



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Hanford Superfund Site, 100 and 300 Areas

FROM: Bruce K. Means, Chair 
National Remedy Review Board

TO: Mike Gearheard, Director
Environmental Cleanup Office (ECL-113)
EPA Region 10

Purpose

The National Remedy Review Board (NRRB) has completed its review of the proposed remedial action for the Hanford Superfund Site, 100 and 300 Areas. This memorandum documents the NRRB's advisory recommendations.

Context for NRRB Review

The Administrator announced the NRRB as one of the October 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective decisions. The NRRB furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The NRRB review evaluates the proposed actions for consistency with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and relevant Superfund policy and guidance. It focuses on the nature and complexity of the site; health and environmental risks; the range of alternatives that address site risks; the quality and reasonableness of the cost estimates for alternatives; regional, state/tribal, and other stakeholder opinions on the proposed actions, and any other relevant factors.

Generally, the NRRB makes "advisory recommendations" to the appropriate regional decision maker. The region will then include these recommendations in the Administrative Record for the site before it issues the proposed response action for public comment. While the region is expected to give the board's recommendations substantial weight, other important

factors, such as subsequent public comment or technical analyses of response options, may influence the final regional decision. The board expects the regional decision maker to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. It is important to remember that the NRRB does not change the Agency's current delegations or alter in any way the public's role in site decisions.

Overview of the Proposed Action

The NRRB reviewed information on two proposed cleanup actions at the U.S. Department of Energy (DOE) Hanford site. The first addresses 45 waste burial grounds located in the 100 Area and the second, identified as "300-FF-2," addresses 57 waste sites located in the 300 Area. The 100 Area burial grounds were used for near-surface disposal of wastes containing radioactive and hazardous constituents generated during operation of the Hanford site's nine former plutonium production reactors. The 300-FF-2 consists of 47 radioactive and hazardous constituent non-burial ground sources, seven general content burial grounds, two transuranic waste burial grounds and an area underlying the 316-4 Crib, which is associated with groundwater contamination.

For both operable units, DOE considered three remedial alternatives: (1) no action; (2) remove/treat/dispose of wastes on site (RTD); and, (3) containment of wastes in place. Future land use in the 100 Area (adjacent to the Columbia River) is assumed to be residential, while future land use in the 300-FF-2 Area is assumed to be industrial. The decisions to clean up the 100 Area and 300-FF-2 were based primarily on historical data and experiences gained in the cleanup of similar sites at Hanford. The preferred alternative for both proposed cleanups is the RTD alternative. Although more expensive than in-place containment under EPA's net present value approach to cost estimation, the preferred alternative would consolidate wastes in an on-site engineered disposal facility, characterize and treat excavated wastes to meet land disposal and other waste acceptance procedures, and release the 100 Area and 300-FF-2 lands for future use. (The board notes that potential ground water actions for these and other Hanford areas will be considered in future records of decision).

NRRB Advisory Recommendations

The NRRB reviewed the informational package for this proposal and discussed related issues on January 12, 2000, with EPA site managers Dennis Faulk and Mike Goldstein (for 100 and 300 areas, respectfully), Hanford Project Manager Doug Sherwood, and State of Washington officials Alex Stone, Rick Bond, and Alisa Huckaby. Based on this review and discussion, the NRRB offers the following comments.

- Based on the regional and state presentations to the board, the remediation goals for radionuclides appear to be driven by a Washington State ARAR. If so, this ARAR should be cited as the source of the remediation goals for radiological contaminants in site decision documents (not OSWER Directive #9200.4-18, 9/22/97, as indicated in the site package). Further, since this ARAR is based on radiation dose rather than carcinogenic risk only limited information was provided in terms of site baseline risks, and expected post-remedy residual risk. Given that there are multiple contaminants (both radionuclides and non-radionuclides) being addressed at this site, DOE should explain in site decision documents how the combination of ARAR (dose) - based goals (for radionuclides) and risk-based goals (for non-radionuclides) will achieve cumulative residual risks within the NCP cancer risk range.

