Department of Energy
Washington, DC 20585

June 24, 2015

Mr. Bobby Smith
Project Manager
Separations Process Research Unit Disposition Project
URS Energy and Construction, Inc.
2345 Nott Street East Suite 200
St. James Square
Niskayuna, New York 12309

WEL-2015-02

Dear Mr. Smith:

The Office of Enterprise Assessments' Office of Enforcement has completed an evaluation of actual and potential worker exposures to silica dust when cutting concrete on October 3 and October 6, 2014, as part of the work associated with preparing building G-2 for demolition at the Department of Energy's (DOE) Separations Process Research Unit in Niskayuna, New York. URS Energy and Construction, Inc. (URS) reported the noncompliances associated with the silica dust exposures into DOE's Noncompliance Tracking System (NTS) report NTS--SPRU-URSWD-SPRU-2015-0001, *Silica Overexposure as a Result of Concrete Cutting*, dated January 23, 2015. The Office of Enforcement is issuing this letter to convey its concerns regarding URS's worker exposure monitoring practices and sampling strategy in light of the October 3 and October 6 silica dust exposures.

Based on our evaluation of the information associated with the silica exposures, the Office of Enforcement determined that URS did not appropriately plan and execute the concrete-cutting work performed by its subcontractor Witch Enterprises. URS personnel working inside and outside the work enclosure were exposed to silica dust in excess of established permissible exposure levels and Threshold Limit Values (TLVs).

On October 3 and October 6, 2014, a Witch Enterprises employee used a water-cooled saw to perform vertical cutting of a concrete wall in building G-2, room 104. The operation was performed inside a curtain enclosure with limited ventilation, supported by personnel working outside the enclosure. URS determined that respiratory protection was not required based on an exposure assessment of previous silica air sampling collected during saw-cutting of concrete. URS's personal air samples for the saw operator in the October evolutions showed that the operator was exposed above the 2005 American Conference of Governmental Industrial Hygienists TLV of 0.05 mg/m3 and the Occupational Safety and Health Administration eight-hour time-weighted

averages (calculated) for respirable silica dust of 0.56 mg/m3 (October 3 evolution) and 0.61 mg/m3 (October 6 evolution). These are above the occupational exposure limits prescribed by 10 C.F.R. Part 851 (Part 851), *Worker Safety and Health Program*.

The Office of Enforcement identified additional aspects of URS's practices that were inconsistent with the hazard assessment and abatement requirements of Part 851. URS overlooked a number of factors when conducting exposure monitoring and sampling during the October evolutions. These conditions represent weaknesses that URS should address to prevent recurrence of similar events.

Before the October 2014 evolutions, URS collected silica dust samples once for vertical saw-cutting operations in January 9, 2014, and 10 times for horizontal saw-cutting operations between July 25 and August 20, 2014. The January work evolution, involving saw-cutting of concrete and knee-walls, was performed in building H-2 (North Annex) in an open area with good ventilation using wet methods, no containment, and no respiratory protection. URS performed this work based on exposure assessment information derived from a large open area with known good building ventilation airflow of approximately 36,000 – 42,000 cubic feet per minute (cfm).

Successful past use of wet methods to saw-cut concrete and an exposure assessment of silica air sampling from earlier saw-cutting of concrete led URS to perform the October work without the use of respiratory protection. However, the Office of Enforcement determined that the sampling underlying this URS decision was not representative of the work performed in October.

One significant difference in the January and October work conditions was that instead of performing work in an open, well ventilated area, URS used a curtain enclosure in the October evolutions, thereby considerably reducing the volume of air in the immediate area to dissipate dust. The October work also used point source ventilation of 500 cfm (which turned out to be insufficient). Furthermore, the air outside the enclosure was virtually stagnant, and URS did not consider collecting air samples for workers outside the curtain to verify that the assumptions in the exposure assessment were correct. Finally, in the January work, the saw was positioned below the operator's breathing zone, whereas in October the saw was at or above the operator's breathing zone, allowing airborne silica particles to precipitate into the worker's breathing zone.

Since the October event, URS has developed corrective actions to address issues in worker exposure monitoring when the structure configuration and the orientation of cuts during work evolutions pose potential challenges. Therefore, despite the deficiencies revealed by this event, DOE has elected to exercise enforcement discretion based on URS's thorough post-event analysis and ongoing

efforts to evaluate work evolutions with similar but not identical scopes to help identify additional controls to prevent recurrence of worker exposures. In coordination with the Office of Environmental Management, the Office of Enforcement will continue to monitor URS's efforts to maintain a safe and healthful workplace consistent with the requirements of Part 851.

This letter imposes no requirements on URS and no response is required. If you have any questions, please contact me at (301) 903-7707, or your staff may contact Mr. Kevin Dressman, Director, Office of Worker Safety and Health Enforcement, at (301) 903-0100.

Sincerely,

Steven C. Simonson
Director
Office of Enforcement
Office of Enterprise Assessments

cc: Steven Feinberg, SPRU Field Office
Jeff Selvey, URS