODOE
Stuart Harris, CTUIR
Gabriel Bohnee, Nez Perce Tribe
Russell Jim, Yakama Nation
Susan Leckband, HAB
Admin. Record: 200-MW-1

**EPA Comments on “Remedial Investigation/Feasibility Study for the 200-MW-1
Miscellaneous Waste Sites Operable Unit,” DOE/RL-228-38, Draft A**

1. The document is better written, easier to read and contains fewer typographical errors than many recent draft deliverables provided by DOE. Some of the figures are very useful and well done. We have definitely noticed an improvement with this report due to the Tri-Parties emphasis on improving document quality.
2. The RI/FS report falls short on several important policy issues. DOE unilaterally decided to change the reasonable maximally exposed (RME) individual from the required Model Toxics Control Act (MTCA) industrial worker to a combination of an all-terrain vehicle rider and an institutional control (IC) worker. Similarly, DOE decided to change the point of compliance for ecological protection from 15 feet below ground surface (bgs) to 10 feet bgs. EPA does not agree with these changes and finds the unilateral nature of placing them in a formal submittal of a primary document unacceptable. These changes totally skew the development of preliminary remediation goals (PRGs), costs, and the overall evaluation of alternatives to the point where much of the document is rendered useless to support a preferred alternative. The evaluation of compliance with the ARAR (WAC 173-340) is incomplete without the industrial scenario being applied for alternative analysis and the development of PRGs.

DOE has not followed Hanford Advisory Board Advice #226, which provides the following advice against the replacement of the standard MTCA industrial worker scenario with alternative scenarios:

“The Board believes the use of exposure scenarios based on Hanford’s Comprehensive Land Use Plan is inappropriate. We suggest that DOE add more exposure scenarios, and continue to use the standard 40-hours/week industrial worker exposure scenario as the standard for specific waste management areas where the only reasonably foreseeable use is industrial. Even for these areas, analysis must show that long-term intrusion or movement of contaminants is not likely.

For other areas, remediation should be based on protecting the sensitive population that may receive the reasonable maximum exposure, including the use of a tribal Native American exposure scenario. Remedies should be designed to meet standards which protect sensitive populations from the likely failure of institutional controls (see report of the Exposure Scenarios Task Force, December 2002).”

3. Another significant deviation from the standard practice at Hanford is the exclusion of the preferred alternative from the FS report. EPA’s Hanford program manager made it clear in a meeting about standardizing documents that any decision to limit a discussion of the preferred alternative to the proposed plan would have to come as a result of agreement by the regulatory agency project manager with such an approach. The decision by DOE to not place the preferred alternative in the FS report was not discussed or decided upon by the EPA project manager.

