



Department of Energy
Under Secretary for Nuclear Security
Administrator, National Nuclear Security Administration
Washington, DC 20585



November 6, 2020

VIA OVERNIGHT UPS MAIL CARRIER

Mr. Ross Sanchez
President
Cross Connection, Inc.
18329 US 84/285
Española, New Mexico 87532

WEA-2020-02

Dear Mr. Sanchez:

This letter refers to the Department of Energy's (DOE) investigation into the facts and circumstances associated with two material-handling events that occurred in July and December 2018 at Los Alamos National Laboratory (LANL). The DOE Office of Enterprise Assessments' Office of Enforcement provided the results of the investigation to Cross Connection, Inc. (CCI) in an investigation report dated November 8, 2019. An enforcement conference was convened on January 14, 2020, with you and members of your staff to discuss the report's findings and CCI's response. A summary of the enforcement conference and attendance roster are enclosed.

The Department of Energy's National Nuclear Security Administration (DOE/NNSA) considers the material-handling deficiencies to be of high safety significance. The material-handling events exposed weaknesses in CCI's implementation of the requirements of 10 C.F.R. Part 851, *Worker Safety and Health Program*, resulting in a worker sustaining a concussion from the angle-iron event and a worker being seriously injured during the flange-handling event. Each of these events could have resulted in serious injury or death, and they revealed deficiencies in: (1) management responsibilities; (2) hazard identification, assessment, prevention and abatement; and (3) training and information.

Both events exposed deficiencies in CCI's worker safety and health program implementation, including failures in exercising management and safety oversight and supervision of workplace conditions, adequately identifying and assessing workplace hazards, ensuring effective hazard abatement, and effectively



communicating information. CCI did not ensure that clear roles and responsibilities for work planning processes were specified or communicated to workers, resulting in work crews making ad hoc changes to processes when conditions changed without reevaluation of hazards and controls. In addition, CCI did not adequately identify and evaluate material handling hazards for assigned work or ensure implementation of required controls, which resulted in workers performing work beneath suspended loads.

The flange-handling event revealed that CCI did not ensure that manufacturer-specific equipment attachments were only used on the equipment they were designed for, as required by the manufacturer. CCI was aware of and continued to allow use of the JLG Industries (JLG) lifting attachment on the skid-steer.

Based on an evaluation of the evidence in this matter, including information presented at the enforcement conference, DOE/NNSA concludes that CCI violated requirements prescribed under 10 C.F.R. Part 851. Accordingly, DOE/NNSA hereby issues the enclosed Preliminary Notice of Violation (PNOV), which cites one Severity Level I violation with a total base civil penalty, before mitigation, of \$99,000.

DOE/NNSA acknowledges CCI's response to both events, including completion of all corrective actions required by the LANL Management & Operating (M&O) contractor. Project operations were suspended after each event until formal compensatory measures defined in a restart plan were implemented by CCI. Measures included providing additional safety oversight and supervision on all work fronts. CCI fully cooperated with the DOE/NNSA and M&O Joint Accident Investigation Board (JAIB) for the December 2018 event, including collaboration with M&O personnel in development of corrective actions to address the programmatic deficiencies identified in the JAIB report. The identified corrective actions, if adequately implemented and maintained by CCI, appear to be sufficient to comprehensively prevent recurrence and broadly address areas of concern. Further, DOE/NNSA recognizes CCI's progress in improving programmatic processes through completion of corrective actions identified by the JAIB, including utilizing the Safety Task Analysis Risk Reduction Talk method, which actively involves workers; identifies specific steps, hazards and controls that are commensurate with the task being performed; and ensures successful retraining of employees on hazard recognition.

In recognition of CCI's overall response to the events, including corrective actions, DOE/NNSA has chosen to grant 50 percent mitigation of the base civil penalty for the Severity Level I violation. DOE/NNSA grants an additional civil penalty mitigation based on contractor staffing size at the time of the events. For contractors with 26-100 employees, DOE/NNSA applied mitigation of 40 percent of the base civil penalty, consistent with DOE's worker safety and health enforcement policies and past practice regarding small business entities. As a result, the total proposed civil penalty is \$9,900.

