Department of Energy
Washington, DC 20585

September 12, 2018

VIA OVERNIGHT UPS MAIL CARRIER

Mr. Brian Reilly
Project Director
Hanford Waste Treatment and Immobilization Plant Project
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99352

WEA-2018-01 (FNOV)

Dear Mr. Reilly:

Pursuant to Section 234C of the Atomic Energy Act, as amended, 42 U.S.C. § 2282c, and Department of Energy (DOE) regulations in 10 C.F.R. Part 851, *Worker Safety and Health Program*, DOE is issuing this Final Notice of Violation (FNOV) to Bechtel National, Inc. (BNI) for violations of DOE's worker safety and health requirements. The FNOV is based upon the DOE Office of Enforcement's October 3, 2017, investigation report and a thorough review of all evidence presented to DOE by BNI, including BNI's original investigation, corrective actions, and reply to the Preliminary Notice of Violation (PNOV) issued on April 25, 2018.

DOE received BNI's response to the PNOV on May 22, 2018. In this reply, BNI accepted the terms of the PNOV with the exception of two paragraphs discussing the pressurization levels associated with hydrostatic testing, specifically Section B, paragraph 2 and Section C, paragraph 4 of the PNOV. BNI contends, based on a review of previous pressure tests and the pipe design pressure, that it did not exceed the maximum allowable pressure for the plant cooling water system. BNI therefore requested that DOE consider the BNI assessment of these previous pressure tests and re-evaluate DOE's conclusions of non-compliance.

DOE has thoroughly evaluated BNI's response, and while we agree that the pressures did not exceed the pipe design pressure, we disagree with BNI's conclusions as they relate to system pressurization associated with the investigated event. The American Water Works Association (AWWA) C600-93 standard establishes multiple independent restrictions for the maximum pressure allowable during hydrostatic testing. These restrictions not only prohibit exceeding the pipe design pressure discussed in BNI's response, but also forbid exceeding either the thrust-restraint design pressure or the boundary valve pressure rating during pressure testing. The thrust-restraint design pressure limit

is defined under the standard as "the maximum pressure to which the pipeline will be subjected, with consideration given to the vulnerability of the pipe-soil system when the pressure is expected to be applied." BNI's procedures required newly installed joints to remain exposed during pressure testing. During the event investigated, backfill was not in place around portions of the system where modifications were made or around previously-tested adjacent sections of piping, nor were other compensatory thrust-restraint measures implemented.

With respect to the prior hydrostatic tests discussed in in the PNOV and BNI's response, DOE recognizes that although the tests were conducted at a higher pressure than required under the AWWA standard, there is insufficient evidence to conclusively state that the pressures exceeded the maximum allowable pressure. BNI procedures did require portions of the system to remain exposed during testing, but the degree to which this may have compromised thrust restraint capability cannot be definitively determined with the information that DOE collected during its investigation.

In consideration of BNI's response and for the reasons discussed above, DOE has revised Sections B and C of the PNOV before inclusion in the FNOV.

Pursuant to 10 C.F.R. § 851.44, BNI may petition DOE's Office of Hearings and Appeals for review of the enclosed FNOV. BNI's petition must adhere to the procedural requirements established in Subpart G of 10 C.F.R. Part 1003, *Office of Hearings and Appeals Procedural Regulations*. If BNI does not petition the Office of Hearings and Appeals within 30 calendar days of receipt of this FNOV, BNI relinquishes any right to appeal any matter raised therein, and the FNOV will become a final order as provided by 10 C.F.R. § 851.43(c).

