



Department of Energy

Washington, DC 20585

May 31, 2012

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Frank Russo
Project Director, Hanford Waste Treatment and Immobilization Plant Project
Bechtel National, Incorporated
2435 Stevens Center Place
Richland, Washington 99352

WEA-2012-02

Dear Mr. Russo:

This letter refers to the U.S. Department of Energy (DOE) Office of Health, Safety and Security's Office of Enforcement and Oversight investigation into the facts and circumstances associated with the July 16, 2010, millwright foot injury that resulted in the amputation of two toes, and the March 16, 2011, formwork panel rigging event at the Hanford Waste Treatment and Immobilization Plant Project (WTP). The results of the investigation were provided to Bechtel National, Incorporated (BNI) in an investigation report dated January 5, 2012. An enforcement conference was held with BNI representatives on February 7, 2012, to discuss the report's findings and BNI's corrective actions. A summary of the conference and list of attendees is enclosed.

DOE considers the two material handling events and the associated regulatory violations to be of high safety significance. A breakdown in management planning, scheduling, execution, and work control were major factors contributing to these events. BNI performed work in a manner that was inconsistent with established safety requirements and did not reassess and control potential hazards when the work scope changed. The events revealed systemic weaknesses in BNI's hazard identification process, application of appropriate hazard prevention and abatement controls, procedural compliance, and worker training. Based on an evaluation of the evidence in this matter, DOE has concluded that violations of 10 C.F.R. Part 851, *Worker Safety and Health Program*, by BNI have occurred. Accordingly, DOE is issuing the enclosed Preliminary Notice of Violation (PNOV), which cites two Severity Level I violations and one Severity Level II violation with a total proposed base civil penalty of \$187,500.



BNI did not report the noncompliances associated with July 16, 2010, event into DOE's Noncompliance Tracking System (NTS). However, BNI submitted an NTS report for the noncompliances associated with the March 16, 2011, event. As noted in 10 C.F.R. Part 851, Appendix B, *General Statement of Enforcement Policy*, noncompliances identified as a result of operational events are considered self-disclosing and are not typically considered for possible mitigation.

BNI's initial causal analysis for the July 16, 2010, millwright injury event concluded that inadequate work planning was the root cause for failing to use mechanical means for moving and securing a hot cell door guide rail. BNI management directed a reevaluation of the root cause analysis that resulted in a change in the root cause statement from "less than adequate daily work planning" to "less than adequate execution of work." DOE determined that both evaluations lacked a level of rigor and depth necessary to support the root cause or understand fully the contributing organizational and process weaknesses. BNI has developed corrective actions that are intended to institutionalize changes to programs associated with management oversight, work control, hazard identification, and employee/supervisory training. Despite BNI's efforts to identify and address the deficiencies associated with this event, the Office of Enforcement and Oversight remains concerned that many of the corrective actions lack specific linkage to the regulatory violations and programmatic deficiencies associated with the event and may not be sufficient to prevent recurrence.

BNI conducted an apparent cause analysis and extent-of-condition review for the March 16, 2011, formwork rigging event. BNI determined that the apparent cause was related to a lack of procedural compliance by workers. BNI instituted corrective measures addressing work instruction compliance, employee training, and inspection activities. The compensatory actions that were taken shortly after the event, and the follow-up actions linked to the findings from the apparent cause analysis, appear to address the regulatory noncompliances.

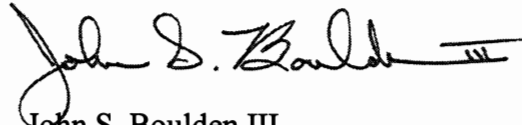
The Office of Enforcement and Oversight investigated a third material handling event located at the WTP Material Handling Facility (MHF). During the investigation, it was discovered that BNI had incorrectly determined that the MHF is not a "DOE site" as defined by 10 C.F.R. § 851.3 because it is not owned by DOE or leased directly by DOE. Thus, BNI excluded the MHF from the list of covered facilities in their Part 851 *Worker Safety and Health Program* without fully considering the regulation's definition of "DOE site." After a review of this determination, DOE notified BNI that the Department intends to exercise its regulatory authority for work activities at the MHF. The MHF falls within the definition of a DOE site because it is "under DOE control" (ref. 10 C.F.R. § 851.3).

