

*Possible Draft HAB Comments for  
Remedial Investigation/Feasibility Study and Proposed Plan for the 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2 and 100-HR-3 Operable Units, (DOE/RL-2010-95 and RL-2011-111, Draft A).*

- The Board supports the decision to proceed with remediation of the 100-D/H River Corridor areas, and is generally supportive of DOE's alternative analysis for the 100-D/H Areas.
- Alternatives 2, 3 and 4 do not meet TPA cleanup milestones by 2020 (M16-110-T02).
- Agree with the choice of Alternative 3 which includes remove-treat-dispose of 11 waste sites for chromium contamination, grout filling of five water pipes, and enhancing pump-and-treatment of groundwater with 82 new wells. 100-D/H alternative 3 represents a decreased time frame for cleanup of chromium groundwater contamination (12 years), and of the nitrate plume (6 years).
- The part of the groundwater problem that is missing from the alternatives analysis are all of the co-extracted contaminants of concern. Antimony, arsenic, cadmium, carbon tetrachloride, chloroform, cobalt, copper, fluoride, gross alpha, gross beta, iron, lead, manganese, mercury, nickel, nitrate, nitrite, selenium, silver, strontium-90, sulfate, technetium-99, tetrachloroethene, thallium, tritium, uranium, vanadium, and zinc are COPCs that have been detected above the 90th percentile Hanford Site background level, risk based levels, or maximum contaminant levels (MCLs). The pump-and-treat alternatives all appear to be solely aimed at chromium reduction. The pump-and-treat alternatives fail to address any type of treatment of non-chromium contaminants, and doesn't plan for how these co-extracted contaminants will be treated and reduced before reinjection.
- Perhaps the most important deficiency in this alternative is the decision not to deal with the strontium-90 plume. 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, a more aggressive approach to the strontium is necessary. Using 44 years of recirculating pump-and-treat groundwater and monitored natural attenuation (MNA) does not seem prudent. There is also no provisional remediation plan for strontium if MNA is found not to work.
- Because the 100-H strontium ground water plume occurs immediately adjacent to the river, it should be addressed. Recommend that PRB technology already proven effective at Hanford be employed to immobilize the strontium in place much more quickly and better protect the Columbia River. The apatite Permeable Reactive Barrier (PRB) was tested and found effective at 100-N Area. A relatively short section (200-300 meters) of PRB should be established at the down-gradient end of the 100-H strontium plume to capture that contaminant and prevent it

*2/5/14: Preliminary issue manager discussion draft; path forward TBD*

from entering the river. The 100-D/H Proposed Plan and preferred alternative (Alternative 3) could be improved with installation of an apatite-based permeable reactive barrier.

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