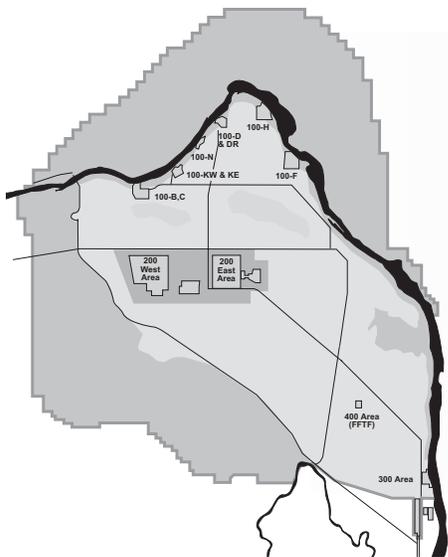


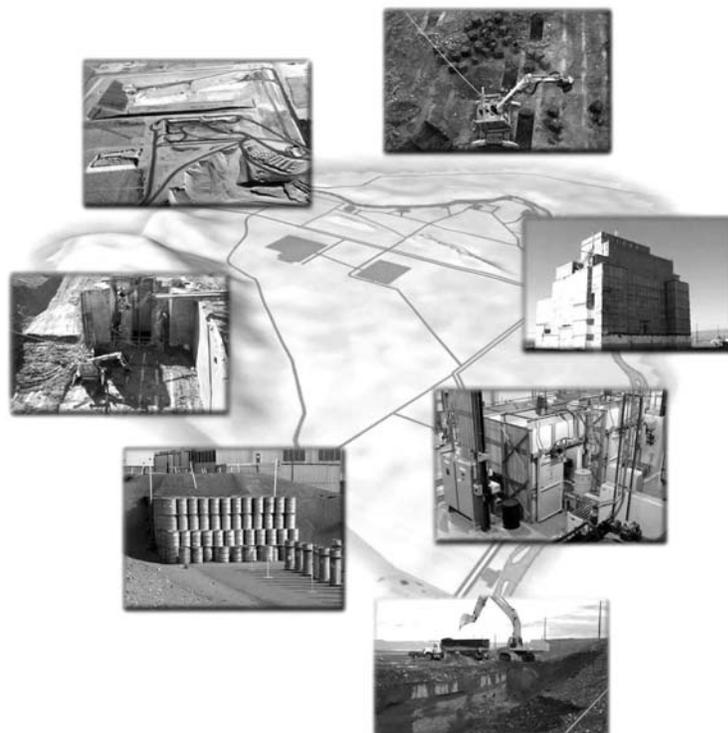
Revised Draft Risk-Based End States Vision Document

April 2004



The Hanford Site Risk-Based End States (RBES) Vision will assist the U.S. Department of Energy (DOE) in developing nationwide cleanup strategies that are adequately protective of human health and the environment based on the anticipated future land uses. At Hanford, those land uses were selected by DOE in a Record of Decision (ROD) consistent with the September 1999, Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (CLUP EIS), which had public, stakeholder and regulatory involvement, and the June 9, 2000 National Monument Proclamation (NMP) by President Clinton.

The RBES vision document is not a decision document and is in no way a substitute for existing regulatory processes. It is intended to get interested parties thinking about the end of Hanford cleanup and what the areas of the site should look like at that time. To that end, public input is critical, and all those who share their visions for what Hanford should ultimately look like will be heard. The hope is that the document will assist future cleanup decision-making by providing an evaluation of cleanup alternatives in relation to short-and long-term risks to on-site workers, ecological resources and the general public. The vision may lead to proposals to modify individual cleanup actions being implemented under existing decision documents. Any such proposals for change would be pursued through the normal regulatory processes, which include public input and involvement.



Background

In November 2003, DOE issued its draft RBES Vision document for public review. The draft document identified the current baseline end states as the RBES Vision. Four regional public meetings were held to discuss that draft and comments received from those meetings along with others submitted to DOE were included in the draft sent to DOE Headquarters (DOE-HQ) for review at the end of December, 2003.