Sincerely,

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

Enclosure: Final Notice of Violation (WEA-2018-01)

cc: Brian Vance, DOE-ORP
Lori Fritz, BNI

Enclosure

Final Notice of Violation

Bechtel National, Inc.
Hanford Waste Treatment and Immobilization Plant Project
Richland, Washington

WEA-2018-01

The U.S. Department of Energy (DOE) Office of Enterprise Assessments' Office of Enforcement conducted an investigation into the facts and circumstances associated with a November 4, 2016, event in which a worker was injured when a 12-inch pipe joint separated and released a pressurized stream of water during preparation of a piping system for pressure testing at the Waste Treatment and Immobilization Plant (WTP) at the Hanford Site. The investigation revealed multiple violations of DOE worker safety and health requirements by Bechtel National, Inc. (BNI).

DOE provided BNI with an investigation report dated October 3, 2017, and convened an enforcement conference on November 29, 2017, with BNI representatives to discuss the report's findings and BNI's response. DOE issued Preliminary Notice of Violation (PNOV) WEA-2018-01 on April 25, 2018. In a May 22, 2018, reply, BNI accepted the terms of the PNOV with the exception of two paragraphs discussing the pressurization levels associated with hydrostatic testing, specifically Section B, paragraph 2 and Section C, paragraph 4 of the PNOV. DOE has retained these two sections but modified these paragraphs to provide additional clarification.

Pursuant to Section 234C of the Atomic Energy Act of 1954, as amended, and DOE regulations set forth at 10 C.F.R. Part 851 (Part 851), *Worker Safety and Health Program*, DOE hereby issues this Final Notice of Violation (FNOV) to BNI. The violations cited in this FNOV include deficiencies in: (1) management responsibilities, (2) hazard identification and assessment, (3) hazard prevention and abatement, (4) training and information, and (5) recordkeeping. DOE has grouped and categorized these deficiencies as three 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."

The DOE Office of River Protection withheld from BNI $556,500 of earned fee in 2016 for safety and health performance deficiencies that included deficiencies associated with this event. Therefore, in accordance with 10 C.F.R. § 851.5(c) and DOE Acquisition Regulation 48 C.F.R. § 970.5215-3, *Conditional Payment of Fee, Profit, and Other Incentives – Facility Management Contracts*, DOE proposes no civil penalty for the violations cited in this FNOV.

As required by 10 C.F.R. § 851.43(b) and consistent with Part 851, Appendix B, the violations are listed below.

I. VIOLATIONS

A. Management Responsibilities

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:…(2) [e]nsure that work is performed in accordance with: (i) [a]ll applicable requirements of [10 C.F.R. Part 851]; and (ii) [t]he worker safety and health program for that workplace."

BNI document 24590-WTP-PL-SA-06-0002, Rev 10, *WTP Worker Safety and Health Program* (effective May 15, 2014), describes the policies and procedures that comprise the DOE-approved worker safety and health program at WTP as required by 10 C.F.R. § 851.10. This document "provides primary upper-tiered requirements and identifies the mechanisms implementing the requirements of the Rule. The methods for compliance are identified in the text. Specific implementing procedures, policies, and program documents are identified in the WTP Worker Safety and Health Program Implementation Matrix (24590-WTP-PL-SA-08-0003)."

BNI document 24590-WTP-LIST-CON-09-0001, Rev 1, *WTP Skill of the Craft* (effective January 9, 2009), Section 3, states that "[b]uilding trade skill sets (identified in Table 1 of the procedure) and WTP training have been evaluated and deemed adequate and do not require additional Hazard Analysis and Control beyond the skill level and training provided. Hazards not covered by Skill of the Craft or training require controls through the use of a hazard control document (reference 24590-WTP-GPP-WPHA-002, *Hazard Analysis and Control*)."

BNI document 24590-WTP-GPP-WPHA-001, Rev 7, *Work Control and Work Packaging*, (effective January 28, 2016), Section 1.0, states that "[t]his procedure defines the process requirements for the control and performance of work activities at the…WTP. This work control process is based on the functions and principles of the WTP Integrated Safety Management System (ISMS), 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*. This procedure provides requirements to ensure appropriate quality and hazard information is communicated to each employee prior to starting a job or task."