- The board recognizes that an operational exposure rate approach (that is, use of field instruments that measure direct exposure rate of penetration radiation) can help ensure cost effective excavation during remedial action (a concept which is discussed in the recent OSWER Directive 9200.4-31P). However, DOE should verify residual contaminant levels to ensure that residual contaminant concentrations meet risk and/or ARAR based remediation goals. DOE's decision documents should specify the maximum allowable residual soil cleanup concentrations (contaminant-specific risk and/or ARAR based remediation goals), along with the overall cumulative carcinogenic and non-carcinogenic risk goals.
- Comments submitted by DOE and other information presented to the board described several possible cleanup scenarios supporting a "reasonably anticipated future land use" determination for the 100 Area (e.g., unrestricted; residential; recreational; tribal; wild and scenic river). The board notes that this land use determination may affect proposed cleanup plans (e.g., excavation depth or cleanup levels for protecting groundwater and surface water). It therefore urges DOE to clarify its future land use expectations, incorporating stakeholder concerns and land use assumptions, prior to issuing a proposed plan for this operable unit.
- The Remedial Action Objectives (RAOs) for groundwater and the Columbia River seek to prevent contaminant migration through soil such that concentrations reaching groundwater and the river do not exceed ARARs or risk-based levels. DOE did not specify these ARARs or risk-based criteria in the materials presented to the board. The board recommends that DOE specify these levels and document how the preferred alternative will achieve the groundwater and surface water RAOs. In addition, the board recommends that DOE either clarify how the stated RAO for groundwater applies to the 316-4 crib, or identify an RAO specific to the crib area groundwater.
- The information provided to the board did not identify the cleanup goals that would address direct exposure risk in the upper 15 feet of contaminated soil, or the groundwater risks associated with contaminants at any depth. The board recommends that DOE identify these cleanup goals and describe its excavation plans, including the strategy that will guide excavation below 15 feet.
- The information presented to the board did not identify clearly the potential federal and state ARARs that address cleanup levels, e.g., statutes and regulations regarding the depth and levels for cleanup in residential and industrial use scenarios. The board recommends that DOE identify all potential ARARs in its decision documents for the site and explain how they affect the proposed cleanup.
- The information presented to the board on the RTD alternatives does not discuss whether institutional controls (ICs) are necessary to prevent disturbance of contamination left in place at depth (i.e., below 15 feet). If DOE plans ICs for these materials or areas, then the decision documents should clearly describe the controls and the authorities responsible for implementing and maintaining them.
- As presented in the package reviewed by the board, there are a number of activities and actions that have a significant impact on the overall cost of the proposed remedies (e.g., variability in volumes, possible off-site disposal). The board recommends that DOE

include in its decision documents the key assumptions used in developing volume and disposal options, related cost estimates, and major uncertainties associated with those costs.

- The board believes that overhead, general & administration, and project management costs for what is principally a waste consolidation action appear excessive when compared to non-DOE cleanup estimates for similar remedial actions. The board recommends that DOE perform a thorough review of the cost assumptions to ensure realistic cost estimates in site decision documents.
- Based on the information provided, the board notes that the major cost driver for the 300 Area remedy is the RTD of the 618-10 and 618-11 transuranic (TRU) waste burial grounds. While the board supports the RTD proposal for the TRU waste, the board encourages DOE and the Region to explore ways to minimize the substantial cost of this action.
- The board notes that substantial costs for operation and maintenance (O&M) for disposing of 300 Area wastes at the on-site Environmental Restoration Disposal Facility (ERDF) are included as costs attributed to this action. Through its discussion at the meeting, the board learned that the ERDF record of decision (ROD) (supporting a separate CERCLA action at Hanford) was amended to include disposal of these 300 Area wastes (also). Thus, it is not clear whether these O & M costs should be considered in this current proposed decision, or whether they have been addressed already in the ERDF ROD amendment (and so should be subtracted from the costs associated with this current RTD proposal). The board recommends that DOE clarify in the decision documents how the O&M costs are allocated to avoid double counting.
- The package did not provide the logic for making cleanup decisions at the 20 “plug in” candidate sites and other new sites which may use the “plug-in approach” in the 300 Area. The board recommends that clear criteria for determining whether a site plugs into this remedy be explicitly documented. DOE should also explain the public participation process that will be used during the plug-in decision making. In the interest of conserving resources, DOE should consider streamlining the plug-in process by including detailed plug-in criteria in the ROD to minimize the need for ROD Amendments and “explanations of significant differences” (ESDs) for relatively low cost or simple areas.
- The materials presented to the board mention a Nuclear Regulatory Commission guideline that an intruder at the site must not receive a dose exceeding 500 millirem. DOE appears to present this dose as an acceptable exposure level, which would be inconsistent with OSWER Directive 9200.4-18 which indicates that dose limits above 15 millirem/yr are not considered protective. The board recommends that DOE clarify the origin of this number, how it is used in the risk scenario, how it relates to the CERCLA risk range, and how its use is considered protective at this site.

The NRRB appreciates the region’s efforts to work closely with DOE, the state, and community groups at this site. We encourage Region 10 management and staff to work with their regional NRRB representative and the Region 4/10 Accelerated Response Center in the Office of Emergency and Remedial Response to discuss any appropriate follow-up actions.

Thank you for your support and the support of your staff in preparing for this review. Please give me a call at 703-603-8815 should you have any questions.

cc: S. Luftig
T. Fields
B. Breen
J. Woolford
C. Hooks
R. Hall
OERR Regional Center Directors
M. Goldstein
D. Sherwood, DOE
D. Faulk
W. Pierre