What Is The Revised Draft RBES Vision Document?

Based on DOE-HQ's review and on additional DOE RBES guidance, Hanford has prepared a revised draft RBES Vision that compares



Public Meeting

Three public workshops are currently scheduled for **June 23-24, August 10-11 and September 14-15** to get your input in order to develop a clear picture of the Hanford Site when cleanup is complete.

Information on the workshops can be located at http://www.hanford.gov/docs/rbes/es_index.cfm under "Public Involvement Schedule". If you plan to attend, please RSVP via email at rbes@rl.gov or call Yvonne Sherman at (509) 376-6216.

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the cleanup end state reflected in the current baseline to a cleanup end state specifically based on risks to the “reasonably anticipated” future land users.

Suggested changes, or variances, to the current baseline activities are identified and discussed in the revised draft RBES Vision document. These include potential changes to Hanford cleanup that might occur if the suggested variances went through the regulatory processes and were incorporated into cleanup plans. The document also identifies possible barriers to implementing the variances and recommendations for potential steps toward achieving the RBES Vision.

The revised draft RBES Vision will be shared with Hanford regulators and stakeholders this spring. DOE is also planning public workshops (in the May/June, 2004 timeframe) to allow for meaningful dialogue on the public’s expectations for the Hanford Site post-cleanup. Regional public meetings during the summer will also be considered if requested. DOE believes there is a great deal of flexibility in the parameters of the document and wants to hear comments. An example is helping to define a reasonable Tribal exposure scenario that would realistically predict potential risk due to remaining contaminants. DOE will adopt an RBES Vision for Hanford after consideration of comments and corresponding changes to the draft document.

What Is Discussed In The Revised Draft RBES Vision Document?

The RBES Vision is based on the reasonably anticipated future land uses identified in the CLUP. Under the RBES Vision there is no residential or groundwater use. Institutional and other controls will be used to restrict uses to those identified in the CLUP up to 1000 years, where appropriate. Cleanup must achieve annual radiation dose rates and chemical exposures to the anticipated land users within the acceptable Comprehensive Environmental Response, Compensation and Liability Act, (CERCLA) risk range and be adequately protective of ecological resources.

The RBES land use and receptors (e.g., worker, recreational user) for major areas of Hanford include:

100 Area - Conservation/Preservation land use for the recreational user, non-resident park ranger and tribal user

200 Area Core Zone - Industrial Exclusive land use for industrial nuclear and non-nuclear worker

200 Area Outside Core Zone - Conservation/Preservation land use for the recreational user, industrial worker (mining for borrow material), non-resident park ranger and tribal user

300 and 400 Areas - Industrial general use for industrial non-nuclear worker

The following is an overview of current cleanup activities and those proposed under the RBES Vision. When compared to the baseline, the RBES Vision is believed to reduce risks to workers from cleanup activities and reduce risks on and off site from transportation activities, while achieving a regulatory compliant cleanup that provides adequate long-term public health and environmental protection.

Groundwater

The primary pathway for Hanford contaminants to reach humans and the environment is through the groundwater. The risk to the environment and to the public from contaminated groundwater plumes have been examined by DOE, U.S. Environmental Protection Agency, and the Washington State Department of Ecology. Interim measures, documented in RODs for interim action, primarily apply pump-and-treat systems to address groundwater plumes that were thought capable of migrating from the Central Plateau or thought to pose a risk at the Columbia River. RODs for interim action for groundwater in the 100 Area are designed for containments of existing plumes. RODs for interim action for groundwater in the 200 Area are designed to reduce the mass of contaminants in the aquifer and to contain plumes of carbon tetrachloride, uranium, and technetium-99. There are no groundwater RODs for interim action designed to clean up Hanford groundwater for consumptive use. It is anticipated that protection of the Columbia River environmental resources and its users will remain the priority driving Hanford groundwater cleanup decisions. The existing groundwater plumes will be remediated to the extent practicable. CERCLA processes will be initiated to determine the final groundwater cleanup requirements.