BNI document 24590-WTP-GPP-SIND-024, Rev 07, *General Safe Work Practices* (effective September 26, 2006), Section 4.2, states that "[w]ork performed that is considered physical/manual/hands-on activities (e.g., manipulation, modification, fabrication, removal) to a facility, system, structure, component, or equipment and/or changes to the configuration (including testing, troubleshooting, and calibration activities) that expose or create hazards has work package requirements. For construction, create work package in accordance with 24590-WTP-GPP-WPHA-001, *Work Control and Work Packaging*."

BNI document 24590-WTP-GPP-CON-3504, Rev 13, *Pressure Testing* (effective February 25, 2016), Section 5.6, states that "the Construction Work Package safety plan components are [to be] reviewed with craft prior to starting work and ensure relevant feedback received during work activities is adequately addressed in planning of subsequent work. In addition to the safety plan, ensure that personnel understand and implement the following pressure test specific work scope safety requirements, as applicable: Identification methods for work areas to be barricaded or flagged/roped off, including additional protective barriers necessary to prevent injury due to leakage, pipe rupture, or equipment failure during testing. As applicable, the test area shall be barricaded off in accordance with 24590-WTPGPP-SIND-028, *Barricades and Signs*." It further states that "[i]f pressure test boundary points are against an energized system greater than 125 degrees Fahrenheit and/or 150 psig [pounds per square inch gauge] pressure, LO/TO [lockout/tagout] is required to be applied on the test boundary to preclude hazardous energy exposure to those performing the venting or draining process during test recovery."

Title 10 C.F.R. Part 851, Appendix A, Section 4, *Pressure Safety*, subsection (a), states that "[c]ontractors must establish safety policies and procedures to ensure that pressure systems are designed, fabricated, tested, inspected, maintained, repaired, and operated by trained and qualified personnel in accordance with applicable and sound engineering principles." In addition, subsection (b) states that "[c]ontractors must ensure that all pressure vessels, boilers, air receivers, and supporting piping systems conform to: …(2) [t]he applicable ASME B31 (Code for Pressure Piping) standards."

In American Society of Mechanical Engineers (ASME) B31.3-2002, *Process Piping*, the introduction section states: "select the Code Section that most nearly applies to a proposed piping installation. Factors to be considered by the owner include: limitations of the Code Section, jurisdictional requirements, and the applicability of other codes and standards."

American Water Works Association (AWWA) standard AWWA C600-93, *Installation of Ductile-Iron Water Mains and Their Appurtenances*, Section 3.6.3.2, states that "[a]ir-release and/or vacuum vents shall be provided at high points in the line and in areas of potential negative pressure. The air-release and/or vacuum vents shall not be connected to any storm or sanitary sewer and shall be protected from freezing in locations where cold temperatures are encountered."

Contrary to these requirements and as evidenced by the following facts, BNI management failed to ensure that the plant cooling water (PCW) system, as designed and pressure tested,

did not present a hazard to workers, and failed to ensure that work was conducted in accordance with their established procedures:

1. BNI management and supervision did not follow their established work planning and control processes to ensure that filling and venting of the PCW system could be completed safely. The filling and venting activity was outside of the building trade skill sets evaluated by BNI and was not covered by the WTP skill-of-the-craft program, so it required controls in the form of a hazard control document and a work package. However, the activity was performed without BNI defining the expectations and tasks associated with the scope of work to be performed, evaluating critical steps and tasks for potential hazards, establishing appropriate controls, or formally authorizing the activity in accordance with their established procedures before allowing work to proceed.

2. Pipefitters and their management had identified difficulties in venting air from the PCW piping since the system was installed over a decade ago. Despite this longstanding awareness, management did not undertake an analysis of the potential causes of this difficulty until after the November 4, 2016, event or establish a safe process for properly venting the system. In the absence of an established safe process, BNI used an ad hoc work process in which the hazards were not properly evaluated or controlled. BNI's post-event analysis identified that the PCW system, as installed, would entrap an estimated 894 cubic feet of air upon filling. Because the ad hoc work process involved pressurizing the PCW system up to 125 pounds per square inch (psi), the large quantity of entrapped air was compressed and presented an unanalyzed stored energy hazard that contributed greatly to the severity of the event when the joint failure occurred.

