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12-HAB-0028

AUG 13 2012

Ms. S. L. Leckband, Chair
Hanford Advisory Board
Enviroissues Hanford Project Office
713 Jadwin, Suite 4
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Dear Ms. Leckband:

RESPONSE TO HANFORD ADVISORY BOARD (HAB) FEBRUARY 10, 2012,
CONSENSUS ADVICE #253, "100-K PROPOSED PLAN (DRAFT A)"

Thank you for the HAB Consensus Advice #253 on the 100-K Proposed Plan (Draft A) (enclosure). Since October 2011, the U.S. Department of Energy (DOE) has met with members of the River and Plateau and Public Involvement committees to discuss and receive input on the 100-K Remedial Investigation/Feasibility Study and Proposed Plan (Draft A). We appreciate the time commitment made by committee and HAB members to review and provide advice on these lengthy and complicated documents. DOE will consider this advice as it revises the Proposed Plan.

Below are the responses to the points in your advice.

Advice Point #1: The Board advises the TPA agencies to follow the CERCLA process, finishing the documents in appropriate sequence in order to reach the ROD. The Board notes that none of the risk evaluations developed in the CRCRA appears in the 100-K RI/FS and Proposed Plan. Impacts from changes made to Risk Assessments should feed the FS PRGs and should support the Proposed Plan and ROD.

Response: The River Corridor Baseline Risk Assessment (RCBRA) contains human health and ecological risk assessments and provides the basis for the Risk Assessment Report for the 100 and 300 Areas. It evaluated soil, sediment, and water located in riparian and near-shore areas. The Columbia River Component Risk Assessment (CRC) provides a comprehensive human health risk assessment and a screening-level ecological risk assessment. The CRC human health risk assessment completes the assessment of the "bank-to-bank" Hanford Reach and downstream areas (e.g., Lake Wallula) of the Columbia River. It characterizes risk in areas not previously addressed under the RCBRA. Together, these two documents: 1) characterize current and potential future risks to human health and the environment, 2) establish a basis for remedial actions, and 3) support final cleanup decisions in the River Corridor.

These documents have been under agency and public review for many years. The CRC ecological risk assessment was issued as Revision 0 with agency concurrence and the CRC

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human health risk assessment is expected to be issued with agency concurrence. Information from these documents was used in the development of the Remedial Investigation/Feasibility Study (RI/FS). For example, the results and conclusions of the RCBRA and the CRC, which addresses potential risks from Hanford Site releases to the Columbia River, are summarized in the human health and ecological risk assessment sections of the 100-K RI/FS. A major outcome of the RCBRA was the development of preliminary remediation goals (PRGs) that are protective of human health and the environment. These PRGs were further refined using site-specific data in the 100-K RI/FS.

Advice Point #2: The Board advises the 100-K Proposed Plan be amended to include identification of contamination upwelling locations in the Columbia River bed that are or could be associated with 100-K waste site source(s).

Response: The 100-K RI/FS Report discusses in detail groundwater upwelling into the Columbia River. Section 4.3.4 (Groundwater Upwelling Investigation at 100-K Area), provides a summary of the studies that address this issue, including:

- Field Summary Report for Remedial Investigation of Hanford Site Releases to the Columbia River, Hanford Site, Washington: Collection of Surface Water, Pore Water, and Sediment Samples for Characterization of Groundwater Upwelling [WCH 380]
- Columbia River Remedial Investigation Work Plan (DOE/RL-2008-11)
- Hanford Site Releases Data Summary (WCH 398)

In addition, the 100-K RI/FS report addresses the different environmental media (pore water, surface water, and sediment) within the Columbia River and contamination associated with the 100-K Area in Chapters 4, 5, 6, and 7.

Results of the upwelling studies are incorporated in the Conceptual Site Model (CSM) RI/FS Section 4.4), but these do not change the results of the alternatives evaluation and are therefore not presented in the Proposed Plan.

The maximum Cr(VI) detection in pore water was 56 µg/L (RI/FS Section 4.3.4), which exceeds the ambient water quality criteria, but is consistent with the CSM. Modifications to the pump and treat (P&T) well extraction network are proposed in the RI/FS to address protection of the Columbia River. Other detections include tritium which is addressed through the RI/FS and Proposed Plan. No other contaminants were detected in pore water sampling.

Advice Point #3: The Board advises DOE to select a remedy for each waste site in the Proposed Plan and indicate where the details of the characterization used to support each decision can be found.

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Response: We have incorporated a table into the Proposed Plan that identifies the selected technology for each waste site based on the preferred alternative. The evaluations of remedial actions for specific waste sites relies upon a comprehensive review of all available data for each waste site including (if available): Field data, radiological surveys, process history, analogous site information, personal interviews, engineering drawings, as-builts, and any other information identified during the development of the RI/FS. For the waste sites to be remediated under the Record of Decision (ROD), the data review indicated there is a need for action based on exceedances of risk thresholds. This comprehensive review of the characteristics of each site is sufficient for the purpose of alternative development and comparison in the FS.

Advice Point #4: The Board advises that, given the incompleteness and uncertainties identified in supporting documents, the Tri-Party Agreement (TPA) agencies ensure that all contaminants of concern (COCs) identified in the risk assessment and other supporting documents are evaluated within the Proposed Plan.

Response: The list of PRGs in the RI/FS has been expanded to include all contaminants identified in the Integrated Work Plan and the source Operable Unit (OU) Remedial Design/Remedial Action (RD/RA) Work Plan. The PP presents all contaminants of potential concern in soil and groundwater, and further identifies contaminants of concern (COCs) from this list as determined by the evaluation of screening levels and PRGs reported in the RI. This ensures that all potential contaminants identified throughout the remedial actions will be addressed using the same PRGs in protection of human health and the environment. All COCs are addressed in the alternatives (see response to Advice Point #6 below).