Groundwater Under the RBES Vision

Under the RBES Vision for groundwater (and the current end state), protection of the Columbia River environmental resources and its users remain the foremost priority. Source control and groundwater containment and treatment actions will be employed as necessary to assure protection of the river and to address uncontrolled degradation.

100 Area

The 100 Area contains a total of 550 waste sites of which 45 are solid waste burial grounds. As of September 2003, 192 waste sites have been remediated, not including any burial grounds. An additional 230 waste sites are expected to require excavation. Even though the current cleanup plan assumes restrictions on groundwater use, the qualitative risk assessments supporting the RODs for interim action for the 100 Area waste sites and solid waste burial grounds assumed residential land use including farming with 36.5 inches of annual irrigation and precipitation and no attenuation due to natural radioactive decay. These RODs require excavation to 15 feet due to possible basement excavation and to limit annual dose for unrestricted users to 15 mrem/yr. The over 2,000 metric tons of K Basin fuel will be repackaged and stored at the Canister Storage

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Building (CSB) until it can be shipped to a geological repository. The baseline for the estimated 50 cubic meters of K Basin sludge is removal and storage in T Plant in special containers for over 10 years.

100 Area Under the RBES Vision

The RBES vision proposes that remedies be selected using exposure scenarios based on conservation/preservation land use and no further degradation of groundwater based on the drinking water standard of 4 mrem/year to a receptor from the groundwater pathway. No irrigation or ground water use is envisioned. Land use will be restricted to surface uses consistent with the CLUP and National Monument designation. These land uses include recreational activities, non-resident park ranger activities and tribal uses. Annual radiation dose rates and chemical exposures to these users must be within the acceptable CERCLA risk range. Based on these exposure scenarios, the RBES Vision could result in containment of some waste sites instead of excavation. Eight of the nine reactors and reactor piping in the Columbia River bed could be left in place. The RBES Vision for the K Basins fuel is the same as the current baseline. The RBES Vision for the sludge is to remove the small amount of fuel pieces in the sludge and package as with the regular fuel, then grout and dispose the remainder either on or off site based on meeting Waste Acceptance Criteria (WAC).

200 Area (Central Plateau)

The Central Plateau is an approximately 75 square mile area in the center of the Hanford Site. The Core Zone is 25 square miles within the Central Plateau that contains the 200 Area (200 East and 200 West). It contains 900 excess facilities including five massive chemical processing facilities, or “canyons”, the Plutonium Finishing Plant (PFP) and the main waste disposal areas for wastes generated from Hanford cleanup and from off site. Approximately 53 million gallons of radioactive material are stored in 149 single shell tanks and 28 double shell tanks. Approximately 2,000 metal capsules of cesium-137 and strontium-90 are located in the Central Plateau. Approximately 1,000 waste sites including 36 burial grounds/landfills are within the Central Plateau. Sixty-nine waste sites (three landfills) are outside the Core Zone. Only one waste site has been remediated within the Core Zone. To date, no interim or final RODs are in place for the waste sites in the Central Plateau. Inside the Core Zone risks are evaluated for a standard industrial scenario in the 0 - 15 ft. zone and for protection of groundwater from the surface to the water table with 15 mrem/yr as the radiation exposure limit and protection of groundwater from the surface to the water table. After 150 years an intruder scenario is evaluated for a rural resident with no groundwater use with 15 mrem/yr as the radiation exposure limit. Outside the Core Zone risks are evaluated for industrial worker, rural residential, recreational, and tribal uses. No groundwater use is assumed.