Collectively, these noncompliances constitute a Severity Level I violation.

B. Hazard Identification and Assessment

Title 10 C.F.R. § 851.21, *Hazard identification and assessment*, subsection (a), states that "[c]ontractors must establish procedures to identify existing and potential workplace hazards and assess the risk of associated workers injury and illness. Procedures must include methods to…(4) [a]nalyze designs of new facilities and modifications to existing facilities and equipment for potential workplace hazards; [and] (5) [e]valuate operations, procedures, and facilities to identify workplace hazards."

Title 10 C.F.R. Part 851, Appendix A, Section 1, *Construction Safety*, subsection (a), states that "[f]or each separately definable construction activity (e.g., excavations, foundations, structural steel, roofing), the construction contractor must: (1) [p]repare and have approved by the construction manager an activity hazard analysis prior to commencement of affected work. Such analyses must: (i) [i]dentify foreseeable hazards and planned protective measures."

Title 10 C.F.R. Part 851, Appendix A, Section 4, *Pressure Safety*, subsection (c), states that "[w]hen national consensus codes are not applicable (because of pressure range, vessel geometry, use of special materials, etc.), contractors must implement measures to provide

equivalent protection and ensure a level of safety greater than or equal to the level of protection afforded by the ASME or applicable state or local code…."

BNI document 24590-WTP-PL-SA-06-0002, Section 3.6.4.3, states that "[a]t WTP, most permanent plant systems and components that could affect pressure safety will be designed in accordance with national consensus codes, as applicable."

BNI document 24590-WTP-GPP-CON-3504, Section 5.6, requires a "walk down of the system to be tested to ascertain its readiness. This includes ensuring adequate low point drains and high point vents are installed on systems to be hydrostatically leak tested or assuring other appropriate means have been established for removing water from the low points in the system (e.g., disassemble equipment, air blow piping). When appropriate, install a low point drain, in accordance with 24590-WTP-GPP-CON-3503, in any sections of a system to be hydro tested that does not already have a drain."

Contrary to these requirements and as evidenced by the following facts, BNI failed to adequately identify and evaluate hazards associated with the fill and vent activity or pressurization of the PCW piping for hydrostatic testing:

1. BNI did not prepare an assisted job hazard analysis (AJHA) for the filling and venting activity to identify existing and potential workplace hazards or establish controls for those hazards. BNI 24590-WTP-LIST-CON-09-0001 identifies routine journeymen activities that BNI determined do not require an approved activity hazard analysis. However, fill and vent is not one of these exempted activities, and BNI 24590-WTP-GPP-WPHA-001 requires an approved AJHA for this activity. Moreover, BNI did not identify and assess the risk of a variety of potential hazards related to stored energy (e.g., pipe separation, component failure) or provide effective controls to protect workers from injury or death.

2. BNI did not adequately assess the hazards associated with exposing the PCW system's ductile iron piping to pressure while thrust-restraint capabilities were compromised. During the November 2016 filling and venting of the PCW system, backfill was not in place around portions of the system that had been modified or around previously-tested adjacent sections of piping, nor were other compensatory measures implemented, thereby compromising the thrust-restraint capability of this portion of the system. Consequently, a joint within the exposed section of piping failed at or below 125 psi, significantly below the planned test pressure, and exposed workers to a significant hazard.

Collectively, these noncompliances constitute a Severity Level I violation.

C. 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.

(1) For hazards identified either in the facility design or during the development of procedures, controls must be incorporated in the appropriate facility design or procedure. (2) For existing hazards identified in the workplace, contractors must:…(iii) [p]rotect workers from dangerous safety and health conditions."