After consideration of these factors, DOE has concluded that mitigation for corrective actions is warranted for a Severity Level I violation associated with the March 16, 2011, event and the Severity Level II violation associated with the

July 16, 2010, event. As a result, the total proposed civil penalty is \$150,000. Pursuant to 10 C.F.R. § 851.42, *Preliminary notice of violation*, you are required 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 no reply is submitted within 30 calendar days, then in accordance with 10 C.F.R. § 851.42(d), you will relinquish any right to appeal any matter in the PNOV, and the PNOV will constitute a final order.

After reviewing your response to the PNOV, DOE will determine whether further action is necessary to ensure compliance with worker safety and health requirements. DOE will continue to monitor the completion of corrective actions until these matters are fully resolved.

Sincerely,

A handwritten signature in black ink, appearing to read "John S. Boulden III". The signature is fluid and cursive, with a horizontal line extending from the end.

John S. Boulden III

Director

Office of Enforcement and Oversight
Office of Health, Safety and Security

Enclosures: (1) Preliminary Notice of Violation WEA-2012-02
(2) Enforcement Conference Summary and List of Attendees

cc: Scott Samuelson, ORP
Dawn Kammenzind, BNI

Preliminary Notice of Violation

Bechtel National, Incorporated
Hanford Waste Treatment and Immobilization Plant Project

WEA-2012-02

A U.S. Department of Energy (DOE) Office of Enforcement and Oversight investigation into the facts and circumstances surrounding two material handling events that occurred on July 16, 2010, and March 16, 2011, at the Hanford Waste Treatment and Immobilization Plant (WTP) Project during construction work performed by Bechtel National, Incorporated (BNI) identified multiple violations of DOE worker safety and health requirements.

On July 16, 2010, a millwright in the Pretreatment Facility sustained a foot injury that resulted in amputation of two toes after a section of a hot cell door guide rail weighing 569 pounds slipped off dunnage and dropped on his foot.

On March 16, 2011, a carpenter crew from the High Level Waste (HLW) facility reported the failure of a wedge clip securing a double duty lifting bracket that was being used to hoist a panel of formwork weighing over 5,000 pounds. BNI determined that the work crew used a lifting configuration that deviated from the manufacturer's instructions without a further in-depth rigging analysis of the alternate rigging method.

DOE's investigation identified two Severity Level I violations and one Severity Level II violation of 10 C.F.R. Part 851 involving deficiencies in general requirements and hazard identification, hazard prevention and abatement, rigging equipment for material handling, personal protective equipment (PPE), and training and information. The total proposed civil penalty is \$150,000.

In accordance with 10 C.F.R. § 851.42(b), and Part 851, Appendix B, *General Statement of Enforcement Policy*, the violations are listed below. BNI may be required to post a copy of this Preliminary Notice of Violation (PNOV) in accordance with 10 C.F.R. § 851.42(e) if it becomes a final order.

VIOLATIONS

I. General Requirements and Hazard Identification

Title 10 C.F.R. § 851.10, *General requirements*, paragraph (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 [10 C.F.R. Part 851]; and (ii) [w]ith the worker safety and health program for that workplace.”

Title 10 C.F.R. § 851.21, *Hazard identification and assessment*, paragraph (a), states, in pertinent part, 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: (1) [a]ssess worker exposure to chemical, physical, biological, or safety workplace hazards through appropriate workplace monitoring; . . . (5) [e]valuate operations, procedures, and facilities to identify workplace hazards; [and] (6) [p]erform routine job activity-level hazard analyses.” In accordance with paragraph (c) of the same section, “[c]ontractors must perform [these activities] initially to obtain baseline information and as often thereafter as necessary to ensure compliance with the requirements of [10 C.F.R. Part 851, Subpart C].”

Contrary to these requirements, BNI failed to identify existing and potential workplace hazards associated with the placement of and work on the guide rails on July 16, 2010. On March 16, 2011, BNI failed to identify and assess potential hazards for the lifting configuration for the formwork using double duty lifting brackets. Specific examples are listed below:

