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L-CBILC-USNRC-000037

April 17, 2014

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Quality Assurance Vendor Inspection Branch
Division of Construction Inspection and Operational Programs
Office of New Reactors
Washington, DC 20555-001

Subject: Reply to Notice of Nonconformance
NRC Inspection Report No. 99901425/2014-201

Reference: Letter from Kerri Kavanagh (NRC) to Kevin Walsh (CB&I LC), U.S. Nuclear Regulatory Commission
Inspection Report No. 99901425/2014-201 and Notice of Nonconformance, dated March 21,
2014.

Dear Ms. Kavanagh:

In response to the referenced NRC Notice of Nonconformance (NON), CB&I Lake Charles (CB&I LC) herewith provides the enclosed Reply (Enclosure). The Reply addresses: NONs A and B of the Notice as they relate to Section 15 (Nonconforming Materials, Parts, or Components) and Section 16 (Corrective Action) of the CB&I LC Quality Assurance Manual (QAM), respectively.

Pursuant to the NRCs corresponding instructions specified in the Notice, the Enclosure addresses for each of the NONs A and B: 1) the reason for the noncompliance; 2) the corrective steps that have been taken and the results achieved, 3) the corrective steps that will be taken to avoid future noncompliance; and 4) the date when the corrective actions will be completed.

CB&I LC understands the feedback received from the NRC during the inspection and in the published Inspection Report. We take that feedback seriously; we recognize that utmost attention to this feedback is the necessary and veracious response and have either completed or initiated actions to remedy the specific findings provided to avoid further noncompliance.

A self-imposed Stop Work Order (SWO) was initiated on January 13, 2014, as a result of systemic problems with production activities, the corrective action program and quality assurance program procedures. Prior to and during the SWO multiple adverse conditions impacting hardware were identified. These programmatic issues affecting hardware were bound to welder qualification, the qualification and compliance of welding procedures, and documentation of fabrication activities. These types of deficiencies were addressed through the nonconformance and corrective action reporting processes. There are no additional programmatic issues that have been determined to impact hardware quality. There was and is a robust process for assessing hardware and documentation quality that has been effective in ensuring module quality at the time of shipment.

IE09



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The conditions identified in the order have since been resolved and approved by the Management Review Board. The stop work order was lifted on April 8, 2014.

In an effort to measure effectiveness of the actions taken to correct the deficiencies identified in the Stop Work Order, an independent team will perform an audit of the CB&I LC Corrective Action Program, procedure development and review process, procedure use and adherence practices, and welding program implementation. This audit is scheduled to be completed within 60 days of lifting the SWO.

Should you have any questions regarding this submittal, please contact Ryan Whitford, Director, Quality, at (337) 562-3686.

Sincerely,

A handwritten signature in black ink, appearing to read 'RW', written over a white background.

Ryan Whitford
Quality, Director
CB&I LC

A handwritten signature in black ink, appearing to read 'PB II', written over a white background.

Phil Badgwell, II
General Manager
CB&I LC

Enclosure: Reply to Notice of Nonconformance 99901425/2014-201



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ENCLOSURE
REPLY TO NOTICE OF NONCONFORMANCE



STATEMENT OF NOTICE OF NONCONFORMANCE:

Based on the results of a US Nuclear Regulatory Commission (NRC) inspection conducted at the CB&I Lake Charles (CB&I LC) facility in Lake Charles, LA on February 3, 2014 through February 7, 2014, it appears that certain activities were not conducted in accordance with NRC requirements which were contractually imposed upon CB&I LC by your customers or by NRC licensees:

- A. Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing Production and Utilization Facilities," states in part that, "Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures shall include, as appropriate, procedures for identification, documentation, segregation, disposition, and notification to affected organizations."

Section 15.0, "Control of Nonconforming Items," CB&I LC's Quality Assurance Manual (QAM), Revision 8, dated September 13, 2013, states, "Items that do not conform to specified requirements shall be identified and controlled to prevent inadvertent installation or use, and further processing beyond a point where the nonconforming condition can no longer be corrected."

Section 6.12, "Implementing instructions for NCRs," of CB&I LC Administrative Procedure QP-CA-215, "Control of Nonconforming Items," Revision 0, dated October 31, 2012, step 6.12.2 states in part, "the initiator completes appropriate blocks in the software form or on a hard copy", and attachment 1 block 15 to QP-CA-215 is where the initiator describes the "Nonconforming Condition". Also in QP-CA-215 the Manager QC is designated as responsible to perform step 6.12.4.a, which states, "Reviews the identified condition on the NCR and determines if nonconforming condition is valid."

Contrary to above, as of February 7, 2014, CB&I LC failed to adequately implement measures to control material, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. Specifically, CB&I failed to correctly identify unresolved nonconformances on a safety-related sub-module being prepared to ship: one stud that had an incomplete weld was incorrectly located in the documentation; one stud that was identified on the documentation as being added and having incomplete weld did not appear to exist on the module, and one stud was documented as having an incomplete weld but was actually missing.

This issue has been identified as Nonconformance 99901425/2014-202-01.

- B. Criterion XVI, "Corrective Action," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, states, in part, that "Measures shall be established to assure that conditions adverse to quality, such as deficiencies and nonconformances are promptly identified and corrected."



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Criterion III, "Design Control," of Appendix B to 10 CFR states, in part, that "design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design".

Section 16, "Corrective Action," of CB&I LC's Quality Assurance Manual (QAM), Revision 8, dated September 13, 2013, states, in part, that in classifying conditions adverse to quality, the review shall consider repetition of specific conditions adverse to quality, as well as the relationship or similarity between different conditions.