Current baseline actions include: Up to 99% of the tank waste will be removed and separated into high-level and low-level fractions. The high-level waste will be vitrified for storage and shipment to a national repository for disposal. The remaining low-level waste will be vitrified or treated with supplemental technology and disposed of on site in a lined disposal trench planned for the central area of the Hanford Site. Highly contaminated materials will be removed from the five canyon facilities and capped (e.g., engineered barrier) after partial demolition. The Plutonium Finishing Plant (PFP) will be demolished to slab-on-grade. Transuranic (TRU) materials will be retrieved from storage and disposal areas, treated and shipped for disposal at the Waste Isolation Pilot Plant (WIPP) in New Mexico. Underground piping will be removed, treated as needed and disposed. Waste sites will be excavated for consolidation to minimize the footprint of subsurface contamination and the number of surface barriers needed. Cesium and strontium capsules will be stored until shipped to a geologic repository by 2020.

200 Area (Central Plateau) Under the RBES Vision

The 200 Area Core Zone would be limited exclusively to industrial and radiation workers and authorized visitors. Cleanup will achieve annual radiation dose rates and chemical exposures to these users within the acceptable CERCLA risk range. The exclusive industrial activities resulting in worker exposure within this area will be governed by applicable occupational radiation protection and health and safety standards. Outside the Core Zone exposure scenarios would be based on conservation/preservation land use such as the non-resident park ranger, some mining (for borrow material), recreational and tribal uses. Actions to prevent further degradation of groundwater will be based on 4 mrem/year groundwater standard.

The RBES Vision proposed actions include: retrieval of tank waste based on risk consistent with CLUP land use scenario and closing tanks under CERCLA. Integration of all Central Plateau remediation and infrastructure activities on a “zone” basis to optimize cleanup actions. Using the zone approach, waste site and facility cleanup, infrastructure alignment, and tank farm closures will be prioritized to address the highest risks. Waste sites will be removed and consolidated to disposal areas which may include the five canyon facilities and PFP as much as is practicable and cost effective. Surface barriers will be used for the facility and waste site locations to provide groundwater protectiveness and prevent the spread of contamination on the surface. TRU wastes placed in retrievable storage will be retrieved, treated, and shipped to WIPP. The cesium and strontium capsules will be put in dry storage for up to 50 years to allow for radioactive decay before the final capsule disposition is determined. The strontium capsules may meet onsite disposal criteria prior to the end of the Environmental Management cleanup mission.

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300 and 600 Areas

The 300 Area contains approximately 195 waste sites, of which 13 are burial grounds. Sixty-eight waste sites have been remediated including five burial grounds as of September 2003. About 120 additional waste sites are expected to require excavation. RODs for interim action for the 300 Area waste disposal sites and solid waste burial grounds require excavation to 15 feet based on the default Model Toxics Control Act (MTCA) industrial cleanup scenario in the absence of a 300 Area site specific industrial scenario. This excavation depth considers risks posed by possible basement excavation and limits the annual dose for industrial workers to 15 mrem/yr. Contamination is assumed to be at the surface for direct exposure. Removal of approximately 150 facilities will be necessary to access 40 waste sites for excavation.

Eight waste sites/burial grounds exist away from the industrialized 300 Area in the 600 Area. They are located in areas surrounded by undisturbed desert habitat. Discussions are underway with EPA to clean up these burial grounds to an unrestricted surface use, similar to the actions being conducted in the 100 Areas.

300 and 600 Areas Under the RBES Vision

The RBES vision proposes that site specific industrial exposure scenarios be developed to estimate direct exposure to surface soil and exposure during foreseeable limited excavations. Actions to prevent further degradation of groundwater will be based on 4 mrem/year groundwater standard. Annual radiation dose rates and chemical exposures to these users must also be within the acceptable CERCLA risk range. Based on these exposure scenarios, the RBES could result in containment of some waste sites instead of excavation.

Fact Sheet

Department of Energy
P.O. 550 MSIN A7-75
Richland WA, 99352