

Overview of Pertinent Hanford Advisory Board Advice

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*Presented at the October 5, 2010 Committee of the Whole Workshop:
An Introduction to Hanford's Radioactive Solid Waste Burial Grounds*

HAB Advice Overview

15+ years of consistent HAB advice about buried waste and burial grounds:

- Integrate characterization and Cleanup
- Characterize Burial Grounds and Cease Importation of Waste
- Regulate Burial Grounds appropriately (e.g., monitoring, leachate collection systems)
- Perform additional analysis
- Consider the cumulative impact of all Hanford waste decisions
- Do not import offsite waste and eliminate the use of unlined trenches
- Retrieval, Treat, Dispose (R-T-D) is preferable to institutional controls and caps
- Long-term protectiveness is a high priority (Institutional controls and caps over waste sites are not proven to be protective in the long-term)

M-91 Change Package (2004)

- TPA should contain milestones for characterization of CH- and RH-TRU suspect mixed waste from the 200 Area burial grounds
- TPA should not allow non-compliant storage of TRU waste

Hanford Buried Waste (2005)

- In order to appropriately plan for environmental remediation, DOE should characterize all areas on the Hanford site containing radioactive or chemical contamination. Only in the simplest cases should the agencies consider relying solely on historical process information. Rather, decisions should be supported by field sampling and analysis. DOE should include the presently unquantified/uncharacterized contaminated/hazardous materials in planning retrieval, treatment and disposition processes based upon risk to the environment and the public, and in compliance with all applicable laws.
- DOE should request and make available funds to adequately characterize and carry out the resulting plans to safely dispose of these large volumes of potentially contaminated wastes and environmental contamination. DOE baselines should include this scope of work.

Central Plateau Values (2005)

Three Board biases:

1. The Board's ideal for remedial action at all Central Plateau wastes sites is to first characterize, then retrieve, treat and dispose of all wastes
2. Hanford waste that remains on-site must be left in a facility or configuration that will be protective of human health and the environment for generations to come. If there is any risk of contamination migrating to the groundwater, the Board has a bias to remove, treat and dispose.
3. Barriers should be a last resort remedy. TPA should use a values-based algorithm for Central Plateau remediation decision-making.
 - Has the waste been adequately characterized?
 - Does the waste site require action? (consider risk)
 - Are retrieval technologies available
 - Are treatment technologies available?
 - Are disposal alternatives available?
 - Are retrieval, treatment and disposal alternatives more protective of human health and the environment than leaving the waste in place?

Criteria for Proposed Plan for 200-PW1, 3, and 6 (2008)

- TPA agencies should commit to adequate characterization of the 200 Process Wastes (PW) 1, 3, and 6 and the removal, treatment and disposal to the extent practicable of all these plutonium-rich wastes
- TPA agencies should ensure that soils contaminated with transuranic elements disposed of prior to 1970, post 1970 transuranic (TRU) waste, and mixed TRU waste will be retrieved and have a pathway for disposal into the Waste Isolation Pilot Plant

Central Plateau Cleanup Completion Strategy (2010)

- The Board suggests the burial grounds in the Central Plateau need the attention and characterization that the dangerous wastes potentially contained there deserve. The Board urges DOE to drop the presumptive remedy approach, and give these waste sites proper attention.
 - In some cases it may be less costly to simply RTD the material in a burial ground than to spend money to fully characterize the site.
- Unlined trenches and cribs or other liquid waste discharge units need actual and adequate characterization to determine their contents, and to determine the extent of their current and future threat.
 - These are not analogous to closing landfills. The presumed remedy for these sites should be retrieval and treatment to the extent practicable in keeping with Washington State's waste management and remedy priorities. Those priorities place an emphasis on retrieval to the extent practicable, before relying on caps.
- The Board encourages DOE to progress through the cleanup of Hanford with a "RTD if possible" attitude, falling back to IC's and caps only where RTD is not possible (Advice #173, and corresponding flowchart).
 - This approach will make LTS, natural resource restoration and federal control issues smaller in magnitude and easier to deal with. The Board encourages DOE to continue to monitor unlined trenches and cribs subject to closure requirements pursuant to the most stringent standards and cleanup levels under state or federal regulations, including characterization and post-closure monitoring.