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: … (7) Title 29 CFR, Part 1926, 'Safety and Health Regulations for Construction.'"

Title 29 C.F.R. § 1926.651, *Specific Excavation Requirements*, paragraph (b)(4), states that "[w]hile the excavation is open, underground installations shall be protected, supported, or removed as necessary to safeguard employees."

BNI document 24590-WTP-GPP-CON-3502, Rev 3, *Construction Procedure Underground Piping Installation*, effective January 29, 2016, Appendix 2, item 30, states: "[v]erify valves and in-line components are installed and tagged in accordance with design documents and manufacturer's instructions." It further states, in Section 4.9: ensure that "backfill is performed in accordance with design documents and BNI 24590-WTP-GPP-CON-3202, *Excavation and Backfill*."

U.S. Pipe and Foundry Company document BRO-009 (2016), *TR FLEX Restrained Joint Ductile Iron Pipe and Fittings*, page 19, states that "[l]arge unbalanced thrust forces can be produced at dead ends, bends, tees, or other changes in direction of high pressure and/or large diameter piping systems." It also states that "[i]n underground piping systems, an unbalanced thrust force can normally be resisted by providing a designed length of restraint at a change in direction where thrust forces are anticipated. Restrained joint pipe normally must transfer the thrust forces to the soil surrounding the pipeline." The document further states that "[i]n situations where there is insufficient space to provide the designed restrained length, or where there are poor soil conditions, the entire section of line should be restrained or other external means of stability or restraint provided." Finally, on page 20, it states that "[i]t is the responsibility of the Purchaser or Consulting Engineer to ensure that proper trench preparation, compaction, and pipe installation procedures are followed and that adequate restrained lengths or thrust block designs are provided to resist the unbalanced thrust loads generated by the installed piping systems."

AWWA C600-93, Section 3.5.3, states that "[n]ewly installed pipelines are normally tested after backfilling. When unusual conditions require that pressure and leakage testing be accomplished before completion of backfilling or with pipe joints accessible for examination, sufficient backfill material shall be placed over the pipe barrel between the joints to prevent movement, and due consideration shall be given to restraining thrust forces during the testing. In particular, restrained-joint systems, which derive their stability from the interaction of the pipe and soil, should be backfilled prior to testing."

AWWA C600-93, Section 3.6.5, states that "[a]ll dead ends on new mains shall be closed with plugs or caps that are suitably restrained to prevent blowing off under test pressure."

AWWA C600-93, Section 4.1.1, states that the "[t]est pressure shall not exceed pipe or thrust-restraint design pressures."

AWWA C600-93, Section 4.1.2, states that "[a]fter the pipe has been laid, all newly laid pipe or any valved section thereof shall be subjected to a hydrostatic pressure of at least 1.5 times the working pressure at the point of testing. Each valved section of pipe shall be slowly filled with water."

AWWA C600-93, Section 4.1.3, states that "[b]efore applying the specified test pressure, air shall be expelled completely from the section of piping under test. If permanent air vents are not located at all high points, corporation cocks shall be installed at such points so that the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation cocks shall be closed and the test pressure applied. At the conclusion of the pressure test, the corporation cocks shall be removed and plugged or left in place as required by the specifications."

AWWA C600-93, Section 3.8.3, states that "[t]he design pressure is the maximum pressure to which the pipeline will be subjected, with consideration given to the vulnerability of the pipe-soil system when the pressure is expected to be applied. In most cases, this will be the test pressure of the pipe, applied shortly after installation, when the pipe-soil system is normally most vulnerable."

BNI document 24590-WTP-GPP-CON-3504, Section 5.3.7, requires "address[ing] and resolv[ing] the following items during preparation of the Pressure Test Data Sheet prior to the initiation of pressure testing of piping and/or vessels:…verify that the installed piping was installed and accepted to the current revision of the design documents.…Verify the configuration of the system to be pressure tested." It also states: "[r]eview the following on the drawings and in the field: adequacy of vent/drain installations and need for modifications."

