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Matt McCormick
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Richland, WA 99352

Subject: Comments on the Draft Remedial Investigation Report (RIFS) for the 200-PW-2 Uranium-Rich Process Waste Group and the 200-PW-4 General Process Condensate Group Operable Units, Draft A

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Dear Mr. McCormick:

Oregon has reviewed the 200-PW-2/200-PW-4 Remedial Investigation Report. The comment period was originally through Sunday August 15, 2004 and has been extended by Ecology to October 18. We have not as yet reviewed the new revision. We are presently reviewing the RIFS work and sampling plan.

The 200-PW-2 Operable Unit is loosely defined as a group of waste sites that received uranium-rich process condensate and/or process waste, primarily from the 221/224-U Plant, REDOX, PUREX, 22-1 B Plant and the Hot Semiworks (C Plant). The 200-PW-4 Operable Unit is loosely defined as waste sites that mostly received process drainage, distillate discharges and condensates from U and T plants, REDOX, PUREX and the Hot Semiworks (C Plant). Both Operable Units contain sites in both the 200 East and 200 West areas. The report details information and proposed plans for these waste sites, including information focusing on surface and near surface actions. Our comments are summarized below.

Operable Unit Division and Groundwater protection

The report discusses establishing compliance points in the groundwater, but it is unclear how the Remedial Investigation/Feasibility Study(RI/FS) Report will integrate groundwater cleanup actions and protection of groundwater under these sites. Due to the reliance on simplified conceptual site models and numerical fate and transport models, we recommend that the discussion of uncertainty be elevated, and that risk screening values reflect that uncertainty. The feasability study needs to assess the potential remedial measures available to remediate groundwater contamination over a range of time frames that includes the near term (<50 years).

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Comment Background

Division of the source operable units from the groundwater and vadose zone unit causes the decision-makers to have to hypothesize what the future condition of those overlying sites will be and how they will continue to impact groundwater. The estimation of future impacts will be based on uncertain future conditions developed using one or more numerical models that are intended to mathematically emulate the myriad of subsurface conditions and chemical interactions that may occur.

Full integration of the groundwater and vadose zone with the source operable units will help to assure that the decisions made are comprehensive and minimize uncertainty.

The last bulleted paragraph on page 1-7 in the report states "It is anticipated that groundwater contamination under the Core Zone will preclude beneficial use for the forseeable future, which is at least the period of waste management and institutional controls (150 years)." The feasibility study needs to study and assess the potential remedial measures available to remediate the groundwater contamination over a range of time frames, including the near term (<50 years).

Groundwater Analysis

We are reviewing the work plan for aquifer testing, including how test decisions will be made, which intervals will be tested, or what methods will be employed. We anticipate submitting separate comments on those plans when we complete our review.

Conceptual Site Model

The analysis in the report is based on a site conceptual model which primarily assumes direct vertical transport of water through the soil column, with little consideration of lateral transport. DOE needs to develop field data to support the lack of lateral transport. Work with drive casings this past summer and other work in the past showed evidence of lateral spread of contaminants.

To improve both the conceptual site model and numerical modeling accuracy, Oregon recommends that DOE collect continuous core samples, and follow a pre-developed sample selection and analysis strategy to develop site-specific and bulk soil information.

This information will also support remedial decision making. We expect that caps and covers will be evaluated, along with other remedial strategies. Implicit in the use of caps and covers is the assumption that the nature and extent of contamination is known, and that the subsurface movement of water is well understood. We recommend that the presumption that water moves only vertically and not laterally be challenged and tested prior to selecting capping as a remedy.

Comment Background

There is evidence that lateral transport of waste has occurred at many sites across the plateau. Field investigations, such as the work at the vadose zone observatory, also support this hypothesis. The data in the report provide little information on the potential lateral spread of contamination or of contaminant movement, or to allow the decision makers the information needed to have adequate confidence that the size of the contaminated area is well known. Consequently, alternative analysis in the feasibility study would be based on assumptions about the areal extent of these sites both at the surface and in the subsurface.

