



Department of Energy

Washington, DC 20585

August 19, 2010

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Neil Brosee
President
Washington Closure Hanford, LLC
2620 Fermi Avenue
Richland, Washington 99354

WEA-2010-02

Dear Mr. Brosee:

This letter refers to the Office of Health, Safety and Security's Office of Enforcement investigation into the facts and circumstances surrounding the employee fall that occurred at the Hanford High Bay Testing Facility (336 Building) on July 1, 2009. The worker sustained serious injury to his back and broke bones in both legs. Based on an evaluation of the evidence in this matter, the U.S. Department of Energy (DOE) has concluded that violations of 10 C.F.R. Part 851, *Worker Safety and Health Program*, by Washington Closure Hanford, LLC (WCH) occurred. Accordingly, DOE is issuing the enclosed Preliminary Notice of Violation (PNOV) to WCH with two Severity Level I violations. DOE elected to handle this matter through a contract fee reduction in the amount of \$1,700,000 pursuant to the Conditional Payment of Fee clause under contract number DE-AC-06-05RL14655 between DOE and WCH. Therefore, in accordance with 10 C.F.R. § 851.5(c), no civil penalty is proposed for the violations identified in this PNOV.

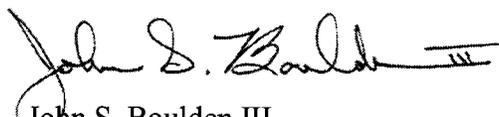
DOE considers this event and the associated violations to be of high safety significance. DOE's evaluation of this event identified extensive weaknesses in WCH's fall protection, ladder safety, and construction safety programs that exposed workers to unmitigated fall hazards. WCH failed to comply not only with applicable DOE and Occupational Safety and Health Administration regulatory requirements, but also to establish worker safety and health program provisions that addressed worker exposures to fall hazards while using fixed ladders. WCH did not identify and assess the hazards associated with ongoing demolition work when the planned tasks for preparing a bridge crane for removal changed. Notwithstanding these issues, DOE acknowledges WCH's prompt response to the event and comprehensive extent of condition review. In addition, the corrective actions proposed and scheduled for implementation by WCH appear to address the issues identified in the DOE Type B accident investigation report, the programmatic weakness identified by the contractor's internal investigation, and the violations within this PNOV.



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 no reply is submitted within 30 days, in accordance with 10 C.F.R. § 851.42(d), any right to appeal any matter in the PNOV will be relinquished and the PNOV will constitute a final order. DOE does not intend to convene an enforcement conference for this enforcement action. You may request an enforcement conference if you believe that additional information pertinent to this action could best be conveyed through such a meeting. A request for an enforcement conference does not relieve WCH of its obligation to reply to this PNOV within 30 days.

After reviewing your response to the PNOV, including any proposed additional corrective actions entered into DOE's Noncompliance Tracking System, 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 written in a cursive style with a long horizontal stroke at the end.

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

Enclosure

cc: Timothy Quinn, WCH

Preliminary Notice of Violation

Washington Closure Hanford, LLC
Hanford Site

WEA-2010-02

As a result of a U.S. Department of Energy's (DOE) investigation into the facts and circumstances associated with the Washington Closure Hanford, LLC (WCH) employee fall injury that occurred on July 1, 2009, at the Hanford High Bay Testing Facility (336 Building), multiple violations of DOE worker safety and health requirements by WCH were identified. The fall injury occurred when WCH employees were preparing a bridge crane for removal from the building and one of the workers fell 50 feet through an open hatch in a catwalk. The fall resulted in serious injuries to the employee. The violations involved deficiencies relating to fall protection and ladder safety, and general requirements and construction safety management.

The safety issues associated with this event were the subject of a \$1,700,000 fee reduction taken by DOE's Richland Operations Office under clause B.8(b)(3), Conditional Payment of Fee, of contract number DE AC-06-05RL14655 between DOE and WCH. As a result and in accordance with 10 C.F.R. § 851.5(c), no civil penalty is proposed for the violations contained herein. The associated violations have been determined to be two Severity Level I violations. As required by 10 C.F.R. § 851.42(b) and consistent with Part 851, Appendix B, *General Statement of Enforcement Policy*, the violations are listed below. WCH may be required to post a copy of this Preliminary Notice of Violation (PNOV) in accordance with 10 C.F.R. § 851.42(e).

