



Department of Energy
Richland Operations Office
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AUG 24 2011

11-HAB-0045

Ms. S. L. Leckband, Chair
Hanford Advisory Board
Enviroissues Hanford Project Office
713 Jadwin, Suite 4
Richland, Washington 99352

Dear Ms. Leckband:

HANFORD ADVISORY BOARD (HAB) APRIL 1, 2011, CONSENSUS ADVICE #243,
"200-SW-2, RADIOACTIVE SOLID WASTE BURIAL GROUNDS"

Thank you for the HAB's consensus advice #243 letter (enclosed) regarding the 200-SW-2 radioactive solid waste landfills. We appreciate the HAB's continued engagement in the Central Plateau cleanup decision-making processes in general, and the 200-SW-2 radioactive solid waste landfills, in particular. Below please find responses to each advice point.

Advice point #1: The HAB has consistently encouraged Remove-Treat-Dispose (RTD) alternatives. The burial grounds would be an appropriate place to apply this. The Board advises the agencies to use the following four key values¹ to guide the decision-making process: 1) Minimize impacts on human and environmental health; 2) protect worker safety; 3) conduct an effective and cost-efficient cleanup; and, 4) guarantee public participation and transparency.

Response: Together with the regulatory agencies, as part of the Tri-Party Agreement (TPA) Central Plateau Cleanup Change Package, we recently approved a TPA milestone to develop a new work plan for the 200-SW-2 radioactive solid waste landfills. The milestone date supports our commitment to involve stakeholders early in the decision-making process for the 200-SW-2 Operable Unit. As we move forward, we will follow the regulatory process for investigation and remedial alternatives analyses to determine the environmental cleanup actions for these waste sites. The remedy selection will follow the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process and will evaluate alternatives using the CERCLA criteria. Decisions will be made through an interactive process that includes consideration of input from Tribal Nations, stakeholders, and the public. Decisions must be protective of human health and the environment. HAB advices 170, 173, 207, 226, 229, 231, and 243 will be considered during this process.

Advice point #2: The Board believes that finding and dealing with the high-risk areas is the priority, and advises that trenches for which there is limited or no inventory information should be adequately characterized and understood. Characterization should be done through

¹ The four key values were identified by University of Washington Masters in Public Health COPH students in 2010 after interviewing representatives of the Tri-Party agencies, advocacy groups, Native American Nations, and citizens.

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exhumation of trenches and identification of high-risk materials (using the Observational Approach²) after historical information searches, preliminary survey work, and preliminary sampling have identified the trench locations and gathered some information about the probable contents.

Response: As part of the development of the revised 200-SW-2 Work Plan, we are evaluating current information about the radioactive solid waste landfills – including historical process knowledge and field survey data. Based on this review, we will identify data needs to support remedial alternative development, evaluation, and selection in a remedial investigation/feasibility study (RI/FS). As part of the data needs evaluation, we will identify a range of characterization technologies that can be used to collect the required information. In addition to ongoing review of historical information, we may use non-intrusive and intrusive technologies (including exhumation and physical inspection of waste materials) to collect further characterization data about the landfills.

Advice point #3: The Board advises the agencies that a workable method to characterize the contents of trenches and caissons should be followed by phased determinations for further retrieval, immobilization or capping decisions. The Board supports characterization of the SWBGs to understand where the high-risk materials are located, so that well-informed decisions can be made before actions are taken. This initial characterization phase should lead to development of a burial ground uncertainty rating protocol to help determine where additional characterization is needed. The Board also advises planning characterization to address immediate risks to workers and providing that information to the workforce.

Response: Our goal is to have a common understanding of the risk of the materials in the radioactive solid waste landfills. There has to be enough characterization done to make an informed decision. Different characterization methods are used for different constituents. We will assess existing information for each burial ground and decide if there is enough known to make an environmental cleanup decision or if more characterization is needed. The uncertainty in our knowledge base will be a factor in identifying data needs. For characterization and all radiological work, we follow the as low as reasonable achievable principle to minimize risks to workers.

Advice point #4: The Board advises the agencies to adopt an adaptive approach to dealing with the SWBGs. High-risk materials – whether disposed prior to or after 1970 – should be retrieved from the burial grounds. Removal of long half-life radioactive wastes, mobile wastes, and those that release dangerous gas should be prioritized. Trenches or burial ground areas that are determined to be low risk should be capped only after confirmatory investigations determine that total cumulative impacts will not exceed standards. Higher risk burial ground trenches require more intensive study, remediation or exhumation during characterization, followed by phased decision-making about contents removal.

² DOE/RL-98-28

Response: As stated previously, the U.S. Department of Energy will follow the TPA-defined regulatory process for investigation and remedial alternatives analyses at the radioactive solid waste landfills. There are existing TPA milestones for this work. Since we are early in the process of developing a new work plan that will guide how this work will be accomplished, there will be opportunities for the regulatory agencies, the Tribal Nations, and the stakeholders to be involved.

Advice point #5: The Board advises that the best solution at Hanford's SWBGs would likely be some combination of targeted retrieval, combined with vadose zone monitoring and remediation, plus capping the remaining non-exhumed low risk parts of the SWBGs.

Response: Targeted retrieval, vadose zone monitoring and remediation, and "capping" are all alternatives that will be considered in feasibility study evaluations.

Advice point #6: The Board advises DOE to pursue characterization of the vadose zone below the SWBGs to determine moisture levels and the degree of mobile contaminant spread. Special attention should be paid to vadose zone characterization of those burial grounds emplaced over former pond sites. As with caissons found in other places, and consistent with earlier advice, the Board supports characterization around and below the caissons, looking for vadose zone impacts.

