



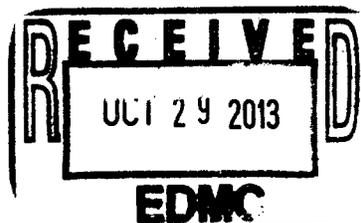
STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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October 24, 2013

13-NWP-110

Mr. Mark S. French, Federal Project Director
Richland Operations Office
PO Box 550, MSIN: A6-38
Richland, Washington 99532



Re: Waste Site 100-D-104 Excavation Alternative Hexavalent Chromium Cleanup Levels for the Southeast Corner Sidewall and Floor

Dear Mr. French:

The Department of Ecology is informing the United States Department of Energy (USDOE) that alternative cleanup levels for hexavalent chromium above 2 mg/kg may be applied only to the excavated area of the Waste Site 100-D-104 for the sidewall samples collected along its southeast wall from 65 feet to groundwater.

This is based on the meeting with USDOE and its contractor on October 10, 2013, to discuss hexavalent chromium concentration values exceeding 2 mg/kg in the southeast corner of the excavation of 100-D-104

The following criteria must be met to apply these alternative cleanup levels.

- The waste site must be dug to groundwater under the excavation's current footprint.
- Sidewall samples along the southeast wall must be taken for hexavalent chromium and total chromium along with the current soil sampling and analyses for in-process and verification sampling.
- Soil sampling analysis must be done on the soil BEFORE any leach test is started. A pH of the soil needs to be taken along with specific conductance and bulk density.
- Leach tests at 100-D-104 for both the silt sediments along the floor at the current elevation (65 feet) level and the sand sediments to the west must be collected.
- Leach testing must be conducted using ASTM D3987-06 and, as stated, in the *D/H Remedial Investigation Sampling and Analysis Plan* (DOE/RL-2009-40, Page 2-127) with the following exceptions:
 - Leach tests must be conducted using deionized water adjusted to the pH of the soil and as described using ASTM D3987-06.
 - No composite samples will be used. All soil samples will be based on a core sample as much as possible.

- Perform both column tests and roller tests specified in ASTM D3987-06 for comparison of methods.
- Collect a minimum of five samples from each lithologic unit (sand and silt) at the 65-foot level.
- Hexavalent chromium concentrations must be taken from all samples to provide concentration versus distribution coefficient (Kd) values.
- For soils beyond the current footprint of the excavation, provide the minimum hexavalent chromium concentration and its potential area that would remain beyond the sidewall towards the west for purposes of residual contaminant migration to the groundwater from the vadose zone.
- For soils beyond the current footprint of the excavation, provide the maximum hexavalent chromium concentration and its potential area that would remain beyond the sidewall towards the west for purposes of residual contaminant migration to the groundwater from the vadose zone.
- The lowest Kd value will be used for the southeast corner of the 100-D-104 excavation based on factors related to representative soil physics and hexavalent chromium concentrations from the column versus batch leach testing. This Kd value will provide a conservative value for cleanup.

Based on the results of the soil leach tests, a new cleanup value for this waste site as it relates to the southeast wall of the excavation will be established not to exceed 6 mg/kg. The basis of the 6 mg/kg comes from a Kd for hexavalent chromium of 0.8 ml/g in the current *Remedial Investigation/Feasibility Study for the 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units*.

If this concentration value along the southeast wall or in the floor next to the sidewall, or the sidewall exceeds 6 mg/kg, the excavation will be expanded by Remove, Treat and Disposal methodology.

If there are any questions, please contact me at nina.menard@ecy.wa.gov or (509) 372-7941.

Sincerely,



Nina Menard
Environmental Restoration Project Manager
Nuclear Waste Program

dc/tkb

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