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 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, NNSA will determine whether any further activity is necessary to ensure compliance with DOE worker safety and health requirements. NNSA will continue to monitor the completion of corrective actions until this matter is fully resolved.

Sincerely,

A handwritten signature in black ink that reads "William Bookless". The signature is written in a cursive style with a large initial "W" and "B".

William A. Bookless
Acting Under Secretary for Nuclear Security
and Administrator, NNSA

Enclosures: Preliminary Notice of Violation (WEA-2020-02)
Enforcement Conference Summary
Enforcement Conference Attendance Roster

cc: Michael Weis, NA-LA
Kevin Dressman, EA-10
Lauren Griffith, Triad National Security, LLC

Preliminary Notice of Violation

Cross Connection, Inc.
Los Alamos National Laboratory

WEA-2020-02

A U.S. Department of Energy (DOE) investigation into the facts and circumstances associated with two material-handling events at the Los Alamos National Laboratory (LANL), revealed multiple violations of DOE worker safety and health requirements, by Cross Connection, Inc. (CCI).

DOE provided CCI with an investigation report dated November 8, 2019, and convened an enforcement conference with CCI representatives on January 14, 2020, to discuss the report's findings and CCI's response. A summary of the enforcement conference and attendance roster are enclosed.

Brief summaries of the two events are as follows:

Flange-Handling Event: On December 19, 2018, at the LANL Mercury Road laydown yard, CCI workers were using a skid-steer loader, with a fork mounted lifting hook attachment (lifting attachment), to lift a rigged 24-inch flange from a pallet on the ground to a welding table. The lifting attachment, which was not designed for use on the skid-steer loader, was placed on the forklift tines but not secured with the required safety pins. Workers rigged the flange by a sling to the bottom of the lifting hook. As the flange was lowered towards the table, a worker was positioned in front of the load, holding two bolts for insertion through the flange bolt-holes. As the forklift tines dropped below horizontal, the 350-pound lifting attachment and the rigged 268-pound flange slid off the forklift tines. The lifting attachment struck the worker in the face, arms, and upper torso, resulting in severe injuries, including multiple fractures of the worker's right arm and ribs, lung damage, and a severe, full-depth facial laceration. The worker was hospitalized for three nights. A co-worker provided aid to the injured worker until paramedics arrived, and the injured worker was transported to the hospital for evaluation and treatment. Later that evening, the injured worker was air transported to a trauma center for further treatment. Two additional workers were exposed to the hazard but were not injured.

Angle Iron Event: On July 18, 2018, CCI workers were performing demolition of ceiling plenums at LANL's Technical Area 3, Building 2327. The plenums, approximately 8 feet wide by 22 feet long by 30 inches high, were constructed of sheet metal panels and bolted angle iron, and covered with gypsum board. To remove the plenums, the gypsum board panels of each plenum were removed. Then, workers removed the exposed angle iron by positioning two material lifts (one under the middle of each side of an L-shaped section of angle iron), using a piece of Unistrut in front to keep it from sliding off the material lift forks. While working to remove the third plenum, workers encountered an off-centered cement pad, requiring a material lift configuration change. To accommodate the pad, one of the material lifts was repositioned parallel to the plenum, preventing the angle iron from being fully supported by the tines or limited by the Unistrut. Once workers unsecured this section from the ceiling, the angle iron, weighing over 100

pounds, fell approximately five feet, striking a worker on his hard hat and knocking him to the ground. Work was paused and the worker declined medical care. The worker drove himself home and later went to a local hospital where he was diagnosed with a concussion without loss of consciousness.

Pursuant to Section 234C of the *Atomic Energy Act of 1954*, as amended, and DOE regulations as set forth at 10 C.F.R. Part 851 (Part 851), *Worker Safety and Health Program*, the Department of Energy's National Nuclear Security Administration (DOE/NNSA) hereby issues this Preliminary Notice of Violation (PNOV) to CCI. The regulatory violations cited in this PNOV include deficiencies in: (1) management responsibilities; (2) hazard identification, assessment, prevention and abatement, and (3) training and information. DOE/NNSA has grouped and categorized these deficiencies as one Severity Level I violation, with a total base civil penalty, before mitigation, of \$99,000.

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."

