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US Environmental
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Dept of Ecology

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April 9, 2015

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Re: Central Plateau Inner Area Guidelines

Dear Ms. Charboneau, Messrs. Smith and Faulk and Ms. Hedges,

Background

The Hanford Advisory Board (HAB or Board) would like to thank the U.S. Department of Energy (DOE), Washington State Department of Ecology and the Environmental Protection Agency for the presentations that have been provided and appreciates the opportunity to comment on these important Central Plateau guidelines at a relatively early stage. The Tri-Party agencies' efforts to develop guidelines for future cleanup of the Inner Area of the Central Plateau is commendable and should result in future efficiencies. The Board understands DOE's desire for a clear, consistent, efficient cleanup, but we also believe that an effective cleanup strategy should afford DOE the flexibility to address unique Operable Units inside the highly complex Central Plateau Inner Area. As a general principle, the Board supports Applicable Relevant and Appropriate Requirements (as defined in 40 CFR

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300.5) without waivers as cleanup standards for the Central Plateau and for the rest of the Hanford Site. However, the Board also recognizes that a waiver may be necessary in some specific instances. Furthermore, the Board is concerned that a blanket application of cleanup guidelines within the Inner Area makes assumptions about Central Plateau end-states.

The Board believes the guidelines proposed by DOE could lead to limited cleanup actions that do not fully characterize, quantify, or address the risk to future generations. These guidelines underestimate the potential for failure in cleanup, and they ignore the real, long-term costs of Institutional Controls.

For example, the Board is concerned that extensive contamination below 10 feet, including high-level waste pipelines and trench outlets, will be abandoned in place if DOE were to adopt a 10-foot Depth Point of Compliance (POC). The Board has repeatedly said that it supports removal, treatment and disposal (RTD) of hot spots of contamination.

The Board recognizes the need for the Tri-Party agencies to identify and consider the breadth of uncertainty in future decisions regarding the remediation of the Central Plateau.

The Board requests the Tri-Party agencies use the following advice to help develop regulatory and operational policy, practices and procedures for the Central Plateau cleanup and actions, to be reflected in a set of Central Plateau Inner Area Guidelines. A notes document is available as part of the April 2015 Board meeting summary to further expand the discussion.

Advice

- The Board advises the Tri-Party agencies to approach remediation of the Inner Area with an end-state vision of what the Inner Area condition will be when cleanup is done, and what future uses for this area are envisioned. This vision should be vetted through meetings with the public, stakeholders and the Board.
- The Board advises DOE to evaluate risk in the Central Plateau and the Inner Area that includes an Intruder Scenario and a Tribal Use Scenario (HAB Advice #132). The Inner Area Cleanup Guidelines should recognize and honor Treaty rights in decisions. The Baseline Risk Assessment does not include a tribal scenario. It is a fundamental obligation for DOE to meet their federal trust responsibilities.
- The Board advises DOE to characterize waste sites prior to a Record of Decision (ROD) (HAB Advice #227) and advises DOE not to use an analogous sites approach within the boundary of the Central Plateau. The Board believes it is more appropriate to

have enough characterization data to support a final ROD prior to decisions than to rely on post-ROD characterization (HAB Advice #227).