4. The Remedial Action Objectives (RAOs) are too specific and limiting, especially with regard to RAO 1 (protection of human receptors). Even in an industrial setting, protection of human health is not limited to contaminants in the upper 15 feet of the soil. Material below that level could be excavated under industrial conditions. For example, the excavation for the laboratory building just north of the Battelle Complex was 40 feet deep and is officially on the Hanford site. Any limitations based on 15 feet would naturally be incorporated in an RAO for protection of human receptors (public, workers) without specifically mentioning them. The compliance with applicable or relevant and appropriate requirements (ARARs) is where the industrial scenario attributes come into play. Changes to the RAOs from those originally agreed to should have been discussed with the EPA project manager prior to submitting the official draft.
5. In attempting to limit human health risk to materials above 15 feet with the draft RAO 1, it appears DOE is disregarding the potential for intrusion into the mass of contamination near the bottom of the cribs. The EPA has provided to DOE examples from the 100 Area as a guide to organizing this and other 200 Area operable unit RI/FS projects. The principles communicated were that the 15-foot depth is not the only consideration. Removal of the engineered structure and the mass of contamination are important considerations when weighing out the extent of removal necessary to be protective including for potential intruders and for groundwater protection.
6. The analysis performed to determine if there are principal threat wastes is flawed. The high contamination zone at 216-A-4, including the concentrated fission products and transuranic radionuclides which are estimated to be well over the TRU threshold of 100 nCi/g, should be considered to be a principal threat waste. A portion of the waste at 216-A-2 may also fit this category. Similar concentrations of waste at the 221U Facility were designated as principal threat wastes in the Record of Decision (ROD) for that facility. The alpha-emitting radionuclides in the TRU materials are dangerous if inhaled or ingested, especially in the concentrations present in 216-A-2 and 216-A-4.
7. The EPA project manager has repeatedly cited the need for adequate shallow zone characterization to support a baseline risk assessment. A case was not made that existing sampling and surveys or down-hole logging was sufficient to support an adequate baseline risk assessment. This deficiency should be corrected prior to incorporation into the 200-EA-1 operable unit.
8. Since much of the areas in and around the 200 Area are highly vegetated, the site may not fit the definition in state regulations for an industrial-only site with regard to the protection of plants. The toxicity of uranium on plants may come into play and the values that can be left in surface soils are much lower than for other cleanup drivers.
9. The amount of overall characterization for the sites is minimal. The limitations for the grab samples make it difficult to support the completion of the baseline risk assessment. The amount of characterization at these sites might be reasonable if it were clear that the preferred alternative is to remove, treat and dispose (RTD) the waste sites using the observational approach. This approach requires less pre-ROD characterization than

capping or containment type remedies. If RTD is not the preferred alternative, EPA suggests that DOE and Ecology perform a data quality objectives process to pull forward characterization (actually described in one section) that is currently planned for the post-ROD timeframe.

10. The characterization effort for the 200-E-102 trench was inadequate. The work described in the work plan was carried out, but it is not 100% clear that the site was actually located. Further characterization work should be conducted to fully understand site conditions at this waste site.
11. We expect that DOE will follow through with its commitment of incorporating the K well soil sampling information into the 200-EA-1 RI/FS report that will likely cover these waste sites. This information is needed to shore up the conceptual site model for the two reverse wells.
12. DOE should analyze other combination alternatives such as cut and cap because of the uncertainties about the ability to meet PRGs at depths below traditional excavation. More alternatives analyzed and available for public review and inclusion in alternatives of the plug-in approach will allow for simpler post-ROD changes if confirmatory sampling shows that the original set of alternatives described in this draft are not sufficient to address the threats posed by the sites.
13. It should be noted that observational approach characterization costs incurred during RTD should be less than borehole characterization that would be necessary to confirm the conceptual site model (CSM) for sites being remediated with caps or containment.
14. The report indicates that standard construction equipment may be used, however without proper training, over-compaction of the fine silt layer can occur. Over-compaction of the fine silt layer can significantly impact the functionality of this type of barrier and this consideration needs to be discussed in the report.
15. The performance of barriers should cite the example of the performance criterion for the evapotranspiration barrier selected for the 221U Facility remedy. It provides a limit of a long-term average of 3.2 mm of infiltration. The rationale for that limit should be compared with the needs for the waste sites in this operable unit.
16. There should be some discussion of barrier effectiveness versus depth in the vadose zone. Considerations of heterogeneity and lateral preferential flow should be discussed as well as the possibility that moisture levels at depth may drive contaminants to groundwater despite surface barriers. Such discussions would help balance the evaluation of alternatives.
17. EPA believes it is too extreme to screen out the use of RCRA Subtitle C surface barriers. Evapotranspiration barriers may perform better in our arid climate, but we have not seen evidence that RCRA Subtitle C barriers should be excluded from consideration.

