



Department of Energy

Washington, DC 20585

December 21, 2023

Mr. Bradley Smith
President and General Manager
Newport News Nuclear BWXT-Los Alamos, LLC
1200 Trinity Drive, Suite 150
Los Alamos, New Mexico 87544

WEA-2023-02

Dear Mr. Smith:

This letter refers to the Department of Energy's (DOE) investigation into the facts and circumstances associated with a worker succumbing to heat exhaustion on September 8, 2022 at the Los Alamos National Laboratory. The DOE Office of Enterprise Assessments' Office of Enforcement provided the results of the investigation to Newport News Nuclear BWXT-Los Alamos, LLC (N3B) in an investigation summary, dated July 3, 2023. An enforcement conference was convened on August 8, 2023, with you and members of your staff to discuss the findings outlined in the summary and N3B's response. A summary of the enforcement conference and the attendance roster is enclosed.

DOE considers the heat exhaustion event to be of high safety significance. This was a near miss to a fatality event. The worker lost consciousness due to heat exhaustion, which can be life-threatening. The event occurred when a worker was operating an excavator in support of corrugated metal pipe retrieval operations. The worker was dressed in personal protective equipment, including anti-contamination clothing and a powered air purifying respirator, and was in a contained excavator cab with no air conditioning. The work activity proceeded about four and a half hours without any rest or hydration breaks. The worker was discovered by coworkers slumped over and unconscious in the excavator cab. The event revealed deficiencies in: (1) management responsibilities, emergency response, and occupational medicine, (2) hazard prevention and abatement, (3) training and information, and (4) recordkeeping and reporting.

Based on an evaluation of the evidence in this matter, including information presented at the enforcement conference, DOE concludes that N3B violated requirements prescribed under 10 C.F.R. Part 851, *Worker Safety and Health Program*. Accordingly, DOE hereby issues the enclosed Preliminary Notice of Violation (PNOV), which cites two Severity Level I violations and two Severity Level II violations. The Environmental Management Los Alamos Field Office (EM-LA) administered a \$130,000 contract fee reduction on N3B for worker safety and health performance deficiencies associated with this event. Therefore,



in accordance with 10 C.F.R. § 851.5 (c), DOE proposes no civil penalties for the Part 851 violations cited in this PNOV.

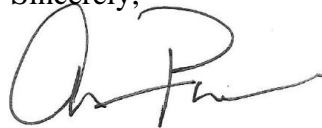
After the event, N3B conducted an apparent cause analysis and later determined that the safety significance of the event required a root cause analysis (RCA). The RCA was issued on November 29, 2022, and listed three root causes, two direct causes, and nine contributing causes. The Office of Enforcement concurs with the findings in the RCA and the corrective actions N3B listed in their corrective action plan (CAP). Once fully implemented, the corrective actions should prevent recurrence and appear to address N3B's heat stress-related programmatic deficiencies that led to the event.

Currently, N3B has completed 57 of 63 items within the CAP listed in DOE's Noncompliance Tracking System (NTS) report, NTS-EM-EMLA-N3B-TA54-2022-0010484, *An Individual Experiences Heat Stress Symptoms While Supporting CMP Retrieval Operations at TA-54, Area G, Pit 29*. All corrective actions are planned for completion, including an effectiveness review, by March 28, 2024. Since the event, N3B made substantial changes to their organization structure to ensure open channels of communication with their workforce and to empower their workers to raise safety concerns.

Pursuant to 10 C.F.R. § 851.42, *Preliminary Notice of Violation*, you are obligated to submit a written reply within 30 calendar days of receipt of the enclosed PNOV, and to follow the instructions specified in the PNOV when preparing your response. If you fail to submit a reply within the 30 calendar days, then in accordance with 10 C.F.R. § 851.42(d), you relinquish any right to appeal any matter in the PNOV, and the PNOV will constitute a final order.

After reviewing your reply to the PNOV, including any proposed additional corrective actions entered into DOE's NTS, DOE will determine whether any further activity is necessary to ensure compliance with DOE worker safety and health requirements. DOE will continue to monitor the completion of corrective actions until this matter is fully resolved.

