



October 06, 2017

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99901432

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U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Chief, Quality Assurance Vendor Inspection Branch - 2  
Division of Construction Inspection and Operational Programs  
Office of New Reactors  
Washington, DC 20555-0001

**SUBJECT:** REPLY TO U.S. NUCLEAR REGULATORY COMMISSION OFFICE OF INVESTIGATION REPORT OF CHICAGO BRIDGE & IRON NO. 2-2015-021; NOTICE OF NONCONFORMANCE

**REFERENCE:** LETTER FROM JOHN BURKE (NRC) TO MR. LUKE SCORSONE (CB&I), U.S. NUCLEAR REGULATORY COMMISSION OFFICE OF INVESTIGATIONS REPORT NO. 2-2015-021 AND NOTICE OF NONCONFORMANCE, DATED SEPTEMBER 11, 2017.

Dear Mr. Burke,

In response to the referenced NRC Notice of Nonconformance (NON), CB&I herewith provides the enclosed reply (enclosure). The reply addresses: The NON as it relates to Criterion 11 (Test Control).

Pursuant to the NRCs corresponding instructions specified in the Notice, the enclosure addresses for the NON: 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 understands the feedback received from the NRC as results of the investigation. Corrective actions have either been completed or initiated to remedy the specific finding provided to avoid further noncompliance.

Should you have any questions regarding this submittal, please contact me at (832) 513-1154 or Brian Gibson, Quality Director, at (832) 513-1927.

Sincerely,

Luke Scorsone  
Executive Vice President  
Fabrication Services

TEDG  
NRD



**Attachment**  
**Reply to Notice of Nonconformance 99901432/2017-01**

Based on the results of a U.S. Nuclear Regulatory Commission (NRC) investigation conducted at the Chicago Bridge & Iron (hereafter referred to as CB&I Laurens) facility in Laurens, SC certain activities were not conducted in accordance with NRC requirements that were contractually imposed upon CB&I Laurens by NRC licensees:

Criterion XI, "Test Control", of Appendix B to 10 CFR Part 50, states in part, that "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in services is identified and performed in accordance with written test procedures..... Test results shall be documented and evaluated to assure that test requirements have been satisfied."

Section 2.1, "Procedure", of CB&I Laurens procedure BFS-QC-4, "Recordkeeping-Individual Records", states, in part, that "Documents may be corrected by personnel having responsibility for the entry or responsibility for review and or approval of the data recorded thereon (legibility issues, correct heat numbers, and dates, etc.). Only personnel responsible for inspection results can make changes to those inspection results. The QA (Quality Assurance)/QC (Quality Control) Manager can make corrections and or late entries for inspection results and evidence shall be available to justify the correction."

Contrary to the above, on January 31, 2015, the Chicago Bridge and Iron facility in Laurens, SC, failed to adequately approve results of a hydrostatic test. Specifically, the QA specialist signed-off on a hydrostatic test report for the QC Manager, resulting in inadequate documentation and evaluation to assure test requirements were satisfied for pipe spools destined for the AP1000 new reactor construction sites.

This issue has been identified as Nonconformance 99901432/2017-01.



### **Reason for Noncompliance**

Failure to effectively implement the CB&I Laurens Quality Assurance Program and 10 CFR 50 Appendix B, Criterion II.

### **Corrective actions taken**

CPAR 519 was written to address this issue when identified, with Root Cause Analysis (RCA) performed on the condition by an outside consultant. This RCA evaluated both root and contributing causes to the condition, and performed an extent of condition review of documentation to ensure that this condition was not widespread. Along with this, an HR evaluation of the condition was also performed which led to termination of the employee in question. Multiple actions were created as a result of this RCA to address Nuclear Safety Culture training, deliberate misconduct training, hiring of a full time ECP Manager and all hands meetings to place emphasis on Nuclear Safety Culture, INPO traits and reiteration of deliberate misconduct and procedural adherence.

Along with the actions assigned per this RCA, it should be noted that after this event, the stop work order was issued for the Laurens facility, which drove numerous supporting RCA's and actions to address overall Quality Program implementation and development of a more effective Nuclear Safety Culture and Quality Assurance Program. Further to this, the NRC inspection performed on January 23-27<sup>th</sup>, 2017 also identified Notice of Nonconformance 99901432/2017-201-02 pertaining to 10 CFR 50 Appendix B, Criterion 1 "Organization". This has also been documented within an RCA with actions ongoing.

Upon receipt of this NON, CB&I Laurens has also initiated CAR-2017-140 to document the condition as it pertains to the noted nonconformance in regards to Basic Requirement 11 "Test Control". It has been identified that since this event, BFS-QC-04, now PR-CBIL-06-004, Document Review and Correction, has been revised significantly to address documentation review and correction. Along with training to these revisions, the procedures have been improved significantly in regards to direction to personnel regarding responsibilities and allowances for corrections in documentation. It should also be noted that in the NON, it is stated that a QA Specialist signed a test report for the QC Manager, however the signature entered on the report was for a missing sign off by the shop foreman. The procedure in place at the time for hydro testing, BFS-AP1000-WT-01, required QC inspection of all ASME Section III hydro tests that included an inspection report with Shop Foreman, QC Inspector, ANI and WEC Source Inspector signatures as applicable. For ASME B31.1 piping, such as the spool referenced in the NON, signature of ANI and Source Inspection is not required per the contract. This hydro procedure has since been revised to PR-CBIL-08-008, Hydrostatic Testing Procedure, and still contains requirements of Shop Foreman, QC Inspector sign off, ANI signoff and WEC Source Inspection sign off for ASME Section III hydro tests.

Through actions taken within the RCA CPAR 519, this condition has been addressed with procedure revision, training with personnel through actions associated with the RCA and through general enhancements to nuclear safety culture and work processes during the facility stop work order. Actions will be assigned to CAR-2017-140 to ensure that corrective action effectiveness has been achieved.



**Corrective actions that will be taken**

1. Perform a sample review of A1000 Section III hydrostatic test reports to ensure that proper approvals are present on reports as required by PR-CBIL-08-008, Hydrostatic Testing Procedure.
2. Perform a sample review of AP1000 documentation package corrections to ensure that reviews and corrections are being performed in accordance with PR-CBIL-06-004, Document Review and Correction.

**Date when full compliance will be achieved**

November 3, 2017