In recognition of CCI's overall response to the event, including the completion of corrective actions, DOE/NNSA has chosen to grant 50 percent mitigation of the base civil penalty for the Severity Level I violation. DOE/NNSA grants an additional civil penalty mitigation based on contractor staffing size at the time of the events. For contractors with 26-100 employees, DOE/NNSA applied mitigation of 40 percent of the base civil penalty, consistent with DOE's worker safety and health enforcement policies. As a result, the total proposed civil penalty is \$9,900.

As required by 10 C.F.R. § 851.42(b) and consistent with Part 851, appendix B, the violation is listed below. If this PNOV becomes a final order, then CCI may be required to post a copy of this PNOV in accordance with 10 C.F.R. § 851.42(e).

I. VIOLATION

A. Management Responsibilities; Hazard Identification, Assessment, Prevention and Abatement; and Training and Information

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) [w]ith the worker safety and health program for that workplace."

Title 10 C.F.R. § 851.20, *Management 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. § 851.21, *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 worker injuries and illnesses. Procedures must include methods to:… (4) [a]nalyze designs of new facilities and modifications to existing facilities and equipment for potential workplace hazards; (5) [e]valuate operations, procedures, and facilities to identify workplace hazards; (6) [p]erform routine job activity-level hazard analyses; (7) [r]eview site safety and health experience information; and (8) [c]onsider interaction between workplace hazards and other hazards.”

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 (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”. Additionally, subsection (c) provides that “[c]ontractors must address hazards when selecting or purchasing equipment, products, and services.”

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”. Additionally, subsection (c) provides 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. § 1926.1400, *Cranes and Derricks in Construction*, subsection (a) states that “[t]his standard applies to power-operated equipment, when used in construction, that can hoist, lower and horizontally move a suspended load. Subsection (c)(8) states that this subpart excludes powered industrial trucks (forklifts) “except when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load.”

Title 29 C.F.R. § 1926.1419, *Cranes and Derricks in Construction*, subsection (a) states that “[a] signal person must be provided in each of the following situations: (1) [t]he point of operation, meaning the load travel or the area near or at load placement, is not in full view of the operator; (2) [w]hen the equipment is traveling, the view in the direction of travel is obstructed; or (3) [d]ue to site specific safety concerns, either the operator or the person handling the load determines that it is necessary.”

Triad document PD100, *DOE/NNSA Approved Los Alamos National Laboratory 10 C.F.R. 851 Worker Safety and Health Program Description*, March 30, 2018, revision 3, section 3.8, *Flow Down of 10 CFR 851 Requirements to Subcontractors*, states that “[e]nvironment,

safety, and health (ES&H) requirements for subcontractors are flowed-down to subcontractors through Exhibit F, *Environmental, Safety and Health Requirements*, which is incorporated in their subcontracts.”

Triad document Exhibit F for the ECCCE project, *Environmental, Safety and Health Requirements for High or Moderate Consequence Work*, February 2018, revision 1, states “[t]his document establishes the Environment, Safety and Health and waste management requirements for high or moderate consequence work. To perform subcontract work at LANL, subcontractor is required to comply with contractor’s 10 C.F.R. 851, *Worker Safety and Health Program* ...and requires the subcontractor to submit a site-specific ES&H plan to the contractor where required.”

Triad document Exhibit F, section F1.12.5, states that “[b]efore work is performed, the associated hazards/risks are evaluated and an agreed-upon set of ES&H controls and requirements is established which, if properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences.”

Triad document Exhibit F, section F7.1, states that “[i]n accordance with 10 C.F.R. 851.25(a), (b) and (c), subcontractor shall ensure that workers are properly trained and qualified to safely perform all assigned tasks in accordance with the Subcontractor Training Requirements (Attachment F7-0). This includes training of workers in the hazards to which they may be exposed so they can perform their duties in a safe and healthful manner. This must include initial, periodic, and additional training and provide information on each hazard before the time of initial assignment to a job involving exposure to each hazard.”