Sincerely,



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

Enclosures: Preliminary Notice of Violation (WEA-2023-02)
Enforcement Conference Summary and Attendance Roster

cc: Thomas Harrison, Newport News Nuclear BWXT-Los Alamos, LLC
Michael Mikolanis, EM-LA

Preliminary Notice of Violation

Newport News Nuclear BWXT-Los Alamos, LLC
Los Alamos National Laboratory

WEA-2023-02

A U.S. Department of Energy (DOE) investigation into the facts and circumstances associated with a heat exhaustion event at the Los Alamos National Laboratory on September 8, 2022, revealed four violations of DOE worker safety and health requirements by Newport News Nuclear BWXT-Los Alamos, LLC (N3B). The event involved a N3B worker succumbing to heat exhaustion while operating an excavator in support of the DOE Office of Environmental Management's (EM) corrugated metal pipe (CMP) retrieval operations at the Los Alamos National Laboratory.

DOE provided N3B with an investigation summary dated July 3, 2023, and convened an enforcement conference on August 8, 2023, with N3B representatives to discuss the preliminary findings outlined in the summary and N3B's response.

Pursuant to section 234C of the Atomic Energy Act of 1954, as amended, and DOE regulations set forth in 10 C.F.R. Part 851 (Part 851), *Worker Safety and Health Program*, DOE hereby issues this Preliminary Notice of Violation (PNOV) to N3B. The violations cited in this PNOV include deficiencies in the following areas: (1) management responsibilities, emergency response, and occupational medicine; (2) hazard prevention and abatement; (3) training and information; and (4) recordkeeping and reporting. DOE has categorized the violations as two Severity Level I violations and two Severity Level II violations.

Severity Levels are explained in Part 851, appendix B, *General Statement of Enforcement Policy*. Subparagraph VI(b)(1) states that “[a] Severity Level I violation is a serious violation. A serious violation shall be deemed to exist in a place of employment if there is a potential that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in such place of employment.”

Subparagraph VI(b)(2) states that “[a] Severity Level II violation is an other-than-serious violation. An other-than-serious violation occurs where the most serious injury or illness that would potentially result from a hazardous condition cannot reasonably be predicted to cause death or serious physical harm to employees but does have a direct relationship to their safety and health.”

DOE withheld from N3B approximately \$130,000 of earned fee in fiscal year 2022 for safety and health performance deficiencies, which included the heat exhaustion event. Therefore, in accordance with 10 C.F.R. § 851.5, *Enforcement*, subsection (c) and DOE Acquisition Regulation 48 C.F.R. § 970.5215-3, *Conditional Payment of Fee Clause*, DOE proposes no civil penalty for the violations cited in this PNOV.

As required by 10 C.F.R. § 851.42, *Preliminary notice of violation*, subsection (b) and consistent with Part 851, appendix B, the violations are listed below. If this PNOV becomes a final order, then N3B must prominently post a copy of this PNOV at or near the location where the violation occurred until the violation is corrected in accordance with 10 C.F.R. § 851.42(e).

I. VIOLATIONS

A. Management Responsibilities, Emergency Response, and Occupational Medicine

Title 10 C.F.R. § 851.10, *General requirements*, subsection (a) states that “[w]ith respect to a covered workplace for which a contractor is responsible, the contractor must: (1) [p]rovide a place of employment that is free from recognized hazards that are causing or have the potential to cause death or serious physical harm to workers; and (2) [e]nsure that work is performed in accordance with: (i) [a]ll applicable requirements of [Part 851]; and (ii) [t]he worker safety and health program for that workplace.”

Title 10 C.F.R. § 851.20, *Management responsibilities and worker rights and responsibilities*, subsection (a) states that “[c]ontractors are responsible for the safety and health of their workforce and must ensure that contractor management at a covered workplace:...(3) [a]ssign worker safety and health program responsibilities, evaluate personnel performance, and hold personnel accountable for worker safety and health performance.”

