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Department of Energy
Richland Operations Office
P.O. Box 550
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07-OEC-0016

DEC 19 2006

Mr. Todd Martin, Chair
Hanford Advisory Board
713 Jadwin Ave., Suite 4
Richland, Washington 99352

Dear Mr. Martin:

HANFORD ADVISORY BOARD (HAB) CONSENSUS ADVICE #190 – COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) REVIEW

This letter is in response to HAB Advice #190 regarding the CERCLA five-year review. The U.S. Department of Energy (DOE) would like to thank the Board for its interest and involvement in the second CERCLA five-year review process. The final Report was issued in November 2006.

The draft Report underwent public review and a 45-day public comment period. The final Report was changed based on the input received from the HAB, regulators, Tribal governments, stakeholders, and the general public. Public comments and responses are included in Appendix B of the final Report.

The following responses address the issues identified in your advice.

The Five-Year Review misses part of the intent of a Five-Year Review.

DOE disagrees that "The Five-Year Review misses part of the intent of a Five-Year Review," including the failure to incorporate new information. DOE believes the review addressed the intent of the five-year review as outlined in CERCLA, Executive Order 12580, 40 CFR 300, and DOE and U.S. Environmental Protection Agency (EPA) guidance. The purpose of the CERCLA five-year review is to evaluate whether cleanup remedies are protective, and recommend appropriate corrective actions when they are not achieving the established goals.

The protectiveness statements are not based primarily on exposures being limited by institutional controls. DOE strives to meet CERCLA groundwater cleanup goals, including meeting "applicable or relevant and appropriate requirements" (ARARs), guided by the nine CERCLA evaluation criteria for remedial actions. The Hanford cleanup will meet CERCLA groundwater cleanup objectives, including the restoration of the aquifer to beneficial uses wherever practicable within a time frame reasonable given the particular circumstances of the Hanford Site.

The River Corridor risk assessment does not need to be completed to make protectiveness

determinations on selected interim or final remedies. Protectiveness determinations are based on evaluation of the performance of selected remedies, not risk assessments. Risk assessments are part of the Remedial Investigation/Feasibility Study (RI/FS) process.

DOE does agree that in some cases the protectiveness statements made in the public review draft Report overstated the level of protectiveness based on the information available at this time. Therefore, DOE revised some of the protectiveness statements to reflect the level of knowledge on which the statements were based, e.g., deferring some protectiveness statements until final remedies are selected through the CERCLA RI/FS process.

The five-year review should incorporate new information. Update the review using available new information.

DOE assesses new information on an ongoing basis to determine if it has potential to impact cleanup. If the assessment of this new information indicates that it could trigger a reconsideration of requirements in a Record of Decision (ROD), it was incorporated into the five-year review. The five examples cited by your advice were identified, reviewed and assessed. None necessitated a change in a ROD requirement as discussed below.

City of Richland's industrial re-use study. The 300 Area industrial re-use study conducted by the City of Richland was assessed to determine if it would affect any of the CERCLA remedial action decisions that have been established in RODs. DOE concluded that the recommendations from the study are factors that would be taken into consideration when the final CERCLA remedial action decisions for the 300 Area are made. At this time the City of Richland study does not warrant a change to the current or reasonably anticipated future land uses for the 300 Area as established in the Hanford Comprehensive Land Use Plan. DOE anticipates it may have future missions for the 300 Area and has not made a decision to transfer this parcel of land out of the DOE's administration in the foreseeable future.

Biological Effects of Ionizing Radiation (BEIR) Study. DOE has evaluated the BEIR VII Report as it relates to the CERCLA five-year review. Based on this evaluation, the Nuclear Regulatory Commission's (NRC's) review and EPA Federal Guidance Report #13 discussed below, DOE has concluded that the BEIR VII Report does not represent significant new information, and therefore does not affect remedial action decisions being evaluated in this review, or the protectiveness of those decisions. The cancer risk estimates reported in the BEIR VII Report are generally consistent with the risk estimates in the BEIR V Report, and the risk estimates currently reported and/or used by other national and international regulatory and scientific organizations. When BEIR VII results are incorporated into applicable guidance such as EPA's Federal Guidance Report #13 and the cancer risk slope factors, then DOE will incorporate such guidance for Hanford CERCLA radiation risk assessments.

The NRC in its review of the BEIR VII Report stated that the BEIR VII risk estimates "are numerically similar to risk estimates provided in BEIR V and in more recent UNSCEAR (United

Nations Scientific Committee on the Effects of Atomic Radiation) and ICRP (International Commission of Non-Ionizing Radiation Protection) reports", and "therefore, the NRC's regulations continue to be adequately protective of public health and safety and the environment."

In addition, the BEIR VII Report concluded that there is no direct evidence of increased risk of non-cancer diseases in humans at low doses. The BEIR VII Report states that the conclusions of the study "contribute to refining earlier risk estimates, but none leads to a major change in the overall evaluation of the relationship between exposure to ionizing radiation and human health effects."

Protectiveness to fulfill Natural Resource Trustee responsibility per 40 CFR 300.615. DOE intends to meet its Natural Resource Trustee responsibilities per 40 CFR 300.615. We continue to believe that the important issues facing Hanford's natural resource trustees are best addressed through the Trustee Council, which operates on the basis of collaboration and consensus. DOE will continue to coordinate its actions with the Council and to work together with other trustees regarding the appropriate strategies to restore resources.