- A. BNI did not comply with BNI procedures 24590-WTP-GPP-WPHA-001, *Work Control and Work Packaging* (revision 2, dated July 12, 2010) and 24590-WTP-GPP-WPHA-002, *Hazard Analysis and Control* (revision 2, dated July 12, 2010) when it deviated from the original work scope of the approved work control document. BNI did not tailor or adjust the work package assisted job hazard analysis (AJHA) (CONST-1991, revision 0) to accommodate modifications to the installation instructions for the hot cell door guide rails. As a result, the AJHA available to field personnel on July 16, 2010, did not address the interaction between multiple workplace hazards and the addition of new hazards due to work area conditions, field management work instructions, and the configuration of work materials (e.g., sole plates, mounting shims, guide rails, and dunnage) that were staged for the horizontal shield door installation.
- B. BNI did not identify or assess as a potential hazard the increased axial load on the rigging assembly imposed when BNI decided to flip a formwork panel using two pick points. Additionally, the rigging configuration deviated from instructions in Symons Steel-Ply Gang Form Safety Application (Ref. Drawing K-3876, sheet 1 of A, dated May 20, 2002) that identify lifting configurations incorporating safety and performance characteristics of Symons Steel-Ply components and accessories.

Collectively, these deficiencies constitute a Severity Level I violation. As explained in 10 C.F.R. Part 851, appendix B, section VI(b)(1), “[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.”

Base Civil Penalty - \$75,000

Proposed Civil Penalty - \$75,000

II. Hazard Prevention and Abatement

Title 10 C.F.R. § 851.22, *Hazard prevention and abatement*, paragraph (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.” Under subparagraph (a)(1) of this section, “[f]or hazards identified . . . during the development of procedures, controls must be incorporated in the appropriate . . . procedure” and under subparagraph (a)(2) of this section, “[f]or existing hazards identified in the workplace, contractors must: . . . (i) [p]rioritize and implement abatement actions according to the risk to workers, (ii) [i]mplement interim protective measures pending final abatement; and (iii) [p]rotect workers from dangerous safety and health conditions.” Under paragraph (b) of this section, contractors 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 [(PPE)].”

Title 10 C.F.R. § 851.23, *Safety and health standards*, subparagraph (a)(7), requires contractors to comply with 29 C.F.R. Part 1926, *Safety and Health Regulations for Construction* when applicable to the hazards of the covered workplace. Title 29 C.F.R. § 1926.28, *Personal protective equipment*, paragraph (a), requires employers to be “[r]esponsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions or where [29 C.F.R. Part 1926] indicates the need for using such equipment to reduce the hazards to the employees.”

Title 29 C.F.R. § 1926.251, *Rigging equipment for material handling*, subparagraph (a)(1), states that “[r]igging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service.” Subparagraph (a)(2) states “[r]igging equipment shall not be loaded in excess of its recommended safe working load, as prescribed in Tables H-1 through H-20 in [Subpart H, *Materials Handling Storage, Use and Disposal*], following [29 C.F.R.] § 1926.252(e) for the specific equipment.” Subparagraph (a)(4) states “[s]pecial custom design grabs, hooks, clamps, or other lifting accessories for such units as modular panels, prefabricated structures and similar materials, shall be marked to indicate the safe working loads and shall be proof-tested prior to use to 125 percent of their rated load.”

Contrary to these requirements, BNI failed to implement a hazard prevention and abatement process to protect workers from hazards associated with material movement by prioritizing abatement actions and selecting appropriate hazard controls. Specific examples are listed below:

- A. BNI did not select hazard controls for movement of the hot cell door guide rails based on the hierarchy of controls specified in BNI Procedure 24590-WTP-GPP-WPHA-002, which requires an evaluation of engineering controls, administrative controls, or PPE in that order of preference. BNI field supervision did not provide a mechanical lifting device to move the hot cell door guide rails.

- B. BNI did not identify on relevant work control documents, as required by BNI procedures 24590-WTP-GPP-WPHA-001 and 24590-WTP-GPP-WPHA-002, hazard controls necessary for securing the hot cell door guide rail in place once it was located on dunnage. The AJHA (CONST-1991, revision 0) did not address specific hazard controls for the configuration of the work materials on July 16, 2010, and BNI did not supplement the Safety Task Analysis Risk Reduction Talk (STARRT) card with this information to convey appropriate hazard controls to the work crew.
- C. BNI did not ensure that supervision and field safety assurance staff verified the suitability of the work crew's available hazard controls identified in the AJHA (CONST-1991, revision 0), including the appropriateness of the PPE, as required by BNI Procedure 24590-WTP-GPP-SIND-025, *Personal Protective Equipment* (revision 3, dated September 21, 2009) following field supervision's instructions to the work crew to perform manual movement and alignment of the hot cell guide rails without the assistance of a mechanical device.
- D. The carpenter crew associated with the formwork event attempted to flip a formwork panel weighing over 5,000 pounds using a rigging configuration with two Symons double duty lifting brackets individually rated for a vertical lift of 2,000 pounds. The manufacturer's formwork rigging and installation guide prescribed a rigging configuration to maintain a safe working load using three Symons double duty lifting brackets as attachment points on the formwork panel (Ref. drawing K-3878, sheet 2135A HLW, dated November 19, 2010). On March 16, 2011, BNI deviated from the prescribed lifting configuration and did not consider whether the controls in place (i.e., rigging assembly, lifting brackets, and pick point) were adequate to perform a vertical lift of the formwork panel as required by BNI Procedure 24590-WTP-GPP-CON-1901, *Rigging Work Operations* (revision 4, dated July 31, 2008).
- E. BNI did not ensure that the Symons double duty lifting brackets used as lifting accessories to move a formwork panel had legible markings to indicate safe working loads for lifting applications.