Use of bulk soil samples that average the soil properties may provide general lithologic information suitable for input into the numerical fate and transport model. However, this may easily overlook key small-scale geologic features that locally influence or control soilwater and groundwater movement, and invalidate the conceptual model.

Focused sampling of small-scale geologic features that could significantly effect fate and transport may assist evaluation of the site conceptual model, yet fail to provide site-specific parameters needed for modeling. Using continuous core samples allows analysis to be either interval discrete or composited over an interval. The detailed selection procedure should be specified in the final revision of the RI/FS work plan to help minimize future uncertainty.

Significant lateral movement of water and contaminants has importance not only for the fate and transport of waste, but also for the infiltration of water beneath any cap and cover that is used. Lateral transport of water has the potential to render caps and covers non-protective. Caps and covers may give a false sense of assurance that movement of waste and water has been mitigated. The resulting consequences may be severe, and the costs of redoing the remedy may be large.

Contaminant Transport and Kd

The report seems to assume that lab derived Kd values for each contaminant are equally applicable to all sites, and that Kd based models are appropriate. The data presented in the report refute this hypothesis. Additional work is needed to determine why contaminants are moving, and whether specific adjustments are needed that might allow RESRAD or an alternate numerical model to adequately bound the risks.

Further, we recommend that variability analysis be conducted on input parameters in an effort to identify the magnitude of the sensitivity of the output due to model parameter variations, conceptual model assumptions and the underlying numerical code architecture.

Comment Background

The report relies on analyzing the potential for the movement of various contaminants of potential concern (COPC's) by using Kd values and the computer code RESRAD. Data presented in the report strongly challenge the notion that Kd modeling adequately describes the movement of wastes under these sites. Many of the sites (such as Trench 216-A-9, Crib

216-A-37-1, and 216-U-8) show deep movement of contaminants that cannot be explained based on the Kd values that have been assigned. The contaminant profiles presented for the various waste sites do not provide confidence for the Kd values assigned, and in turn the sufficiency of RESRAD for estimating the protection of groundwater. This increases the uncertainty in the risk estimate, and raises questions as to whether the uncertainty may greatly exceed the calculated risk.

Each of these challenge the reliability, usefulness and protectiveness provided by estimating risk using the RESRAD codes.

Land Use

Land use for the central plateau is stated to be industrial, which mirrors the Comprehensive Land Use Plan. However, as noted in the recent Hanford Solid Waste EIS, the existing sites will be cleaned up to protect groundwater. Also, the recent 200 Area end states work shop indicated a general agreement that uses beyond 50 years will be wide ranging. Oregon recommends that the document be revised to reflect the 50 year CLUP duration and the public sentiment for uncertain use there after.

Screening Level Analysis of Ecological Risk

The report indicates that DOE intends to use its internal guidance for ecological risk evaluation and asserts that this is a conservative assessment of the risk. We do not agree. We encourage the Tri-Parties to use established EPA metrics for ecological assessment to do data collection and evaluation.

Comment Background

We are not aware of literature that assigns impacts to ecological resources in units of Biological Concentration Guide (BCG) levels as set under DOE's process, and hence we have no means to validate assertions that particular BCG levels are protective.

Using the BCG's to establish the required analytical capabilities, without evaluating the data needs for Natural Resource Injury evaluation, risks not analyzing to sufficiently precise levels to satisfy both needs. This may necessitate redoing large amounts of sampling later at much greater total cost.

Natural Resource Damage

Natural Resource Injury needs to be evaluated and weighed in the remedial decision evaluation by the decision-makers in reaching Records of Decision.

There is a growing record of sites doing cleanups under the active remedial portion of CERCLA, and then having to extend these cleanups later when analysis of ecosystem impacts is made under the Natural Resource Damage provisions of CERCLA. It appears to us that combining these actions into one unified process and evaluation best uses precious resources and protects both human health and the ecology.

We look forward to resolving these comments with you and reviewing the final Remedial Investigation Report for the 200-PW-2 and 200-PW-4 Operable Units. If you have any questions, please contact Dirk Dunning on my staff at (503) 378-3187.

Sincerely,

Ken Niles

Ken Niles
Assistant Director

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