VIOLATIONS

I. Fall Protection and Ladder Safety

Title 10 C.F.R. § 851.23(a)(3) and (7), *Safety and health standards*, requires contractors to comply with 29 C.F.R. Part 1910, *Occupational Safety and Health Standards*, and 29 C.F.R. Part 1926, *Safety and Health Regulations for Construction*, respectively. Subpart M of Part 1926 establishes requirements for fall protection; subpart T establishes requirements for demolition; and subpart X establishes requirements for ladders. Subpart D of Part 1910 establishes requirements for walking-working surfaces.

Contrary to these requirements, WCH failed to protect employees from fall hazards and to implement fall protection and ladder safety requirements. Specific citations are listed below:

- A. Title 29 C.F.R. § 1926.501, *Duty to have fall protection*, at subparagraph (b)(1), Unprotected sides and edges, states that “[e]ach employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.”

Title 29 C.F.R. § 1926.502, *Personal fall arrest systems*, at subparagraph (d)(23) states that “[p]ersonal fall arrest systems shall not be attached to guardrail systems nor shall they be attached to hoists except as specified in other subparts of this part.”

- WCH personnel ascended a 50-foot ladder and traversed elevated platforms at heights of 25 and 50 feet without the uninterrupted use of a guardrail system, safety net, or personal fall arrest system. WCH personnel on a 25-foot platform unhooked from a lower retractable lanyard and hooked into an upper retractable lanyard before continuing to climb to the catwalk above. When the workers were not attached to the lanyard, they were exposed to a 25-foot fall hazard, as the ladder access opening did not have a functional closure apparatus. In addition, workers at the 50-foot level unhooked the self-retracting lanyard (SRL) that was attached to their harness to make that device available to a co-worker at a lower elevation. Since the hatch cover was open at the time, this practice exposed workers to a 50-foot fall hazard.
- On July 1, 2009, two employees working at the 50-foot elevation did not have fall protection, a guard rail system, or a safety net in the vicinity of a hatch that was left open and unprotected.
- Workers did not use fall protection during and after cutting a catwalk guardrail. The guardrail was cut in two locations and did not provide effective protection to the two workers on the catwalk at the time. Workers were instructed to tie off to a guardrail one section back from the guardrail that was cut, contrary to the requirements of 29 C.F.R. § 1926.502(d)(23), which prohibits attaching personal fall arrest systems to guardrails.

- B. Title 29 C.F.R. § 1926.501(b)(4), *Holes*, at item (i) states that “[e]ach employee on walking/working surfaces shall be protected from falling through holes (including skylights) more than 6 feet (1.8 m) above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes” and at item (ii) states that “[e]ach employee on a walking/working surface shall be protected from tripping in or stepping into or through holes (including skylights) by covers.”

- WCH did not ensure the cover was closed when the hatch was not in use. WCH substituted an informal administrative control, identified as the “team up team down” rule, as the only means to control exposure to the floor hole that was present when the catwalk hatch was open. This proved to be an unreliable and ineffective method to ensure control of the hazard.

- C. Title 29 C.F.R. § 1926.502(d), *Personal fall arrest systems*, at subparagraph (15) states that “[a]nchorage used for attachment of personal fall arrest equipment shall be independent of

any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, or shall be designed, installed, and used as follows: (i) [a]s part of a complete personal fall arrest system which maintains a safety factor of at least two; and (ii) [u]nder the supervision of a qualified person.”

- WCH did not comply with the structural engineering recommendations for anchorage locations contained in the *B184 Rigging Calculation – Preliminary* (dated June 30, 2009). The anchors were installed on flat iron used to support the fixed ladder and structural cross bracing for the building. The anchorage points used were not in accordance with the existing structural engineering analysis. WCH did not have a structural engineer nor a competent person determine if the selected anchorage points had the strength and integrity to support employees safely and were capable of supporting at least 5,000 pounds as required by SH-1-3.5, *Fall Protection* (revision 7, dated July 31, 2007).
- D. Title 29 C.F.R. § 1926.503(c), *Retraining*, states that “[w]hen the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph (a) of this section, the employer shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where: (1) [c]hanges in the workplace render previous training obsolete; or (2) [c]hanges in the types of fall protection systems or equipment to be used render previous training obsolete; or (3) [i]nadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.”
- The three riggers and two millwrights working in the 336 Building on July 1, 2009, were not retrained on significant changes to SH-1-3.5, *Fall Protection*, which went into effect on July 31, 2007. The changes, which were implemented in response to a management assessment, included requirements for controlled access zones, safety monitors, fall protection plans, and Project Safety Representative (PSR) responsibilities. There was no documented evidence that the workers received fall protection training following these changes.
- E. Title 29 C.F.R. § 1926.1051, *General requirements*, at paragraph (b) states that “[e]mployers shall provide and install all stairway and ladder fall protection systems required by this subpart and shall comply with all other pertinent requirements of this subpart before employees begin the work that necessitates the installation and use of stairways, ladders and their respective fall protection systems.”

