Draft Advice: Proposed Plan for Remediation of the 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units (Rev 0)

Background

A Proposed Plan for Remediation of the *100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units* (DOE/RL-2011-111, Rev 0) has been completed, complete with the preferred alternative proposed for remediation. The Hanford Advisory Board (HAB) has previously provided advice to the draft Proposed Plan, and to the associated Remedial Investigation and Feasibility Study, and Tri-Party responses were received.

The Board is generally supportive of DOE's alternative analysis for the 100-D/H Areas, and agrees with the choice of Alternative 3 which includes removal, treatment and disposal (RTD) of the remaining chromium contaminated sites; capping of waste containing pipelines; and an enhanced pump-and-treatment remediation of groundwater with 80 new wells. The HAB notes the extra effort from the Tri-Party Agencies at 100-D/H in the "big digs," particularly in the more contaminated D-sites, removing concentrated chromium spills from vadose zone sediments and reducing the time it will take to pump-and-treat 100-D groundwater to an acceptable level. The proposed alternative is predicted to take 25 years to bring chromium, 13 years for nitrate, and 44 years for strontium, to acceptable levels in ground water.

The HAB continues to urge the Tri-Party Agencies that the part of the groundwater problem missing from the alternatives analysis are the co-extracted contaminants that are in groundwater with chromium. A number of metals and other elements are contaminants of potential concern that have been detected above the 90th percentile Hanford Site background level, above risk-based maximum levels, or above maximum contaminant levels (MCLs). The Proposed Plan states "Based on the results of the groundwater risk evaluation, nitrate, strontium-90, total chromium, and Cr (VI) are present in groundwater at levels that pose unacceptable risk if no actions are taken." The pump-and-treat alternatives are aimed solely at chromium reduction. The HAB continues to be concerned that the co-extracted non-chromium contaminants examined in pump-and–treat alternatives of the Proposed Plan should be considered for removal and treatment before that water is reinjected. The Board restates its position about its preference for treatment of the co-extracted non-chromium contaminants instead of dilution.

Given that strontium was reported to be above the Drinking Water Standard in 38 percent of detected unfiltered groundwater samples in the 100-H Area, the Board urges the Tri-Party Agencies to consider a more aggressive approach for strontium. There is no provisional fallback remediation plan provided in the Proposed Plan for strontium if Monitored Natural Attenuation (MNA) is found not to work.

There are at least seven waste sites listed in deep decision units (vadose zone below fifteen feet below ground surface) with isotope concentrations that exceed risk levels that should require action. The isotopes within these waste sites are predicted to take more than 100 years to decay

to activity levels that are less than residential screening Levels (spans of time that range from 112-190 years).

Advice

- The Board advises the Tri-Party Agencies to adopt Alternative 3, with the below modifications:
    - Insure the removal and treatment of the co-extracted non-chromium contaminants that exceed drinking water standards before treated water is re-injected.
    - Remedial action beyond MNA should be taken for the strontium contamination to prevent it from entering the river.
- The Board advises DOE to not adopt Institutional Controls and Monitored Natural Attenuation if the period to reach remediation goals exceeds 100 years. The Board believes such a long time frame defies the reasonable ability to control the site and maintain the surveillance that will be necessary to keep intruders and other people from harm.
- The Board advises the TPA agencies to prepare materials for use during the public comment period for the 100-D/H Proposed Plan that clearly communicate:
    - Where contamination in the 100-D/H area originated during plutonium production, how contamination spread in the environment and how it is monitored,
    - How the interim decision-making process works, what interim decisions were made at 100-D/H, and when those decisions went into effect,
    - What interim cleanup work has been completed,
    - What cleanup work remains that is discussed in this Proposed Plan,
    - What future cleanup work will remain after the 100-D/H ROD proposed work is done, such as reactor dismantlement and restoration, and what the estimated timeframe is for that work,
    - How 100-D/H may be used as template for other 100-Area decisions.