Title 10 C.F.R. § 851.24, *Functional areas*, subsection (a) states that “[c]ontractors must have a structured approach to their worker safety and health program which at a minimum, include provisions for the following applicable functional areas in their worker safety and health program:...fire protection...[and] occupational medicine...” Subsection (b) states that “[i]n implementing the structured approach required by [subsection] (a) of this section, contractors must comply with the applicable standards and provisions in appendix A of this part, entitled ‘Worker Safety and Health Functional Areas.’”

N3B-PD100, *DOE EM-LA-Approved 10 CFR 851 Worker Safety and Health Program Description*, Revision 0, April 30, 2019, section 1.1, *Purpose*, states that “[t]he purpose of the...(N3B) Worker Safety and Health Program (WSHP) is to ensure that workers are provided with a safe and healthful workplace in an environment that fosters the unified objective of preventing work-related injuries and illnesses.” Section 1.6, *Implementation*, states that “N3B implements the WSHP through N3B-SD100, *Integrated Safety Management System*...and other applicable sitewide programs and procedures as described throughout this document.” Section 1.8, *Enforcement Provisions*, states that “N3B strives to ensure that any identified or potential noncompliance is self-identified and that corrective actions are established, tracked, and completed in a timely manner.” Section 4.1, *Management*

Responsibilities and Accountabilities, states that "...management within each staff organization...have the responsibility for safety within their organization and facilities...." Section 6.3, *Fire Protection*, states that "[r]elated plans and program documents include...N3B-EWMO-BEP-20048, *TA-54 East Areas G, L, H, J, and Administrative Areas Building Emergency Plan*...which addresses emergency preparedness specific to TA-54 operations." Section 6.6, *Occupational Medicine*, states that "[t]he primary program-implementing documents are...N3B-P102, *Occupational Medicine*...and N3B-P102-2, *Occupational Injury and Illness Response, Reporting and Investigation*."

N3B-SD100, *Integrated Safety Management System*, Revision 0, April 30, 2019, section 3.3.1, *Line Management Responsibility for Safety*, states that "...management is directly responsible for the safe and efficient conduct of work to ensure the protection of the public the workers, and the environment. The manager is responsible to understand and effectively communicate the technical basis and associated hazards of the work, maintain awareness of all work activities, be knowledgeable of facility operating requirements, manage change appropriately, create an environment that enables worker involvement and informed decision making, maintain awareness of the status of work and hazards, communicate frequently and effectively, and verify that operations are safe before approving work."

N3B-EWMO-BEP-20048, *TA-54 East Areas G, L, H, J, and Administrative Areas Building Emergency Plan*, Revision 0, September 18, 2018, section 1.0, *Purpose*, states that "[t]his Building Emergency Plan (BEP) provides direction to mitigate the effects of untoward event and ensure the safety of workers, facility, equipment, and the environment." Section 3.0, *Overview*, states that "[t]he BEP plays a key role in the successful implementation of the Site Emergency Management and Response program...and area-specific response procedures for TA-54 East. This plan also defines roles and responsibilities that are necessary to ensure that the chain of command is established and to ensure that workers respond correctly and consistently in a safe and timely manner when abnormal/emergency situations arise."

N3B-BEP-TRU-3001, *TA-54 East Building Emergency Plan*, January 26, 2022, section 3.0, *Roles and Responsibilities*, states that N3B "[e]nsure 911 and the Emergency Operations Support Center (EOSC)...have been notified as necessary..." and "[e]nsure personnel accountability is complete...."

N3B-ERP-TRU-3002, *Emergency Response*, March 20, 2019, section 2.0, *Immediate Response Actions*, step 2.7, requires N3B to "[p]erform accountability of personnel in affected area."

N3B-P102-2, *Occupational Injury and Illness Response, Reporting and Investigation*, Revision 0, May 1, 2019, section 3.2.5, *Return to Work Requirements*, states that "[a]fter the worker has been released...to return to work, he/she must report to the designated OMP [Occupational Medical Provider] to be cleared before returning to work..." and "[t]he RLM [Responsible Line Manager] or supervisor...shall ensure that clearance was obtained prior to permitting the employee to return to work." Section 4.0, *Responsibilities*, states that N3B management "[n]otifies [the] Safety and Emergency Management Programs Director and the OM [Operations Manager] Senior Technical Advisor of injuries, illnesses, and/or exposures no later than close of the business day."