Triad document Exhibit F, section F32.1, states that “[a]ll crane and material handling operations shall be performed in accordance with the applicable sections of 29 C.F.R. 1910 and 29 C.F.R. 1926, the American Society of Mechanical Engineers (ASME) B30 series documents, the *DOE Hoisting and Rigging Standard* (DOE STD 1090-2011), and the manufacturer’s instructions.” Section F32.11, states that “[a]ll lifts must be classified as ordinary, moderate risk, or critical by the designated subcontractor qualified person and agreed to by the contractor qualified person. Any lift meeting one or more of the following criteria shall be considered a critical lift: a significant risk of personal injury or property damage... exceeds or may exceed 75 percent of the rated capacity of the crane (or hoist) or rigging equipment used.” Section F32.12 states that “[c]ritical lifts must have a critical lift plan (LANL Form 2210A) approved by contractor qualified person and the subcontractor’s qualified person and person-in-charge before such before lifts are performed.” In addition, section F32.13 states that “[a]ny moderate risk lift at LANL by subcontractor requires a completed Form 1611A, Ordinary/Moderate Risk Lift Procedure for Subcontractors.

Moderate risk lift examples include where boom cranes or mobile cranes are involved and lifts are between 70% and 75% of chart for the boom angle and swing radius required for the full cycle of the lift.”

ASME Standard B30.9-2014, Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings, section 9-5.10.4 establishes acceptable rigging practices for slings. Specifically, section 9-5.10.4(c) states that “[t]he sling shall be hitched in a manner providing

control of the load.” Section 9-5.10.4(d) states that “[s]lings in contact with edges, corners, protrusions, or abrasive surfaces shall be protected with a material of sufficient strength, thickness, and construction to prevent damage.” Section 9-5.10.4(h) states that “[t]wisting shall be avoided.” In addition, section 9-5.10.4(n) states that “[s]lings should not be constricted, bunched, or pinched by the load, hook, or any fitting.”

CCI document *Site Specific Health and Safety Plan (SSHSP), SCC Exascale Cooling Project*, May 2, 2018, revision 0, section F4.0, *Subcontractor ES&H Representative Responsibilities and Duties*, states that “[t]he ES&H Specialist responsibilities and duties include...continuously evaluating the site for any hazards not previously identified or adequately controlled; initiate measures required to protect personnel, the public, and the environment; and revising documents accordingly.” In addition, section F7.0 states that “[t]he supervisor will familiarize the new employee with site-specific procedures, equipment, tools, and policies that are necessary to safely perform the job function.”

CCI document SSHSP, Section F20.0, *Work Management - Site Specific Work Plans/Activity Hazard Analysis*, states that “[t]he integrated work document (IWD) will be revised if any of the following conditions are identified: the existing IWD does not accurately reflect the scope of work, a change in tasks is required to complete the work, a change in materials becomes necessary to complete the work, and it is determined that the original IWD and subsequent changes do not sufficiently identify and control the hazards.”

CCI document SSHSP, section F32.0, *Cranes and Material Handling Equipment - Material Handling Equipment /Powered Industrial Trucks*, states that “[f]orklifts and other powered industrial trucks will be maintained in accordance with the manufacturer’s requirements. To assure material handling equipment is operated safely, Cross Connection policy requires... users will receive equipment specific instruction regarding safe operation of the equipment, equipment use will be restricted to its design purpose, and field modifications are prohibited.”

Bobcat manual *Operation & Maintenance Manual - S450 Skid-Steer Loader*, dated 2014, states “[u]se only attachments approved by Bobcat Company for this model loader... the attachments and buckets are designed for a Rated Operating Capacity... They are designed for secure fastening to the Bobcat loader. The user must check with the dealer, or Bobcat literature, to determine safe loads of materials of specified densities for the machine - attachment combination.”

Contrary to the above requirements and as evidenced by the following facts, CCI failed to ensure that work was performed in accordance with the applicable requirements of Part 851, Exhibit F and, CCI’s SSHSP. Specific examples include the following:

1. CCI’s management did not clearly identify roles, responsibilities, accountabilities, and authorities required for work management and for review and approval of work plans, or communicate this information to workers. In both events, work crews made ad hoc changes to processes when conditions changed, instead of notifying management as required by CCI’s SSHSP. These ad hoc changes resulted in work plans being altered without reevaluation of the hazards and controls. For example, during work activities

leading up to the angle iron event, an equipment re-configuration was not reevaluated, so the required number of material lifts (three points of contact) were not used to support the L-shaped angle iron.