Title 29 C.F.R. § 1926.1053, *Ladders*, at subparagraph (a)(19) states that “[w]here the total length of a climb equals or exceeds 24 feet (7.3 m), fixed ladders shall be equipped with one of the following: (i) [l]adder safety devices; or (ii) [s]elf-retracting lifelines, and rest platforms at intervals not to exceed 150 feet (45.7 m); or (iii) [a] cage or well, and multiple ladder sections, each ladder section not to exceed 50 feet (15.2 m) in length.”

- A rigger climbed a 50-foot fixed ladder without fall protection to install two SRLs – one at the 25-foot level and a second at the 50-foot level, to allow personnel access to the

catwalk in order to prepare the crane for removal. Although the fixed ladder was equipped to be used with a ladder safety device, WCH did not ensure that employees ascending or descending the ladder were using this fall protection device.

F. Title 29 C.F.R. § 1926.1060, *Training requirements*, at paragraph (a) states that “[t]he employer shall provide a training program for each employee using ladders and stairways, as necessary. The program shall enable each employee to recognize hazards related to ladders and stairways, and shall train each employee in the procedures to be followed to minimize these hazards.” In addition, subparagraph (a)(1) states that “[t]he employer shall ensure that each employee has been trained in the following area as applicable: (i) [n]ature of the fall hazards in the work area . . . (iii) [t]he proper construction, use, placement, and care in handling of all stairways and ladders . . .”

- WCH did not provide necessary training for employees using fixed ladders during demolition activities to ensure the employees were equipped with information and skills to minimize the hazards they encountered while performing work in the 336 Building. The WCH *Health and Safety Plan (HASP 300) D4 Project* (revision 3, dated April 30, 2009), WCH SH-1-3.6, *Portable Ladders* (revision 2, dated February 3, 2007), and the *Ladder/Scaffold User Training* (course number 105950, dated November 2008) did not provide relevant information (e.g., fall hazards, proper use) for the type of ladder being used in the 336 Building.

G. Title 29 C.F.R. § 1910.23(a), *Protection for floor openings*, at subparagraph (2) states that “[e]very ladderway floor opening or platform shall be guarded by a standard railing with standard toeboard on all exposed sides (except at entrance to opening), with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.”

- The ladderway entry to the mid-point platform had a chain that was too short to span the entry and provide guardrail protection as identified in photographs provided in the Type B Accident Investigation Report DOE/RL-2009-83, *Washington Closure Hanford, LLC Employee Fall Injury on July 1, 2009, at the 336 Building, Hanford Site, Washington*. The access opening to the fixed ladder was not provided with a swing gate nor was the passage through the opening offset to protect employees from a 25-foot fall hazard.

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.”

II. General Requirements and Construction Safety Management

Title 10 C.F.R. § 851.10, *General requirements*, states that “(a) [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) [w]ith the worker safety and health program for that workplace.” Appendix H, *Worker Safety and Health Program (10 C.F.R. Part 851)*, of the WCH *Integrated Environment, Safety, and Health Management System Description* (revision 6, dated August 2008), describes the policies and procedures that comprise the WCH worker safety and health program pursuant to § 851.10.

Title 10 C.F.R. § 851.24, *Functional areas*, at paragraph (a) and (b) requires that “[c]ontractors must have a structured approach to their worker safety and health program” and that in implementing the structured approach, “[c]ontractors must comply with the applicable standards and provisions in [A]ppendix A of [Part 851], *Worker Safety and Health Functional Areas*.” Appendix A, paragraph 1, *Construction Safety*, establishes requirements for construction activities, including altering, rehabilitating, dismantling, or removing an existing facility.

Contrary to these requirements, WCH failed to comply fully with the safety and health standards applicable to the hazards at the 336 Building. In addition, WCH failed to execute its established work control process described in PAS-2-1.1, *Integrated Work Control* (revision 4, dated July 28, 2008), which is invoked in the WCH worker safety and health program, once management determined a change in work scope was necessary to remove the bridge crane. Specific citations are listed below:

A. Title 10 C.F.R. § 851.10 (b) states that “[t]he written worker safety and health program must describe how the contractor complies with: (1) [r]equirements set forth in Subpart C of [Part 851] that are applicable to the hazards associated with the contractor's scope of work.” Appendix H, section H.7.2, of the WCH worker safety and health program states that “[s]pecific hazards addressed through implementation of the construction and industrial safety program include ... [f]all protection [and] [p]ortable ladders.”