N3B-POL-ESH-0005, *Thermal Stress Program*, Revision 1, December 8, 2020, section 3.2.2, *Controls for Heat Stress Conditions*, states that “[t]he most effective way to prevent heat strain is to reduce heat stress in the workplace (e.g., increase air movement, reduce temperature, reduce humidity, and protect workers from solar radiation or other radiant heat sources).” Section 4.0, *Responsibilities*, subsection 4.3, *Responsible Line Manager/Supervisor*, states that N3B “[e]nsures that potential thermal stress conditions are identified...[e]nsures that...measures for appropriate mitigating actions are included in work control documents...[and] [e]nsures work is performed in accordance with prescribed controls, including work/rest regimens.”

Contrary to the requirements and as evidenced by the following facts, N3B failed to comply with applicable requirements of Part 851 and the approved WSHP in the areas of management responsibilities, emergency response, and occupational medicine. Specific examples include the following:

1. N3B failed to ensure administrative controls established in N3B-AP-P300-1, *Job Hazard Analysis (JHA)*, March 23, 2022, Revision 1, for work packages N3B-DOP-TRU-2135, *CMP Waste Retrieval*, and N3B-DOP-TRU-2136, *CMP Intra-Facility Transfer*, were implemented to prevent heat exhaustion by providing workers with established hydration and food breaks. On the day of the event, N3B did not provide any breaks to the affected worker due to unplanned delays in Area G/Pit 29, which included work pauses and malfunctioning radio communications (e.g., throat mics were not connecting to the base station). As a result of the unplanned delays, the affected worker performed work without water or food breaks inside a closed, uncooled excavator cab for approximately four and a half hours. The affected worker and other N3B support staff (i.e., industrial hygiene and safety staff) requested water breaks multiple times, all of which were denied.
2. N3B failed to ensure the air conditioning in the excavator cab would cool the occupant prior to starting CMP retrieval operations. A work request to repair the air conditioning was made on March 29, 2022, and documented in the N3B work-task-related program; however, it was canceled with no further action on April 20, 2022. On the day prior to the event, N3B held a comprehensive pre-job briefing and affirmed via signature that safety requirements (e.g., industrial hygiene hazards and controls) were in place without confirming the heat-stress-related controls (i.e., air conditioning) cooled the air in the excavator cab.
3. N3B failed to recognize the severity of the incident or follow their emergency procedures to requesting emergency support at the time of the event. For example, N3B did not request emergency support until approximately 15 minutes after the affected worker was initially found unresponsive. In addition, N3B did not ensure that all personnel in the affected area (i.e., TA-54, Area G/Pit 29) were accounted for in the TA-54, Area G/Pit 29 area once the event was recognized as an emergency, contrary to N3B-ERP-TRU-3002, *Emergency Response*.
4. N3B failed to notify the Safety and Emergency Management Programs Director and the Operations Manager of the event before the close of business on September 8, 2022.

Specifically, the notification did not occur until approximately September 17, 2022. Further, the affected worker did not receive any follow-up care (i.e., a medical evaluation at the Los Alamos Medical Center) and was allowed to return to work, contrary to N3B-P102-2, *Occupational Injury and Illness Response, Reporting and Investigation*.

Collectively, these noncompliances constitute a Severity Level I violation.

B. Hazard Prevention and Abatement

Title 10 C.F.R. § 851.22, *Hazard prevention and abatement*, subsection (a) states that “[c]ontractors must establish and implement a hazard prevention and abatement process to ensure that all identified and potential hazards are prevented or abated in a timely manner.” Subsection (a), paragraph (2) states that “[f]or existing hazards identified in the workplace, contractors must... (iii) [p]rotect workers from dangerous safety and health conditions.” Subsection (b) states that “[c]ontractors must select hazard controls based on the following hierarchy: (1) [e]limination or substitution of the hazards where feasible and appropriate; (2) [e]ngineering controls where feasible and appropriate; (3) [w]ork practices and administrative controls that limit worker exposures; and (4) [p]ersonal protective equipment.” Subsection (c) states that “[c]ontractors must address hazards when selecting or purchasing equipment, products, and services.”