Contrary to the above, as of February 7, 2014, CB&I LC did not ensure that conditions adverse to quality, such as deficiencies and nonconformances are promptly identified and corrected. Specifically, CB&I LC did not take timely and effective corrective action for a previously identified NRC finding 99901401-2011-202-03 from 2011 for red lining of drawings for safety-related AP1000 sub-modules. CB&I LC had closed the corrective action on April 30, 2012, for the NRC finding. Through a focused sample, the NRC identified 20 corrective action reports in 2013 related to inadequate implementation of red lining (which includes annotating design changes) to drawings.

This issue has been identified as Nonconformance 99901425/2014-201-02.



CB&I LC REPLY TO NONCONFORMANCES A AND B

CB&I LC Reply to Nonconformance A

1. The Reason for Nonconformance A

Condition Report (CR) 2014-128 was initiated to document this issue.

The failure to properly identify deficiencies on CA05-05 Summer was determined to be caused by human performance error. The individuals performing the Quality Control (QC) assessment of CA05-05 Summer did not use human performance improvement techniques such as self and peer checking.

For nonconforming items identified and corrected at CB&I LC, procedure QP-EG-215 Revision 0, "Nonconformance Program", provides controls to prevent inadvertent misidentification and shipment of nonconforming items for installation. These controls include formal disposition, correction and re-examination.

2. Corrective Steps That Have Been Taken and Results Achieved

Training was conducted with inspection personnel involved in the QC assessment of CA05-05 Summer reinforcing the need to use self-checking and peer-checking techniques when identifying discontinuities.

Procedure QP-EG-306, "Processing Nonconformance Reports" has been revised to incorporate required peer checking of discontinuities identified in NCRs when those discontinuities are intended to be transferred to site for corrective work.

3. Corrective Steps That Will Be Taken to Avoid Noncompliance

A review of NCRs on the CA05 modules has determined additional NCRs have been closed with N&Ds to transfer work to the site. Impacted NCRs are being evaluated and deficient documentation corrected as required.

4. Date When Corrective Actions Will Be Completed

The corrective action will be complete by May 30, 2014.



CB&I-LC Reply to Nonconformance B

1. The Reason for Nonconformance B

Prior to the NRC Inspection in February 2014, CR 2013-1607 and CR 2013-1608 were initiated to document untimely corrective actions and untimely correction of commitments made to the NRC. In addition, CR 2014-162 was initiated to document and evaluate issues with redlining processes at CB&I LC.

The root cause analysis performed for CR 2013-1607 and CR 2013-1608 revealed less than adequate accountability for Corrective Action Program (CAP) functions and commitments to the regulator. The investigation revealed that management has placed insufficient emphasis on the CAP and regulator commitments by failing to hold responsible personnel accountable for the specific actions they control.

The root cause analysis also determined that less than adequate corrective actions can be found throughout the history of the CAP. In addition, in some areas, corrective actions to prevent recurrence have been found ineffective.

Condition Report 2014-162 investigation determined that the apparent cause of the condition associated with inadequate implementation of redlining is a lack of redline control due to the procedure that was in place (QP-PC-205a). The quality of redlines performed resulted in errors.

Further evaluation showed that the procedural violations may have resulted from weak barriers or ambiguity within procedure QP-PC-205a (Managing Detailed Drawings). Weak barriers and ambiguous instructions may have allowed error traps for the Process Engineer and/or Detailer, and even reinforced training could not alleviate the human element of inadequate attention.

Analysis also revealed that in certain instances CB&I Lake Charles lacked the process for thoroughly tracking and incorporating design changes to drawings and specifications. In turn, this provided an additional error trap for Process Engineers and Detailers when attempting to modify the affected drawings. The new Fabrication Change Notice procedure (QP-PE-303) will provide a new system of tracking and controlling the incorporation of design changes, including redline drawings which are being worked on the shop floor.

2. Corrective Steps That Have Been Taken and Results Achieved

Procedure QP-CA-305, "Condition Report Processing" Revision 0 now includes instruction for the Corrective Action Program Manager to notify senior management through the initiation of a CR when corrective actions are not addressed in a timely manner. This CR is evaluated by the Corrective Action Program Manager and Senior Management for potential issuance of a stop work.



The CAP has also been improved by the following means:

- Organizational realignment has occurred emphasizing line management ownership of the CAP.
- CAP procedures have been revised to ensure conditions adverse to quality are addressed as the highest priority.
- The composition of the CARB has been improved to include additional management personnel.
- Classroom based training was provided to personnel to emphasize the importance of quality CR initiation.
- Routine refresher training for CAP support personnel is being provided emphasizing critical program elements and lessons learned.
- Senior and middle management attendance at the CAP oversight meeting is now mandatory.

To address routine deficiencies in the redlining process; the Product Manager ensured that all relevant Engineering, Process Engineering, and Detailing personnel were adequately trained on the requirements of recently revised procedure QP-PC-205a Rev 1. This procedure requires approval and signatures from either the Product or Detailing managers for each redline. Prior to a redline being approved the FCN process must be initiated.

Procedure QP-PE-303, Fabrication Change Notice, was recently revised and now provides a system of tracking and controlling the incorporation of design changes, including redline drawings being worked on the shop floor in an electronic format which includes actual revision of drawings by the Detailing organization.

3. Corrective Steps That Will Be Taken to Avoid Future Noncompliance

No further corrective actions are necessary.

4. Date When Corrective Actions Will Be Completed

None