18. Why was an evapotranspiration coefficient of 0.977 used instead of the EPA guide (letter from 2009 to DOE) value of 0.91 that has been consistently used at Hanford? The use of the 0.977 value results in a substantial reduction in estimated infiltration and could result in underestimating the risk that vadose zone contaminants pose to the groundwater.
19. Screening of contaminants of potential concern went too far in eliminating chemicals and radionuclides considering the uncertainties about the nature and extent of contamination in the characterized sites let alone the sites that are slated for confirmatory sampling. This is true both for the direct exposure and ecological pathways in the shallow zone and also for groundwater protection. For example, nitrate may be a concern for groundwater protection and much needs to be confirmed about the CSMs for the cribs before groundwater threats can be ruled out entirely.
20. The 1,000 year timeframe is not a hard and fast line for protection of human health and the environment. Groundwater impacts over maximum contaminant levels (MCLs), for example, need to be provided in the report regardless of whether they are predicted to occur after 1,000 years.
21. Costs for monitored natural attenuation (MNA) and ICs are underestimated because PRGs and risk levels will not be obtained for at least 5,740 years at 216-A-2 and potentially longer at 216-A-4 yet costs only accrue for the first 1,000 years. This skews the evaluation of alternatives when comparing costs.
22. The implementability and long-term effectiveness challenges for Alternative 1 (MNA and ICs) of keeping intruders out of the waste sites for over 5,000 years should be presented during the evaluation of alternatives.
23. The report glosses over the complexities of IC implementation and management. The discussion confuses site controls with ICs mandated by a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) ROD.
24. There are several occurrences where the discussion of the required No Action alternative is cluttered with a description of how there are site controls in place. Similarly, an attempt to take credit for radioactive decay gets in the way of the description of the criterion for reduction of the toxicity, mobility or volume through treatment. EPA guidance does not allow one to consider radioactive decay to constitute treatment.
25. Why wasn't RTD considered for the 216-C-2 reverse well. The slotted interval is between 15 and 40 feet bgs, well within the reach of standard excavation. Might it be worth removing to eliminate intruder risks and the need to maintain ICs?
26. Why does the operable unit include an active waste site (the 299-E24-111 test well)? This does not make sense. Maybe this site should just be tracked on the well decommissioning list?

27. Figure 4-5 shows a graph for Tc-99 that looks like the display is flipped along the y-axis. Is it? Please correct if not plotted right.
28. We appreciate the description of more robust excavation techniques, such as the use of soldier piles. The project discussed these options over a year ago with EPA and we are happy to see the coverage of them in the report.
29. Soil washing is mentioned, but not soil flushing as a remediation technology. Soil flushing and the use of groundwater wells to intercept the contaminants should have been one of the technologies that went through the screening process.
30. The use of conventional drilling for decommissioning the reverse wells was not explained sufficiently. Also, the integration of decommissioning with the remedial alternatives is poor. The decommissioning activities should be part of the remedial alternatives. It is not clear to the reader that they are part of the alternatives.
31. There is not enough detail to understand the monitoring part of MNA. Please add detail where discussed.
32. Pg 3-1: NCP 40 CFR § 300.430(d)(2)(ii) indicates that characteristics or classifications of air, surface water, and groundwater should be assessed as appropriate. Given that, for example, wind erosion and dust generation is an identified release mechanism it seems that discussing “air” may be appropriate here; however, no such discussion is contained in this chapter (or elsewhere). It is prudent to include an air discussion in the site characterization.
33. Pg 9-16: Line 35-37 – Indicates that the need for ICs under Alt 3 would be limited to maintaining the land use as industrial. This seems to be shortcutting the description of the ICs that would be in place to help maintain land use is consistent with assumptions. The text goes on to say that the Comprehensive Land Use Plan (CLUP) essentially guarantees this. The environmental impact statement for the CLUP done for the National Environmental Policy Act has no enforceability and thus cannot guarantee maintenance of CERCLA ICs.
34. Pg 9-29: Line 17-20 – States: “The Tri-Parties agree that the selected preferred alternative is sufficiently comprehensive to satisfy the technical requirements of both CERCLA and RCRA corrective action.” A couple of problems with this: 1) There is no preferred alternative here, and 2) as such, we could not have agreed about anything regarding this non-existent preferred alternative.