BNI document 24590-WTP-GPP-CON-3504, Section 5.3.9, states that "[f]or pneumatic pressure tests, safety boundaries are determined from Appendix 6. When test parameters are greater than those provided in Appendix 6, use the calculation below and Table 2 to determine the safety boundary. The Stored Energy Calculation Sheet is to be included with the Pressure Test Report."

BNI document 24590-WTP-GPP-CON-3504, Section 5.6.7, states: "[v]erify that the system being tested has been fully vented, if required." Section 5.8 states that for hydrostatic/water leak tests, "[i]t is preferable that the system be filled from the lowest points and properly vented to avoid trapping air in the system." This section also states that '[e]ntrapped air shall be vented from the system prior to the pressure test" and that "[e]xpansion joints shall have testing restraints installed when required to prevent any over-pressurization damage."

Contrary to these requirements and as evidenced by the following facts, BNI failed to ensure that PCW piping was properly restrained before pressurizing the system, permitted fill and vent activities on the PCW piping to be conducted at an excessive pressure, and conducted

hydrostatic testing on the PCW piping at pressures exceeding the thrust restraint design pressure:

1. AWWA C600-93 establishes multiple independent restrictions for the maximum pressure allowable during hydrostatic testing. One of these restrictions is that the thrust-restraint design pressure must not be exceeded during pressure testing. This thrust-restraint design pressure limit is defined under the standard as the maximum pressure to which the piping will be subjected, with consideration given to the vulnerability of the pipe-soil system when the pressure is expected to be applied. Prior to the November 2016 event, portions of the PCW system were excavated to permit the installation of valves in its 30-inch lines. Because of the slope of this excavation and possible erosion while the excavation was open, soil was also removed from a significant portion of nearby 12-inch dead-ended pipe sections (for future expansion of the system) that are connected to the PCW system by gripper ring joints. After the valves were installed, BNI permitted the PCW system to be pressurized up to 125 psi as part of the fill and vent activity in preparation for planned hydrostatic testing of the system. However, BNI did not ensure that the piping was adequately restrained with suitable backfill or by other means to prevent separation of piping at the joints. During the fill and vent activity, a 12-inch section of pipe separated, resulting in injury to a worker.

2. The limited access/safe boundary limits for the planned hydrostatic pressure testing of the PCW were set at ten feet; prior hydrostatic tests conducted on this system set the boundaries at five to ten feet. These tests assumed zero pneumatic stored energy, as noted on the Pressure Test Data Sheets. However, BNI did not consider pneumatic stored energy and did not determine or set an adequate boundary for the planned test or prior hydrostatic tests conducted on the PCW system. Post-event analysis by BNI calculated a minimum entrapped air volume of 894 cubic feet in the PCW system as designed and installed. Assuming that this entrapment occurred at the fill pressure of 125 psi and was subsequently compressed to the hydrostatic test pressure, the actual stored energy would correspond to a limited access/safe boundary limit of 300 feet, based on the BNI Pressure Testing procedure's methodology for safely conducting pneumatic pressure tests. In the best-case scenario where the 894 cubic feet was entrapped at atmospheric pressure before compression, the stored energy would correspond to a limited access/safe boundary limit of 50 feet.

3. During the November 2016 fill and vent activity in preparation for an upcoming hydrostatic test, the pipefitters pressurized the PCW system to approximately 125 psi (the pressure of source water from the fire water system) before attempting to vent the remaining trapped air. This pressure was excessive for simply filling the piping system and exceeded the pressure necessary for conducting a hydrostatic test in accordance with the AWWA C600 standard. This excessive pressure created thrust forces that were not properly restrained, creating a large amount of stored energy due to compression of entrapped air. Both of these factors contributed to the joint failure and worker injury.

Collectively, these noncompliances constitute a Severity Level I violation.

D. Training and Information

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."