2. CCI did not implement an effective process for coordinating equipment assignments, or for ensuring manufacturer-specific equipment attachments were only used on the equipment they were designed for, as required by the CCI SSHSP. Consequently, the JLG Industries (JLG) telehandler lifting attachment was used improperly on the skid-steer, resulting in a serious injury to a worker. The lifting attachment is designed solely for use with JLG equipment; however, it was used with the skid-steer on multiple days when the JLG telehandler was in use elsewhere on the site. Furthermore, CCI management, supervisors, and ES&H personnel were aware of and continued to allow use of the JLG telehandler lifting attachment with the skid-steer, contrary to the CCI SSHSP and the manufacturer's recommendations.
3. CCI did not provide effective training and information on: (1) hazard recognition and controls, (2) hoisting and rigging requirements; and (3) proper equipment selection and use, as required by the CCI SSHSP. Consequently, workers were not able to recognize hazards and implement appropriate controls, including establishing a zone of safety near and beneath a suspended load, resulting in workers performing work below a suspended load. Contrary to Triad document Exhibit F for the ECCCE project, CCI did not properly rig the flange or use cut protection on the synthetic slings to ensure worker safety during lifting activities, resulting in twists in the sling and multiple constrictions where the sling passed through bolt holes in the flange.
4. Contrary to Triad document Exhibit F for the ECCCE project, CCI did not identify the flange-handling activity as a lift. Therefore, Triad did not ensure that classification, planning and conducting these lifts was performed with adequate rigor, including appropriate classification of the lift and consideration of the load capacity of material handling equipment. In addition, CCI did not adequately identify and evaluate material handling hazards for assigned work, or ensure implementation of controls specified in the material handling IWD, which prohibited workers from working under suspended loads. Consequently, this led to workers performing work within the 'cone of safety' and in line to be impacted when the lifting attachment slid off the skid steer tines.
5. CCI did not select and implement hazard controls based on the hierarchy of controls for the flange-handling activity, or use the required safety pins (e.g. engineering control) to prevent the JLG lifting attachment from detaching from the skid-steer tines. Instead, CCI relied on keeping the angle of the skid-steer tines at an inclined level to prevent the attachment from sliding. Contrary to 29 C.F.R. Part 1926.1419, CCI did not ensure that a signal person monitored the flange lifting activity, throughout the critical period when the flange was being lowered and the point of operation was not in full view of the skid-steer operator, to ensure that the tines remained at an inclined level. As a result, the angle of the tines dropped below horizontal causing the lifting attachment to slide off the tines, strike the worker, and result in a serious injury.

6. CCI did not have procedures for the configuration and use of the material-handling lifts during removal of the second side of the plenum. Consequently, two lifts were used to support the L-shaped beam instead of three, affecting load stability. In addition, the angle iron was not secured, which resulted in it falling and striking a worker, causing serious injuries.

Collectively, these noncompliances constitute a Severity Level I violation.

Base Civil Penalty – \$99,000

Mitigated Civil Penalty (50 percent reduction for CCI's corrective actions) - \$49,500

Proposed Civil Penalty (40 percent reduction for contractor staffing size) – \$9,900

II. REPLY

Pursuant to 10 C.F.R. § 851.42(b)(4), CCI 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 CCI chooses not to contest the violation set forth in this PNOV then the reply should clearly state that CCI waives the right to contest any aspect of this PNOV. In such case, this PNOV will constitute a final order 30 calendar days after the receipt of this PNOV.

If CCI 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 CCI 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), CCI relinquishes any right to appeal any matter in this PNOV, and this PNOV will constitute a final order. Please send the appropriate reply by overnight carrier to the following address:

Director, Office of Enforcement
Attention: Office of the Docketing Clerk, EA-10
U.S Department of Energy
19901 Germantown Road
Germantown, Maryland 20874-1290

A copy of the reply should also be sent to my office and to the Manager of the 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 DOE's Noncompliance Tracking System.



William A. Bookless
Acting Under Secretary for Nuclear Security
and Administrator, NNSA

Washington D.C.

This 6th day of November 2020