Department of Energy
Washington, DC 20585

September 13, 2012

Mr. John Lehew III
President and Chief Executive Officer
CH2M HILL Plateau Remediation Company
PO Box 1600
Richland, Washington 99352

NEL-2012-02

Dear Mr. Lehew:

The Office of Health, Safety and Security's Office of Enforcement and Oversight has evaluated the facts and circumstances of a series of radiological work deficiencies at the Plutonium Finishing Plant (PFP) and the 105 K-East Reactor Facility (105KE Reactor) by CH2M HILL Plateau Remediation Company (CHPRC).

The radiological work deficiencies at PFP are documented in the April 29, 2011, Department of Energy Richland Operations Office (DOE-RL) Surveillance Report S-11-SED-CHPRC-PFP-002, *Planning and Execution of Radiological Work.* S-11-SED-CHPRC-PFP-002 documented four examples where inadequate hazard analysis resulted in airborne radioactivity that exceeded the limits of the controlling radiological work permit:

1. On December 29, 2010, when workers used a circular saw to cut pieces from a glove box.
2. On January 25, 2011, when workers used a circular saw to size reduce a glove box.
3. On March 28, 2011, when four workers received small uptakes of plutonium while disassembling a Plexiglas window with a contaminated neoprene gasket.
4. On April 6, 2011, when workers used a crow bar to remove a liner from a glove box.

In addition to these four events, S-11-SED-CHPRC-PFP-002 documented significant programmatic deficiencies in the planning, hazard analysis, and execution of radiological work, which extended beyond the work at PFP. The report also documented deficiencies in training, procedures, radiological staffing, and conduct of operations.

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The radiological work deficiencies at the 105KE Reactor occurred in early January, 2011, as documented in the CHPRC Hanford Lessons Learned/Operating Experience Information Bulletin, 2011-RL-HNF-0042, *Control Rods Inadvertently Pulled from 105KE Reactor during Demolition*. The 105KE Reactor has horizontal control rods (HCR) with rod extensions used to control position. The demolition work plan called for using an excavator to shear the rod extensions from the HCRs, removing the extensions, and leaving the HCRs in place inside the reactor core. However, the method described in the work plan was not achievable due to site conditions, and some of the HCRs were inadvertently pulled out of the reactor core.

On January 11, 2011, a total of 11 HCRs were photographed hanging from the outer wall of the 105KE Reactor control rod room. CHPRC stopped work on January 12, 2011, and reported the stop work on a Condition Report Form on January 13, 2011. The form shows that the Facility Representative was notified of the stop work at 3:10 p.m. on January 12, 2011.

Five of the HCRs (designated as #2, #3, #4, #8 and #12) in the 105-KE reactor were activated and had the potential for high dose rates. Survey records for HCR #2 taken inside the 105KE Inner Rod Room after the event showed a dose rate of approximately 3 R/hr on contact and 1.5 R/hr at 30 centimeters. However, CHPRC failed to adequately analyze the hazards and develop appropriate work controls for the activated HCRs. While CHPRC monitored for airborne radioactivity and removable contamination within the demolition zone, there was no real-time monitoring for radiation exposure. Subsequent analysis showed that there were no unexpected worker doses as a result of the unauthorized removal of HCRs, and the material in the debris pile did not exceed 150 millirem/hour. The Office of Enforcement and Oversight considers this to be a near miss for a radiological exposure event.

Based on a review of the documentation for these events, the Office of Enforcement and Oversight identified potential noncompliances with 10 C.F.R. Part 830, *Nuclear Safety Management*, and 10 C.F.R. Part 835, *Occupational Radiation Protection*. Deficiencies include inadequate hazard analysis and work control, and failure to develop and implement written procedures commensurate with the radiological hazards.

On July 7, 2011, DOE-RL transmitted S-11-SED-CHPRC-PFP-002 to CHPRC. In response to this surveillance, CHPRC initiated a cause analysis, extent of condition review, and corrective action plan (CAP). The CHPRC extent of condition review documented that the root and contributing causes applied to all CHPRC projects, and that both PFP-specific and company level corrective actions would be provided. The CAP acknowledged that CHPRC had experienced a number of work control and conduct of operation issues in recent years, and that corrective actions to address these issues were not effective in preventing recurrence. Corrective actions included centralizing the radiological control program, improving procedures, conducting training, and communicating senior management expectations for work control.

Significant improvements in radiological work planning and execution were documented in the March 30, 2012, DOE-RL surveillance report S-12-SED-PRC-007, *CHPRC Airborne Radioactivity Control Program*, which observed work and reviewed work documents, including radiological work permits. In particular, this surveillance report identified more effective use of controls and a more disciplined use of procedures and critiques.

The Office of Enforcement and Oversight also reviewed the recent CAP entitled *Non-Compliance With Contractual and Regulatory Requirements Prior to Initiating Construction on the 100K Infrastructure Utilities Upgrade Project*, which was transmitted to DOE-RL on July 13, 2012. This CAP addressed noncompliance issues that occurred around the same time as the control rod issue, at the same Decommissioning and Demolition (D&D) project, and documents that in an effort to eliminate culture that did not value procedural compliance, CHPRC replaced key line management personnel in its D&D organization.

The Office of Enforcement and Oversight is encouraged by CHPRC's recognition of the programmatic work control issues, and the progress that has been made to date as evidenced by the DOE-RL surveillances and external assessment. Accordingly, the Office of Enforcement and Oversight has elected to exercise its enforcement discretion and not pursue further enforcement activity against CHPRC at this time. In conjunction with DOE-RL and the Office of Environmental Management, we will continue to monitor CHPRC's nuclear safety performance.

No response to this letter is required. If you have questions, please contact me at (301) 903-2178, or your staff may contact Mr. Steven Simonson, Deputy Director for Enforcement, Office of Enforcement and Oversight, at (301) 903-7707.

Sincerely,

John S. Boulden III
Director
Office of Enforcement and Oversight
Office of Health, Safety and Security

cc: Matthew McCormick, RL
Kyle Rankin, RL
Lynn Nye, CHPRC