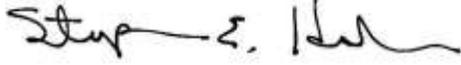
- The Board advises the Tri-Party agencies to establish criteria for waste characterization and risk assessment by utilizing the Central Plateau Remedial Action Values Flowchart (HAB Advice #173 and #174) and the Groundwater Values Flowchart (HAB Advice #197).
- The Board advises the Tri-Party agencies to determine points of compliance after adequate characterization data are available to inform the compliance depth decision. The Board believes that predetermination of compliance cleanup depth is not reasonable without a better understanding of the type and quantity of the waste mass, coupled with an understanding of the unique surface, vadose zone and aquifer conditions of the Inner Area (HAB advice #229).
- The Board advises reconsideration of the rooting depths of native vegetation to support resetting the point of compliance when determining depth¹.
- The Board advises the Tri-Party agencies to set the standard POC for groundwater at the boundary of each waste site/operable unit, not at the boundary of the Inner Area.
- The Board advises the Tri-Party agencies to use the observational approach. The observational approach has been an effective tool at Hanford to remove near-surface masses of contamination (hot spots) that have been encountered during remediation activities, and that continue below the set Depth POC or applied to engineered structures (HAB Advice #226). The Tank Closure and Waste Management Environmental Impact Statement demonstrated that there is so much contaminated material that exceeds protectiveness, leaving any material that is relatively easy to remove is not a reasonable decision (HAB Advice #226).
- The Board advises the Tri-Party agencies to run sensitivity analyses to determine the amount of infiltration it would take to move contaminants to groundwater (HAB Advice #227).
- The Board advises the Tri-Party agencies to compare the costs of maintaining Institutional Controls and ongoing sampling over the long periods of time needed, versus the cost of RTD of contaminants (HAB Advice #173).
- The Board advises that the level of industrial cleanup of the Inner Area needs to be protective of a continued human presence performing industrial activities (HAB Advice #230).

- The Board advises the Tri-Party agencies to remediate contamination in the deep vadose zone to reduce future migration of contamination to groundwater. The Board is concerned with the lack of focus on contaminant issues in the vadose zone (HAB Advice #226 and #243).
- The Board advises the Tri-Party agencies to set cleanup values for ecological receptors as was done in the River Corridor.
- The Board advises the Tri-Party agencies to identify and protect large pieces of undisturbed sagebrush-steppe habitat, and not include them in the final “footprint” of the Inner Area. Protection of these lands could further reduce the footprint of the Inner Area, requiring less area for monitoring and maintenance. It might also reduce DOE’s natural resource damage liability.
- The Board advises DOE to combine radiological and non-radiological cancer risks to meet the standard that Washington State has determined is protective of human health, based on the requirements of Model Toxics Control Act and Comprehensive Environmental Response, Compensation and Liability Act regulations. The Washington State standard has an upper limit of lifetime risk for combined carcinogens of 1×10^{-5} (HAB Advice #268).
- The Board repeats its advice to the Tri-Party agencies that pre- and post-1970 transuranic waste be removed from the Hanford Site (HAB Advice #207).
- The Board advises the Tri-Party agencies to utilize previous Board advice for decision-making in regard to waste characterization and risk assessment, the use of caps, protection of groundwater, and burial ground cleanup decisions on the Central Plateau (HAB Advice #170, #173, #174, #197, #207, #226, #229, #231 and #243, as well as the HAB Values White Paper [11/3/12]). There has been a long history of Board advice on the Central Plateau that applies directly to the issues being addressed here.

Attachments:

- Central Plateau Remedial Action Values Flowchart (HAB Advice #173 and #174)
- Groundwater Values Flowchart (HAB Advice #197)

Sincerely,



Steve Hudson, Chair
Hanford Advisory Board

This advice represents Board consensus for this specific topic. It should not be taken out of context to extrapolate Board agreement on other subject matters.

cc: Mark Whitney, Principal Deputy Assistant Secretary for Environmental Management
Jeff Frey, Co-Deputy Designated Official, U.S. Department of Energy Richland Operations Office
Joni Grindstaff, Co-Deputy Designated Official, U.S. Department of Energy Office of River Protection
David Borak, U.S. Department of Energy, Headquarters
The Oregon and Washington Delegations

¹Richards, J.H. and M.M. Caldwell. 1987. Hydraulic Lift: substantial nocturnal water transport between soil layers by *Artemisia tridentata* (Big Sagebrush). *Oecologia* 73:486-489.

Caldwell M.M. and J.H. Richards. 1989. Hydraulic Lift: water efflux from upper roots improves effectiveness of water uptake by deep roots. *Oecologia* 79: 1-5.

Ryel, R.J., M.M. Caldwell, C.K. Yoder, D. Or and A.J. Leffler. 2002. Hydraulic lift redistribution in stand of *Artemisia tridentata*: evaluation of benefits to transpiration assessed with a simulation model. *Oecologia* 130: 1173-184.