Recent studies and negotiations with Priest Rapids dam operators. Near-river groundwater levels are impacted by the stage (elevation) of the Columbia River, enhancing or reducing groundwater contaminant concentrations and contaminant mass flux rates to the river. In general, high river stages, and corresponding high groundwater levels, were demonstrated to result in increased concentrations of uranium in the 300 Area groundwater and strontium-90 in groundwater at the 100-NR-02 Operable Unit. Deep vadose zone sources are rewetted as the groundwater levels cycle through high water periods. Influx of river water into bank storage at the 300 Area may geochemically retard the flow of uranium towards the river. Technologies are currently being tested in both the 300 Area and 100-NR-02 that will be designed to respond to the concerns raised by this comment. In the 100 Area chromium plumes, high river stages tend to push the chromium plumes away from the river. Concentrations of chromium in the pump-and-treat extraction wells near the river have been observed to decrease during periods of high river stage. Technological improvements are also being designed for the chromium plumes in the 100 Area. The dynamic nature of the 100 Area flow system will be considered in the design of these improved systems. This five-year review analyzes, discusses and incorporates new information about 100 Area chromium plumes.

New data on chromium risks based on the report *Chromium Toxicity Test for Fall Chinook Salmon Using Hanford Site Groundwater* (Patton et al. 2001[1]). The U.S. Geological Survey chromium study was a laboratory salmon study designed to create exposure conditions that would cause adverse effects such as genetic damage. The results of the study indicated possible DNA damage at some, but not all of the chromium concentrations studied. The results of the study also indicated that the cleanup level specified in the 100-HR-3/KR-4 groundwater operable unit interim action ROD is protective of Chinook salmon. Initial findings appear to confirm the

adequacy of the National Ambient Water Quality Standard for Chromium which DOE applies.

The results of the study were incorporated into the design of the ecological portion of DOE's River Corridor Baseline Risk Assessment. In summary, the study supported the protectiveness levels established in interim RODs.

Expand the review of protectiveness of current remedial actions beyond reliance on current or near-term institutional controls that limit exposure. This extended analysis would help assess and determine whether or not the current cleanup remediation strategy will meet the long-term cleanup goals expressed by the Board.

DOE agrees that protectiveness reviews should address the entire timeframe of selected remedial actions to ensure that the remedies meet CERCLA requirements for the Hanford Site. The five-year review did that. Where RODs are not final, the success of their protectiveness of interim remedies will be analyzed and the remedies modified, if necessary, in the final ROD.

Most of the work completed recently, or in progress, is being done under interim RODs. Interim RODs are the appropriate tools to use in cases where waste sites may be added later or where additional data or analysis is needed to formulate the final cleanup decision. Interim RODs allow cleanup to proceed and facilitate actions necessary to move the Hanford cleanup mission closer to its final goals. DOE intends for the remedies selected in final RODs to be protective of human health and the environment upon completion. In some circumstances, additional work may be necessary and ROD amendments may be required.

Formally consider and respond to public input, and show how public values for use of resources are incorporated into evaluations of reasonable maximum exposure scenarios – for both the near- and long-term time periods.

Public values on the use of resources are considered in all DOE planning and actions, including evaluations of reasonable maximum exposure scenarios under CERCLA. Final RODs will be issued for much of the Hanford Site in the future. Before finalizing the decisions and respective documents, DOE will continue to seek and consider public input as part of the decision making processes. DOE found the Exposure Scenario Task Force discussions very useful and informative. We look forward to continuing that dialogue and welcome specific examples of where the HAB believes DOE should change its scenarios.

Evaluate the breadth of the review to identify shortfalls that should trigger amendments to Interim and/or Final RODs.

DOE agrees and did so. The breadth of the review was defined by the scope of the CERCLA activities on the Hanford Site. Where selected remedies identified in RODs or Action Memoranda are not working in a way that will assure attainment of remedial action objectives, we identified actions to improve the efficiency of the remedy or recommended changes to the

remedy, e.g., addressing chromium issues in the 100-D and 100-K Areas.

The Report also identifies several actions and proposed schedules to correct deficiencies identified during the review, including gathering more information to support ecological risk evaluations, development of technologies to support remediation of groundwater, and expansion of the application of existing technologies to cover additional areas and contaminants.

We would also like to inform you that DOE received comments from the Confederated Tribes of the Umatilla Indian Reservation during the comment period and unfortunately, they were not addressed. DOE is in the process of considering and responding to their comments and EPA has been notified. Their comments and responses will be added to the Appendix B of the CERCLA Five-Year Review Report, and, if appropriate, the document will be revised and reissued.

Again, we appreciate the Board's interest and advice on the CERCLA Five-Year Review Report for the Hanford Site. If you should have any questions related to the CERCLA Review, please contact Cliff Clark at (509) 376-9333. Attached is a copy of the final report. The report can also be viewed online at http://www.hanford.gov/hanford/files/CERCLA-5yr-Final-Nov.pdf.

Sincerely,

Keith A. Klein
Manager

OEC:KEL

cc: See page 6

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