Title 10 C.F.R. Part 851, Appendix A, Section 1, *Construction Safety*, subsection (a), states that "[f]or each separately definable construction activity (e.g., excavations, foundations, structural steel, roofing) the construction contractor must:…(2) [e]nsure workers are aware of foreseeable hazards and the protective measures described within the activity analysis prior to beginning work on the affected activity."

BNI document 24590-WTP-LIST-CON-09-0001, Section 1, states that "[s]kill of the craft is defined as routine tasks performed by trained and qualified journeymen as outlined for each respective craft, where little or negligible potential exists for generation of hazards not addressed in standard work practices."

Contrary to these requirements and as evidenced by the following facts, BNI failed to provide adequate and effective training and information on hazards and safeguards associated with fill and vent work duties:

1. Fill and vent activities are outside of the scope of activities that BNI determined to be routine for trained and skilled journeymen pipefitters. However, BNI did not effectively provide training or information to pipefitters on the potential hazards associated with these activities or appropriate methods to mitigate those hazards. In addition, design configuration issues permitting entrapment of air in the PCW were not identified or communicated to pipefitters assigned to the fill and vent activity.

2. The training provided by BNI that was most applicable to significant hazards and controls associated with this work activity (e.g., pressure testing, underground pipe installation, barricades and signs) was limited to documentation of required reading. The stated intent of BNI's required reading is to provide a general familiarization through review of either a change summary or the introduction, purpose, scope, and table of contents of a procedure. For the three required reading topics noted above, training records indicate that one of the newly-hired pipefitters assigned to the fill and vent activity spent one minute each on required reading for pressure testing, underground pipe installation, and barricades and signs, indicating a lack of rigor in the training process.

Collectively, these noncompliances constitute a Severity Level II violation.

E. Recordkeeping

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 CFR, Parts 1904.4 through 1904.11; 1904.29 through 1904.33; 1904.44; and 1904.46, 'Recording and Reporting Occupational Injuries and Illnesses.'"

Title 10 C.F.R. § 851.26, *Recordkeeping and reporting*, paragraph (a)(2), states that contractors must "[e]nsure that the work-related injuries and illnesses of its workers and subcontractor workers are recorded and reported accurately and consistent with DOE Manual 231.1-1A, Environment, Safety and Health Reporting Manual, September 9, 2004."

Title 29 C.F.R. § 1904.7, *General recording criteria*, subparagraph (b)(4)(i), states that "[r]estricted work occurs when, as the result of a work-related injury or illness: (A) [y]ou keep the employee from performing one or more of the routine functions of his or her job, or from working the full workday that he or she would otherwise have been scheduled to work; or (B) [a] physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full workday that he or she would otherwise have been scheduled to work."

Contrary to these requirements and as evidenced by the following facts, BNI failed to accurately record the length of restricted duty for the injured worker. BNI did not accurately report the workplace injury into the DOE Computerized Accident/Incident Reporting System (CAIRS) database. The worker submitted two requests for restricted duty for six weeks each, and BNI management acknowledged/accepted both requests. However, BNI recorded in CAIRS that the worker was on restricted duty for 30 days instead of the actual (requested and accepted) 84 days, thereby under-reporting the restricted work duty.

This noncompliance constitutes a Severity Level II violation.

II. ADMINISTRATIVE APPEAL

Pursuant to 10 C.F.R. §§ 851.43(b) and 851.44(a), BNI may petition DOE's Office of Hearings and Appeals for review of this FNOV within 30 calendar days of receipt of this FNOV. BNI's petition must conform with the procedural requirements set forth in 10 C.F.R. Part 1003, *Office of Hearings and Appeals Procedural Regulations*, Subpart G, §§ 1003.70, et seq. If BNI does not petition the Office of Hearings and Appeals for review within 30 calendar days of receipt of this FNOV, BNI relinquishes any right to appeal any matter in this FNOV, and the FNOV will constitute a final order.

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

Washington, D.C.
This 12th day of September 2018