Response: We agree that some level of characterization of the vadose zone below the burial grounds should be performed. We also agree that special consideration is appropriate for landfills emplaced over former pond sites. Caissons are one feature of the landfills, and they will be considered in the characterization strategy.

Advice point #7: The Board advises that the Hanford Site-Wide Permit (Permit), in conjunction with the RI/FS process for the SWBGs, should require both vadose zone and groundwater monitoring. The Permit should recognize that vadose zone monitoring is an early warning system which should trigger corrective action (via enforceable contingency plan requirements in the permit) when contaminants are detected at action levels. Although groundwater monitoring under the burial grounds poses challenges, an improved monitoring network is necessary and should be required. Monitoring should be shifted from the interim status indicators to specific regulatory standards for potential chemical and radionuclide releases.

Response: We agree that benefits may be realized from vadose zone and groundwater monitoring systems. Together with the State of Washington Department of Ecology (Ecology), we are continuing to review the existing adequacy of the monitoring network at the radioactive solid waste landfills. It is expected that if deficiencies are identified, the Resource Conservation and Recovery Act Site-Wide Permit will be modified accordingly. Post-closure monitoring requirements are expected to be part of the post-closure care requirements.

Advice point #8: The Board advises DOE to provide total volume estimates of plutonium, uranium, cesium, and thorium 232, which were recorded as disposed in the burial grounds. DOE should create, and make publically available, maps locating the most probable waste disposal locations for these elements, as well as perform an uncertainty evaluation of how much reliable data there is to back up this estimate.

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Response: In October, 2010, we presented volume and location information for the radioactive solid waste landfills at several public meetings held around the region on this topic, including the HAB's Committee of the Whole meeting. Our presentation and handouts showed landfill locations and volumes of waste, including estimated pre-1970 plutonium and uranium contaminants for each landfill. We will consider providing this data and similar information about cesium and thorium-232 in the RI/FS work plan. In general, information about waste placed in the landfills after 1968 is more reliable than information about waste placed in the landfills before 1968. The increased reliability is due to improved record keeping and improved measurement methods and technologies.

Advice point #9: The Board is concerned that the current timeline for investigation and remedial action for the burial grounds anticipates no decision for remedial action until 2017, which would leave just seven years to the TPA deadline for completing all non-tank farm remedial actions. That is far too short a time period to carry out any remedy with extensive retrieval and treatment, and appears to be based on an unsupportable assumption that capping will be the only remedy.

Response: Remedies for the landfills will be selected according to the CERCLA RI/FS process. The TPA includes a 2016 Milestone for submitting a proposed plan to Ecology. The proposed plan will undergo a formal public comment period. Following public comment, the proposed plan will be evaluated for the final two CERCLA criteria, public acceptance, and state acceptance. Following this final evaluation, a record of decision (ROD) will be made. Once a decision is made, we will develop a Remedial Action Work Plan, which will provide detailed costs and schedule for completing the remedial actions identified in the ROD.

Advice point #10: The Board advises that the investigation phase should include exhumation and treatment of wastes of high-risk trenches, and investigation of representative trenches where little is known of burial ground contents, to guide characterization decisions in a phased decision process. When the investigation is completed, the Board further advises that an assessment of cumulative impacts and risks from alternative remedies should be presented for public review and comment in a new EIS or supplement to the TC&WM EIS. Proposed remediation should meet RCRA and Washington State hazardous waste law closure performance standards.

Response: The CERCLA process doesn't require a separate review under the National Environmental Policy Act (NEPA) because NEPA values are incorporated into the CERCLA process. DOE considers cumulative effects through the CERCLA risk assessment and RI/FS process as prescribed by CERCLA guidance. DOE expects to provide briefings and receive feedback from the HAB and other stakeholders as these processes unfold. The CERCLA process will identify applicable or relevant and appropriate requirements that must be satisfied.

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Advice point #11: The Board appreciates DOE's commitment to hold public meetings and to explain how public input was used in development of the work plan. The Board advises that in discussing the work plan, DOE should use descriptive language to accurately communicate the contaminants of concern and actual condition of the subsurface areas. In addition, the Board advises the agencies to hold a formal public comment period on the draft RI/FS work plan.

Response: We agree that language used in outreach efforts should promote understanding of the cleanup project at hand and the decision-making process. The Tri-Parties are not planning to hold formal public comment periods on draft RI/FS work plans, but will follow the CERCLA-prescribed public involvement process for this project, which includes a formal comment period on the proposed plan. In this case, based on the level of interest, we did public outreach early in the process and plan to continue to provide opportunities for stakeholders to stay engaged throughout the decision-making process.

Advice point #12: The Board advises DOE to make information available online from monitoring and characterization activities. The TPA agencies should endeavor to communicate the residual risk that may arise from the unremediated trenches, and to explain how alternative cleanup actions could reduce that risk to acceptable levels.

Response: Groundwater monitoring and characterization data generated for the 200-SW-2 RI/FS Work Plan will become part of the Administrative Record which will be available online and in public reading rooms. Residual risk and how environmental cleanup actions can reduce that risk will be presented in the RI/FS.

Again, we appreciate the HAB's advice on the 200-SW-2 radioactive solid waste landfills. If you have any questions, please contact Paula Call at (509) 376-2048.


Matt McCormick
Manager

HAB:PKC

Enclosure

cc: See Page 6

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