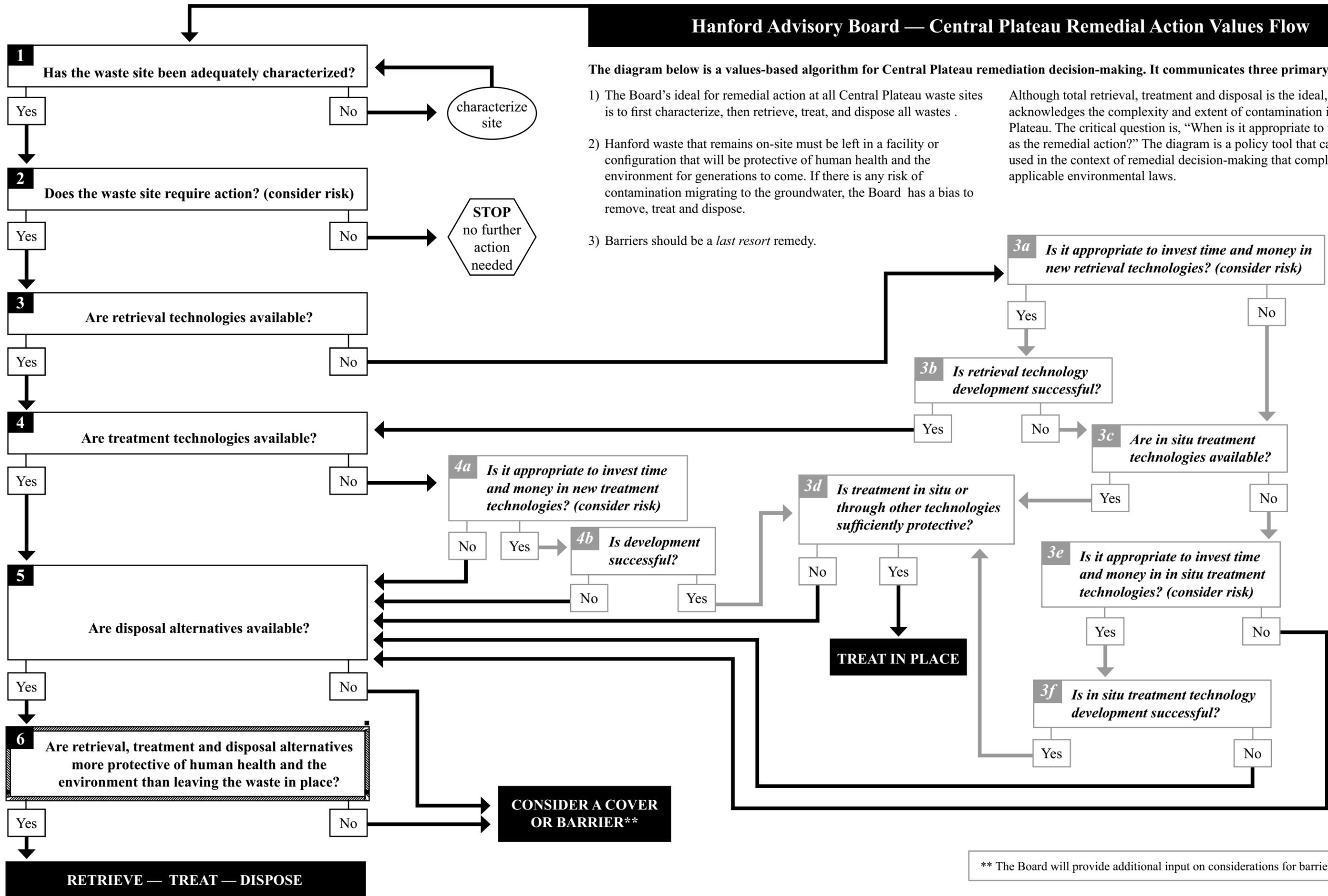
Tank Closure and Waste Management EIS (2010)

- The draft TC&WMEIS should present an alternative which does not use Hanford as a national radioactive waste disposal site for LLW or MW.
- The draft TC&WMEIS should present an alternative which will exhume and dispose off-site significant quantities of Hanford's long-lived radioactive waste (e.g., pre-1970 buried transuranic waste)
- DOE should withdraw its February 2000 Record of Decision which designated Hanford as a national waste disposal site for LLW and MW.
- The draft TC&WMEIS should include documentation of all hazardous chemical constituents (e.g., chemicals known to be disposed in or released from landfills; total uranium)
- The draft TC&WMEIS should adequately report all chemical inventories from all disposal sites at Hanford (including non-EM disposal sites, e.g. U.S. Ecology) to ensure a credible analysis of the actual and potential cumulative impact to groundwater

Proposed Changes to the TPA for Central Plateau Cleanup and for Mixed Low-Level Waste & Transuranic Mixed Waste (2010)

- Transuranic elements buried prior to 1970 should be focused on a dedicated, specific TPA milestone.
- DOE's baselines should include consideration of retrieving these transuranic elements.

Hanford Advisory Board — Central Plateau Remedial Action Values Flow



The diagram below is a values-based algorithm for Central Plateau remediation decision-making. It communicates three primary Board biases:

- 1) The Board’s ideal for remedial action at all Central Plateau waste sites is to first characterize, then retrieve, treat, and dispose all wastes .
- 2) Hanford waste that remains on-site must be left in a facility or configuration that will be protective of human health and the environment for generations to come. If there is any risk of contamination migrating to the groundwater, the Board has a bias to remove, treat and dispose.
- 3) Barriers should be a *last resort* remedy.

Although total retrieval, treatment and disposal is the ideal, the Board acknowledges the complexity and extent of contamination in the Central Plateau. The critical question is, “When is it appropriate to utilize a barrier as the remedial action?” The diagram is a policy tool that can only be used in the context of remedial decision-making that complies with all applicable environmental laws.

** The Board will provide additional input on considerations for barrier application.