



Department of Energy

Washington, DC 20585

July 12, 2021

Ms. Michelle M. Reichert
President and Chief Executive Officer
Consolidated Nuclear Security, LLC
Post Office Box 30020
Amarillo, Texas 79120

NEL-2021-02

Dear Ms. Reichert:

The U.S. Department of Energy (DOE) Office of Enterprise Assessments' Office of Enforcement evaluated an incident in which an employee's dosimeter indicated a dose exceeding the limits specified in 10 C.F.R. § 835.202, *Occupational dose limits for general employees*. Consolidated Nuclear Security, LLC (CNS) reported noncompliances revealed by this event in the DOE Noncompliance Tracking System (NTS) under NTS-NA-NPO-CNS-PANTEX-2021-0010178, dated March 15, 2021. Based on our evaluation, the Office of Enforcement identified concerns that warrant management attention by CNS.

In late January 2021, CNS received data indicating that the employee's whole-body radiation dose was approximately 10 rem, which exceeded the 5 rem occupational limit specified in 10 C.F.R. § 835.202. CNS's investigation identified that the dosimeter was found inside a linear accelerator (LINAC) room, where it was exposed to radiation for an extended time during operations. CNS's investigation demonstrated that it was highly unlikely that the employee received the found dosimeter's dose or that the employee's annual dose exceeded historical levels. As a result, CNS assigned the employee a dose that was consistent with historical levels.

The Office of Enforcement identified the following concerns with CNS's actions in response to the identification of a potential regulatory overexposure and in responding to the lost dosimeter and its subsequent discovery:

- In late March 2020, the employee had not realized that they had lost their dosimeter, and weaknesses in the CNS program resulted in the employee being assigned two dosimeters for the same wear period. This situation was a missed opportunity to respond in real-time to the adverse condition. There was no documented technical reason for having more than one primary whole-body dosimeter. Any employee with more than one primary dosimeter is contrary to MNL-180413, Section 2.7.7, *Issuing Temporary and Duplicate Dosimeters*. This created an error-likely situation in which the employee did not recognize the loss or report the lost dosimeter. If the employee



had recognized the loss and reported the lost dosimeter in real-time, the period of potential dose uncertainty would have been significantly reduced. Moreover, having more than one dosimeter creates a potential weakness in demonstrating compliance with 10 C.F.R. § 835.202 due to additional uncertainty in determining which dosimeter represented the employee's dose.

- In July 2020, CNS missed another opportunity to respond to a dosimeter irregularity when a supervisor discovered the same employee's dosimeter inside the LINAC room. MNL-180413, *Radiation Safety Department External Dosimetry Manual*, does not specifically address finding a lost dosimeter. However, Section 6.3, *External Dosimetry Irregularities*, does require the external dosimetry organization to initiate, investigate, and complete an irregular dosimeter report (IDR) when an individual loses an assigned dosimeter, and that dosimeter is not found by the next scheduled processing period. Despite this related requirement, CNS did not initiate an IDR until a review of routine data was conducted in late January 2021, as discussed below. CNS did not recognize the significance of finding a lost dosimeter and missed the opportunity to restrict the employee's access to radiological areas and prevent further exposure from July 2020 through December 2020, adversely impacting CNS's ability to demonstrate compliance with 10 C.F.R. § 835.202 and 10 C.F.R. 835 Subpart E, *Monitoring of Individuals and Areas*.
- On January 28, 2021, CNS identified abnormal "raw" data from the employee's dosimeter indicating that the dose potentially exceeded the whole-body radiation limit specified in 10 C.F.R. § 835.202. On February 1, upon request from CNS, the dosimetry support provider confirmed that processing of the raw data did not change the indication of a potential overexposure. CNS restricted the employee from entry to the Material Access Area on February 2, 2021, but until questioned by the National Nuclear Security Administration (NNSA) Production Office (NPO) on February 3, did not restrict the employee from all radiological areas, nor from radiological work, nor pause operations of the LINAC suspected to be the source of the abnormally high exposure. This delay was noted in an NPO finding transmitted to CNS on February 17 in letter number COR-NPO-60 ESH-2.17.2021-906488, *Assessment Report and Finding Regarding February 2, 2021, Overexposure Event at The Pantex Plant*.

CNS did not provide adequate procedural guidance in MNL-180413 to demonstrate compliance with 10 C.F.R. § 835.202 and 10 C.F.R. 835 Subpart E. Specifically, CNS allowed the employee to reenter radiological areas and perform work after the discovery of the lost dosimeter but before the completion of an IDR to determine the appropriate dose for the employee. Had the dose on the lost dosimeter reflected the employee's actual dose, the employee would have received additional radiation dose in excess of regulatory limits. Although there are many methods to comply with these requirements, guidance for acceptable implementation is provided in DOE Guide 441.1-1C, Section 6.4.2, *Lost, Damaged, or Contaminated Dosimeters*. This guide states, "An individual whose dosimeter is lost, damaged, or contaminated should place work in a safe condition, immediately exit the area, and report the occurrence to the radiological control organization. Reentry of the individual into radiological areas should not be made until a

review has been conducted, the individual has been issued a new dosimeter, and management has approved reentry.”

The Office of Enforcement has reviewed CNS’s causal analysis and believes that it adequately identified the underlying causes of the dosimetry program weaknesses. However, the Office of Enforcement also notes CNS’s previous weakness in effectively correcting dosimetry program impairment, which eventually resulted in complete failure of all three onsite dosimeter readers. The onsite reader failures and reliance on the backup dosimeter processing location resulted in an extra six months elapsing before the abnormally high dosimeter reading was identified, which contributed to CNS’s delay in responding to this incident.

The Office of Enforcement has elected to issue this Enforcement Letter to convey concerns with CNS’s response to the lost dosimeter, the delay in restricting the employee from entry into radiological areas after identifying the potential for abnormally high dose until after NNSA involvement, and weaknesses in CNS’s processes governing these actions. Issuance of this Enforcement Letter reflects DOE’s decision not to pursue further enforcement activity against CNS at this time. In coordination with the NNSA, the Office of Enforcement will continue to monitor CNS’s efforts to improve nuclear safety performance.

This letter imposes no requirements on CNS, 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, Director, Office of Nuclear Safety Enforcement, at (301) 903-7707.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin L. Dressman", with a long, sweeping horizontal line extending to the right.

Kevin L. Dressman
Director
Office of Enforcement
Office of Enterprise Assessments

cc: Teresa Robbins, NNSA/NPO
Kathy Brack, CNS