- WCH did not establish and implement a worker safety and health program applicable to its scope of work that included provisions for worker exposures to fall hazards associated with fixed ladders. WCH procedure SH-1.3.6, *Portable Ladders* (revision 2, dated February 3, 2007), established requirements for portable ladders, but WCH did not establish similar requirements for working with fixed ladders. In addition, WCH procedure SH-1-3.5, *Fall Protection* (revision 7, dated July 31, 2007) did not include Occupational Safety and Health Administration requirements for fall protection for fixed ladders per 29 C.F.R. § 1926.1053(a)(19). The worker safety and health program provided no information to first line management or employees on the necessary precautions to mitigate hazards associated with fixed ladder systems.

- WCH procedure, SH-1-3.5, *Permanent Structures/Stairs/Caged Ladders*, section 6.7, identified requirements that allowed employees to perform work without fall protection when they are located 6 feet away from any fall hazard such as a floor opening or open-sided floor. This provision is not in accordance with 29 C.F.R 1926, subpart M. Subpart M does not establish a distance criterion for determining when fall protection must be used.
- B. Title 10 C.F.R. Part 851, appendix A, paragraph 1(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.” 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.”
- The job hazards analysis (JHA) applicable to the work being performed on July 1, 2009, *Above Grade Demolition of 336 Building* (revision 0, dated June 25, 2009), did not identify the catwalk hatch as a potential hazard. As a result, the JHA’s *Fall Protection Checklist* (dated June 30, 2009), a component of the Integrated Work Control Package (IWCP) - *Above Grade Demo Building 336* (300 09 05 11 001, revision 0, dated June 30, 2009), only addressed the hazards of the fixed ladder and did not include mitigation for the fall hazards associated with the elevated tasks conducted on the catwalk.
 - Activity-level hazard analyses were not conducted for cutting the guard railing on the catwalk, securing the cable drum to the crane structure with a chain, installing alternate fall restraints, and draining gear box oil in the 336 Building. WCH procedure PAS-2-1.1, *Integrated Work Control* (revision 4, dated July 28, 2008) defines these as a major change in work scope. Major changes in work scope for activities addressed in an IWCP required the Work Supervisor responsible for the work, the PSR, Responsible Manager, and Subject Matter Experts to approve the work scope changes and re-perform the JHA.
- C. Title 29 C.F.R. § 1926.56, *Illumination*, at paragraph (a) states that “[c]onstruction areas, ramps, runways, corridors, offices and storage areas shall be lighted to not less than the minimum illumination intensities listed in Table D-3 while any work is in progress.”
- WCH did not conduct a lighting survey as part of the assessment of potential hazards in the 336 Building. As a result, WCH did not consider the interrelationship between the lack of illumination in this work environment and the presence of multiple industrial safety hazards associated with working at high elevations while preparing the bridge crane for removal (e.g., tripping hazards, unprotected holes). A lighting survey performed on July 8, 2009, to simulate the conditions on the day of the fall event indicated that the work area would have been illuminated to less than 1 foot-candle, which is less than the 5 foot-candles required by 29 C.F.R. § 1926.56(a) for construction work areas.

Collectively these deficiencies constitute a Severity Level I violation.

REPLY

Pursuant to the provisions of 10 C.F.R. § 851.42, WCH 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 WCH concurs with the violations set forth in this PNOV and the proposed remedy, the reply should state that WCH waives the right to contest any aspect of the PNOV and the proposed remedy. In such cases, this PNOV will constitute a final order upon the filing of the reply.

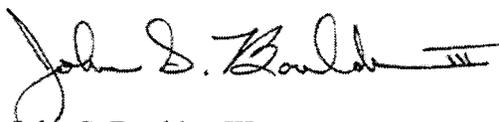
If WCH disagrees with any aspect of this PNOV or the proposed remedy, then in accordance with 10 C.F.R. § 851.42(c)(1), the reply must: "(i) [s]tate any facts, explanations and arguments that support a denial of the alleged violation; . . . [and] (iii) [d]iscuss the relevant authorities that support 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." Corrective actions that have been or will be taken to avoid further violations should be delineated with target and completion dates in DOE's Noncompliance Tracking System.

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

Director, Office of Enforcement
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 in Washington, DC and the Manager of the Richland Operations Office.

Pursuant to 10 C.F.R. § 851.42(d), if WCH does not submit a written reply within 30 calendar days of receipt of this PNOV, WCH 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
Acting Director
Office of Enforcement
Office of Health, Safety and Security

Washington, DC
this 19th day of August 2010