



Department of Energy
Washington, DC 20585

June 29, 2023

Dr. Thomas Mason
Laboratory Director
Triad National Security, LLC
Los Alamos National Laboratory
Bikini Atoll Road SM 30
Los Alamos, New Mexico 87545

NEL-2023-01

Dear Dr. Mason:

The U.S. Department of Energy (DOE) Office of Enterprise Assessments' Office of Enforcement evaluated an August 11, 2022, incident during which four Triad National Security, LLC (Triad) employees received unplanned radiation dose while performing work at the Los Alamos Neutron Science Center facility at Los Alamos National Laboratory. Based on this evaluation, the Office of Enforcement identified concerns that warrant management attention by Triad.

The exposures occurred while four employees from Triad's Accelerator Operations and Technology - Mechanical Design Engineering group were performing work at Technical Area 53, Building 0008. During the work activity that required breaching the system, the employees contacted Radiation Protection (RP), per their work procedure, for Radiological Control Technician (RCT) support to assess the area for contamination and conduct an external radiation survey. RCTs responded and determined that the employees were working in an unposted High Radiation Area (HRA), with recorded dose rates up to 1.2 Roentgen (R)/hour (roughly equivalent to 1.2 rem/hour). DOE 10 C.F.R. part 835 defines a HRA as any area accessible to individuals in which the individual could receive an equivalent dose to the whole body exceeding 0.1 rem in 1 hour. Furthermore, part 835 identifies that specific types of physical control must be used for a HRA that exceeds 1 rem in any one hour.

As a result, Triad's RCTs paused work and made notifications to RP management and the facility duty officer. The employees immediately evacuated the area, and the RCTs barricaded the area to prevent access. The RCTs also collected the employees' dosimeters for priority analysis. On August 15, 2022, Triad's dosimetry confirmed that one employee received an unplanned radiation dose of approximately 475 millirem (the annual dose limit is 5,000 millirem), most likely from the work activities conducted on August 11, 2022. Dosimeters from the other three employees were also elevated with reported doses ranging from 100 to 271 millirem.

On February 21, 2023, Triad issued *High Radiation Exposure at Technical Area 53, Building 0008, Root Cause Analysis*, Issues Management Record: 2022-7602. This report identified four root causes, that included: (1) employees reached decision fatigue, (2) over reliance on RCTs, (3) communication less than adequate, and (4) lack of effective engineered barriers.

The Office of Enforcement is concerned that Triad's radiological monitoring was not adequate in this event to demonstrate compliance with 10 C.F.R. 835, Subpart E, *Monitoring of Individuals and Areas*, which specifies the requirements for detecting and documenting changes in radiological conditions. As the potential for the presence of a HRA was not recognized during work planning activities, Triad did not establish the physical controls necessary for the protection of workers from radiological hazards prior to the start of work.

In addition, the Office of Enforcement is concerned that the causal analysis did not document the evaluation of potential weaknesses in Triad's safety management processes or in the management and oversight of radiological work. While human (worker) performance failures were identified as the direct cause of the incident, the Office of Enforcement cautions that excessive focus on worker performance may have biased the subsequent identified causal factors. Although the learning team review and subsequent causal analysis describe the work process that led to the HRA, they did not identify all specific causes or corrective actions in work planning and control, particularly with regard to the implementation of hazard controls, which contributed to the unplanned HRA. Additional causal factors may remain unidentified by Triad if safety management processes are not fully evaluated and, therefore, Triad may miss opportunities to prevent recurrence.

The Office of Enforcement has elected to issue this Enforcement Letter to convey concerns regarding: (1) potential weaknesses in Triad's radiation monitoring and controls to anticipate and detect high dose rates, and adequately control HRAs; (2) unplanned radiation exposure to employees, including one employee who received a dose of approximately 475 millirem; (3) incomplete causal analysis that did not document an evaluation of safety systems or management oversight; and (4) potentially missed opportunities to prevent recurrence.

Issuance of this Enforcement Letter reflects DOE's decision not to pursue further enforcement activity against Triad at this time. In coordination with the National Nuclear Security Administration's Los Alamos Field Office, the Office of Enforcement will continue to monitor Triad's efforts to improve RP program performance.

This letter imposes no requirements on Triad, and no response is required. If you have any questions, please contact me at (301) 903-4033, or your staff may contact Mr. Jacob M. Miller, Office of Nuclear Safety Enforcement, at (301) 903-7707.

Sincerely,

A handwritten signature in black ink, appearing to read "Anthony C. Pierpoint". The signature is fluid and cursive, with a long horizontal line extending to the right.

Anthony C. Pierpoint
Director
Office of Enforcement
Office of Enterprise Assessments

cc: Theodore Wyka, NA-LA
Venessa Chavez, Triad National Security, LLC