N3B-POL-ESH-0005, *Thermal Stress Program*, Revision 1, December 8, 2020, section 3.2.2, *Controls for Heat Stress Conditions*, states that “[e]ngineering controls, administrative controls, and PPE [personal protective equipment] should be used, in that order, to mitigate heat stress hazards. Examples of these controls are... [u]se air conditioning....”

N3B-AP-TRU-1001, *General Site Hazards and Controls*, Revision 0, March 20, 2019, section 3.1, *Site Hazards, Controls, and Access*, states that N3B “[p]ersonnel should be aware of job-related heat stress indicators, which may be caused by environmental conditions, type of work, metabolic rate, and clothing requirements. When heat stress is identified as a hazard... control measures implemented as warranted.”

Contrary to these requirements, N3B failed to identify air conditioning as an engineering control in the JHA to reduce temperature in the excavator cab. Rather, N3B identified administrative controls for heat-stress-related hazards in the “extreme weather hazards” section of the JHA applicable for CMP retrieval. The N3B General Site Hazards and Controls program references the N3B Thermal Stress Program as a resource for hazard analysis. This program identifies engineering controls useful for mitigating hazards associated with heat stress, including the implementation of air conditioning.

This noncompliance constitutes a Severity Level I violation.

C. Training and Information

Title 10 C.F.R. § 851.23, *Safety and health standards*, subsection (a) states that “[c]ontractors must comply with the following safety and health standards that are applicable to the hazards at their covered workplace:...(2) Title 29 [C.F.R.] Parts 1904.4 through 1904.11, 1904.29

through 1904.33, and 1904.46, *Recording and Reporting Occupational Injuries and Illnesses*, [and] (3) Title 29 [C.F.R.] Part 1910, *Occupational Safety and Health Standards*, excluding 29 [C.F.R.] 1910.1096, *Ionizing Radiation*, and 29 [C.F.R.] 1910.1000, *Beryllium*.”

Title 10 C.F.R. § 851.25, *Training and information*, subsection (a) states that “[c]ontractors must develop and implement a worker safety and health training and information program to ensure that all workers exposed or potentially exposed to hazards are provided with the training and information on that hazard in order to perform their duties in a safe and healthful manner.” Subsection (b) states that “[c]ontractors must provide...(2) [p]eriodic training as often as necessary to ensure that workers are adequately trained and informed.” Subsection (c) states that “[c]ontractors must provide training and information to workers who have worker safety and health program responsibilities that is necessary for them to carry out those responsibilities.”

Title 29 C.F.R. § 1910.134, *Respiratory protection*, section (k), *Training and information*, subparagraph (1)(i), states that “[t]he employer shall ensure that each employee can demonstrate knowledge of...[w]hy the respirator is necessary....”

N3B-POL-ESH-0002, *Respiratory Protection Program*, Revision 1, August 11, 2020, section 4.0, *Responsibilities*, subsection 4.3, *Responsible Line Manager or Supervisor*, states that N3B “[e]nsures each employee using RPE [respiratory protection equipment] receives...appropriate training....”

N3B-P101-6, *Personal Protective Equipment*, September 19, 2019, section 4.0, *Responsibilities*, subsection 4.1, *Responsible Line Manager*, states that N3B “[e]nsures that PPE requirements are communicated to affected workers.”

Contrary to the requirements, N3B failed to adequately train its workers on the N3B requirement to wear a powered air purifying respirator (PAPR) during the CMP retrieval operation. During the investigation, the affected worker and several other workers stated they were uncertain as to which airborne contaminant (i.e., crystalline silica, TRU-related radionuclides, or both) necessitated the use of respiratory protection (i.e., PAPR) during CMP retrieval operations.