Advice Point #5: The Board advises the TPA agencies to expand the Proposed Plan to consider the risk and remediation of all groundwater COCs in the 100-K Operable Unit.

Response: As noted in Response #4, all COCs in soil and groundwater are evaluated to identify the COCs. The alternatives address all of the groundwater COCs.

Advice Point #6:

The Board advises the TPA agencies to revise the Proposed Plan to address:

- The specific capture, control and disposal of non-chromium groundwater COCs.
- The remediation of known contaminant plumes under reactors, including both the recently identified gamma radiation contamination (137Cs) below 105-KW reactor and the mixed contaminants plume (UPR-100-K-1).
- The use of injection wells for monitoring purposes, which has the potential for creating uncertainties from dilution and causing measurements that may not accurately reflect the level of contamination.

Response:

- While the alternatives development targets the most expansively distributed COC, namely Cr(VI), the alternatives do include approaches to address all the COCs in groundwater, namely Cr(VI), carbon-14, nitrate, strontium-90, tritium, trichloroethene, and total chromium (RI/FS Section 9.2). Moreover, the Proposed Plan specifies that monitoring will determine if the P&T systems can be shut down following treatment of Cr(VI) groundwater plumes or if portions of the P&T system are necessary to capture and treat other COCs.
- As noted in the RI/FS (Section 9.1.1.3), remediation of waste sites near the reactors is remove, treat and dispose (RTD) at the time of reactor removal. Until that time, a surface barrier in conjunction with groundwater monitoring and operation of a P&T, if required, is proposed to protect against direct exposure and to prevent surface water infiltration that could mobilize contaminants from these waste sites.
- Remedy performance monitoring, including the design of a monitoring well network, will be developed during the remedial design process and included in a performance monitoring plan (RI/FS Section 9.2.2.11, Remedy Performance Monitoring). The alternatives evaluated assume a number of specific monitoring wells for the purpose of estimating costs.

Advice Point #7: The Board advises DOE to select and use more conservative PRGs for irrigated conditions in the 100-K Proposed Plan based on the Board's support of the Resident future use scenario as stated in Advice 246.

Response: DOE and the U.S. Environmental Protection Agency (EPA) have agreed to include in the 100-K Proposed Plan PRGs protective of groundwater and surface water under conditions that include irrigation.

Advice Point #8: The Board advises DOE to modify the boundaries of the Groundwater OU to encompass the extent of the known or suspected plume. The 100-K Waste Site Map (Proposed Plan, Figure 10) depicts the Groundwater OU as much smaller than the 2012 modeled extent of the contaminant plume.

Response: The evaluations and alternatives consider the plume extent regardless of the OU boundary. As an example, the 100-K P&T will address the Cr(VI) plume that extends beyond the 100-KR-4 OU boundary into the 100-N Area.

Advice Point #9: The Board advises the agencies to include in the Proposed Plan a proposed remedy for the orchard sites to address arsenic-lead contamination, and provide details of the integration of such remedies with co-located waste site remediation activities.

Response: The Tri-Party Agreement agencies considered this advice and identified a new OU, 100-OL-1. The historic contamination associated with the orchard lands will be addressed in this Comprehensive Environmental Response, Compensation, and Liability Act OU. The River Corridor includes approximately 2,023 hectares (5,000 acres) that were historically cultivated as orchards. A 12 ha (31 ac) orchard existed within the boundaries of 100-K. During

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implementation of the selected remedy at waste sites that are co-located within historical orchard land, contaminants associated with the waste site will be addressed to meet the cleanup levels prescribed in the 100-K OUs ROD.

Advice Point #10: The Board reiterates its request (HAB Advice 246) for a workshop describing the combined risk assessment processes and cumulative risk results, once the risk assessments are finalized.

Response: Based on feedback and discussions with the HAB River and Plateau and Public Involvement and Communication committees, the TPA agencies conducted four regional informational workshops on Hanford cleanup along the Columbia River. These workshops provided an overview of upcoming decisions and allowed the public and agencies to discuss numerous cleanup topics, including risk. Although not focused on risk assessments and cumulative risk findings, the small group discussions enabled agency representatives to informally address individual risk questions and concerns. DOE will continue to work with the regulatory agencies to find opportunities to better communicate risk to the public.

Advice Point #11: The Board advises the TPA agencies to support Alternative 3, using expanded RTD and pump-and-treat.

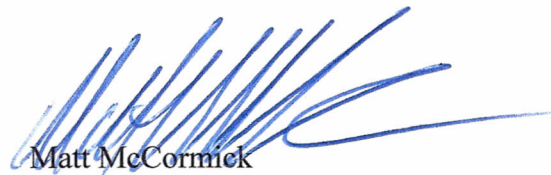
Response: DOE and EPA have discussed the alternative evaluations: Alternative 3, RTD, and Expanded Groundwater Treatment is proposed as the Preferred Alternative.

Advice Point #12: The Board advises DOE if any institutional controls are prescribed as a portion of the remedy, or are needed following completion of cleanup actions, they should be clearly spelled out in the ROD as an ongoing commitment of DOE.

Response: DOE considered this advice and each type of institutional control (IC) is defined in greater detail in the RI/FS (Chapter 8). The Proposed Plan includes a new table identifying ICs proposed for implementation at waste sites post remediation.

Thank you again for providing this advice. We look forward to continuing to work with you as these documents are revised and the Proposed Plan goes out for formal public comment. If you should have any questions, please contact me or Tiffany Nguyen at (509) 376-3361.

Sincerely,



Matt McCormick
Manager

HAB:TLN

Enclosure

cc w/encl: See page 6

Ms. S. L. Leckband
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