Collectively, these deficiencies constitute a Severity Level I violation.

Base Civil Penalty - \$75,000

Proposed Civil Penalty - \$56,250

III. Training and Information

Title 10 C.F.R. § 851.24, *Functional areas*, paragraph (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: . . . [c]onstruction safety.” Paragraph (b) states that “[i]n implementing the structured approach required by paragraph (a) of [10 C.F.R. § 851.24], contractors must comply with the applicable standards and provisions in Appendix A of [Part 851], entitled *Worker Safety and Health Functional Areas*.” Appendix A, section 1, *Construction Safety*, subparagraph (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.”

Title 10 C.F.R. § 851.25, *Training and information*, paragraph (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.” Paragraph (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.”

Contrary to these requirements, BNI failed to properly train and provide information to workers on the safety-related work practices necessary to place and align the hot cell door guide rails on July 16, 2010. BNI did not ensure that the foreman and all members of the millwright event work crew had the experience, knowledge, skills, and abilities commensurate with the work package classification and their assigned responsibilities to place and align the hot cell door guide rails in the Pretreatment Facility. In addition, BNI did not ensure that experienced personnel provided sufficient guidance to the work crew to assist them in successfully anticipating the hazards at the work site as the hot cell door guide rails were prepared, cleaned, and transported.

This deficiency constitutes a Severity Level II violation. As explained in 10 C.F.R. Part 851, appendix B, section VI(b)(2), “[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.”

Base Civil Penalty - \$37,500
Proposed Civil Penalty - \$18,750

REPLY

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

If BNI chooses not to contest the violations set forth in this PNOV and the proposed remedy, the reply should state that BNI waives the right to contest any aspect of the PNOV and the proposed remedy. In such cases, the civil penalty of \$150,000 must be paid within 30 calendar days after receipt of this PNOV by check, draft, or money order payable to the Treasurer of the United States (Account 891099) and mailed to the address provided below. This PNOV will constitute a final order upon the filing of the reply.

If BNI disagrees with any aspect of this PNOV or the proposed remedy, then as applicable and in accordance with 10 C.F.R. § 851.42(c)(1), the reply must: “(i) [s]tate any facts, explanations and

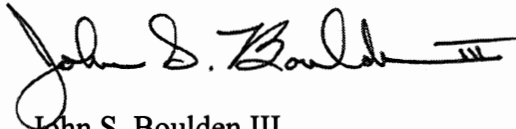
arguments that support a denial of the alleged violation; (ii) [d]emonstrate any extenuating circumstances or other reason why the proposed remedy should not be imposed or should be [further] mitigated; (iii) [d]iscuss the relevant authorities that support the position asserted, including rulings, regulations, interpretations, and previous decisions issued by DOE.” In addition, 10 C.F.R. § 851.42(c)(2) requires that “[c]opies of all relevant documents must be submitted with the reply.”

Please send the appropriate reply by overnight carrier to the following address:

Director, Office of Enforcement and Oversight
Attention: Office of the Docketing Clerk
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874-1290

A copy of the reply should also be sent to the Assistant Secretary for Environmental Management and the Manager of the DOE Office of River Protection.

Pursuant to 10 C.F.R. § 851.42(d), if BNI does not submit a written reply within 30 calendar days of receipt of this PNOV, BNI relinquishes any right to appeal any matter in this PNOV and this PNOV, including the proposed remedy, will constitute a final order.



John S. Boulden III
Director
Office of Enforcement and Oversight
Office of Health, Safety and Security

Washington, DC
This 31st day of May 2012