This noncompliance constitutes a Severity Level II violation.

D. Recordkeeping and Reporting

Title 10 C.F.R. § 851.26, *Recordkeeping and reporting*, subsection (a) states that “[c]ontractors must...(2) [e]nsure that the work-related injuries and illnesses of its workers and subcontractor workers are recorded and reported accurately and consistent with DOE reporting directives.”

Title 29 C.F.R. § 1904.7, *General recording criteria*, subsection (a), states that “[y]ou must consider an injury or illness to meet the general recording criteria, and therefore to be

recordable, if it results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness.”

N3B-PD100, *DOE EM-LA-Approved 10 CFR 851 Worker Safety and Health Program Description*, Revision 0, April 30, 2019, section 5.0, *Safety and Health Standards and Reference Sources (10 CFR 851.23 and 10 CFR 851.27)*, states that “[t]he following standards...are incorporated by reference via 10 CFR 851.27:...29 CFR 1904.4 through 1904.11, 1904.29 through 1904.33, 1904.44, and 1904.46, *Recording and Reporting Occupational Injuries and Illnesses*.”

N3B-P102-2, *Occupational Injury and Illness Response, Reporting and Investigation*, Revision 0, May 1, 2019, section 3.1, *Program Overview*, states that “N3B is required to keep records of fatalities, injuries, illnesses, and exposures, and must record each of these according to the general recording criteria as required in 29 CFR 1904, *Recording and Reporting Occupational Injuries and Illnesses*.”

DOE Order 231.1B, *Environment, Safety and Health Reporting*, Change 1, November 28, 2012, attachment 3, *Reporting Occupational Safety and Health Information*, paragraph 1(d), states that “[i]njury and illness incident reports must be recorded in accordance with 29 C.F.R. § 1904.29. Injury and illness incident reports must also be submitted electronically using the *Computerized Accident/Incident Reporting System (CAIRS) Individual Accident/Incident Report* format to the CAIRS database... [n]ew reports must be submitted for receipt on or before the 15th and the last working day of the month.”

Contrary to these requirements, N3B failed to report the heat exhaustion event into the CAIRS database until October 5, 2022, which was 20 days past the reporting deadline of September 15, 2022. In addition, the investigation revealed four other injuries/illnesses that had occurred between February 23, 2021, and February 24, 2022, that were not entered into CAIRS in a timely manner (i.e., on or before the 15th and the last working day of the month).

This noncompliance constitutes a Severity Level II violation.

II. REPLY

Pursuant to 10 C.F.R. § 851.42(b)(4), N3B is hereby obligated to submit a written reply within 30 calendar days of receipt of this PNOV. The reply should be clearly marked as a “Reply to the Preliminary Notice of Violation.”

If N3B chooses not to contest the violations set forth in this PNOV, then the reply should clearly state that N3B waives the right to contest any aspect of this PNOV. In such case, this PNOV will constitute a final order upon the filing of the reply.

If N3B disagrees with any aspect of this PNOV, then as applicable and in accordance with 10 C.F.R. § 851.42(c)(1), the reply must: (1) state any facts, explanations, and arguments that support a denial of an alleged violation; and (2) discuss the relevant authorities that support the position asserted, including rulings, regulations, interpretations, and previous decisions issued by

DOE. In addition, 10 C.F.R. § 851.42(c)(2) requires that the reply include copies of all relevant documents.

If N3B fails to submit a written reply within 30 calendar days of receipt of this PNOV, then pursuant to 10 C.F.R. § 851.42(d), N3B relinquishes any right to appeal any matter in this PNOV and this PNOV will constitute a final order.

Please submit your reply to the Director, Office of Enforcement by email to enforcementdocketclerk@hq.doe.gov.

A copy of the reply should also be sent to the Manager of the EM Los Alamos Field Office.

III. CORRECTIVE ACTIONS

Corrective actions that have been or will be taken to avoid further violations should be delineated with target and completion dates in the DOE Noncompliance Tracking System.



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

Washington, D.C.
This 21st day of December 2023