



CB&I Laurens, Inc.
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November 20, 2015

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

**SUBJECT: REVISED REPLY TO U.S. NUCLEAR REGULATORY COMMISSION
RESPONSE FOR CHICAGO BRIDGE & IRON'S LETTER OF RESPONSE TO
INSPECTION REPORT NO. 99901432/2015-201 AND NOTICE OF
NONCONFORMANCE**

**REFERENCE: LETTER FROM EDWARD H. ROACH (NRC) TO MATT ROSSIGNOL (CB&I
LAURENS) DATED AUGUST 19, 2015; "CHICAGO BRIDGE & IRON'S RESPONSE
TO THE U.S. NUCLEAR REGULATORY COMMISSION INSPECTION REPORT
NO. 99901432/2015-201 AND NOTICE OF NONCONFORMANCE"**

Dear Mr. Roach,

By letter dated August 19, 2015, the NRC stated that the CB&I Laurens reply was found to be not fully responsive to Notice of Nonconformances (NONs) 99901432/2015-201-01, 99901432/2015-201-02, and 99901432/2015-201-03. The enclosure to this letter is provided in response to the requests for additional information as stated in the NRC letter, and teleconference on November 12, 2015.

Should you have any questions regarding this submittal, please contact Matt Rossignol, Quality Manager, at (864) 683-3986.

Sincerely,

Matt Rossignol
Quality Manager
CB&I Laurens

Enclosure: Reply to NRC Request for Additional Information Regarding CB&I Laurens Response to Notice of Nonconformance

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ENCLOSURE
REVISED REPLY TO NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING
CB&I LAURENS RESPONSE TO NOTICE OF NONCONFORMANCE



By letter dated August 19, 2015, and a teleconference on November 12, 2015, the NRC provided a request for additional information regarding the CB&I Laurens response to Notice of Nonconformances (NONs) 99901432/2015-201-01, 99901432/2015-201-02, and 99901432/2015-201-03. The following information is provided in response to the NRC requests for information:

NRC Request:

- 1. Your response to NON 99901432/2015-201-01 failed to address the examples provided in the NON. Clarify as follows:***
 - a. Describe what actions has CB&I Laurens taken to ensure that chemical and physical testing of seamless pipes performed by Welding Testing Laboratory to verify the critical characteristics were adequate and that the pipes would meet their intended safety function since a 10 CFR Part 21 Report was made to report the identified deviations.***

CB&I Laurens Response:

CB&I Laurens contracted with an independent testing company, Laboratory Testing Inc. (LTI), to perform a verification of the testing that was performed by Welding Test Laboratory (WTL). LTI was placed on the CB&I Laurens Approved Vendor List on March 10, 2013, based on the results of an audit performed on February 21, 2013. Additionally, LTI is A2LA certified laboratory. The audit has been reviewed to confirm that it was performed properly and that LTI is a qualified vendor to perform this testing. This review identified that LTI is acceptable as a Safety Related supplier with a program that meets NQA-1/10 CFR 50 Appendix B, ASME NCA-3800, and 10 CFR Part 21.

Based on review of the documentation associated with the testing performed by WTL, a total of fifty two (52) heat numbers were identified as tested by WTL. Material associated with twenty one (21) of those heat numbers were available at CB&I Laurens to sample. These 21 samples were sent to LTI for testing. This was a forty percent (40%) sample of the originally tested population.

Review of the results from both LTI and WTL showed that both labs achieved similar testing results. Both labs found the chemical and physical properties of the tested heat numbers to be acceptable. Evaluation of the WTL testing results as compared to the LTI testing results provides reasonable assurance that the testing performed by WTL provided adequate results to demonstrate that the material meets the ASTM standard requirements and code compliance was maintained. Based on this information the Part 21 evaluation was determined to be not reportable. The interim letter was closed and a letter dated June 26, 2015, was submitted that states the condition was found to be not reportable. The analysis and conclusion is documented in C/PAR 516, which was closed August 17, 2015.

NRC Request:

- b. In your response to NON 99901432/2013-201-04, dated Dec 18, 2013, CB&I Laurens (CBI-L) committed to: (1) Perform a documented annual and semi-annual evaluation of commercial suppliers providing items for commercial-grade dedication. (2) Perform***



a documented review of the suppliers' Non Conformance Report (NCR) log to identify any developing trends that could be adverse to quality and initiate corrective action.

CB&I Laurens Response:

Based on a review of the commercial grade dedication records, as documented in C/PAR 533, CB&I Laurens has not performed commercial-grade dedication of any items since December 18, 2013. Therefore, there have not been any opportunities to utilize the requirements that were put in place in the CB&I Laurens Quality Manual to ensure the commitments listed above are met.

NRC Request:

- c. Your response describes the actions being taken by CB&I Laurens to address the overall deficiencies identified with the corrective action program. However, your response failed to include what actions were taken by CB&I Laurens to address the specific cited deficiencies which included:***
- i. Lack of objective evidence of the engineering evaluation performed to disposition the use-as-is determination associated with corrective/preventive action requests (C/PARs) No. 408 and the associated NCRs S2/V1219, S3/V1083, S3/V1103, and V4/1147.***

CB&I Laurens Response:

Note that the NCR numbers associated with C/PAR 408 are actually NCR S2/V1219, S3/V1103, V3/V1324 & V4/V1147. This has been corrected in C/PAR 408. The disposition of these NCRs were to scrap the material, therefore, no engineering evaluation was required to be performed. The material has been scrapped and the NCR's have been closed. Clarification has been made within C/PAR 408 and the C/PAR was closed on September 21, 2015.

NRC Request:

- ii. Lack of objective evidence and timely completion of the corrective actions associated with C/PAR Nos. 419, 499, 508, and 517.***

CB&I Laurens Response:

The available records for each of the listed C/PARs (Nos. 419, 499, 508, and 517) were reviewed to determine the status of the corrective actions. The following information is provided to describe the current status of each C/PAR and any objective evidence that is in the C/PAR record to show what actions have been completed. The issue of timely completion within the CB&I Laurens Corrective Action Program (CAP), has been addressed separately by C/PARs 528 and 603, as described in the July 21, 2015, "Reply to Notice of Nonconformance" letter. The six (6) corrective actions identified in that letter to address Nonconformance 99901432/2015-201-01 are complete.



C/PAR 419

C/PAR 419 was closed on July 14, 2015. The record for C/PAR 419 includes objective evidence that the lack of cleanliness was corrected. This objective evidence includes the cleanliness report from subsequent inspections during the fabrication process of the material referenced in C/PAR 419. Additionally, the causal factors pertaining to adequacy of the Commercial Grade Dedication (CGD) plan were resolved by obtaining the services of a third party to revise the commercial grade dedication plan. Objective evidence is included in the C/PAR 419 record that shows the revised CGD information.

C/PAR 499

C/PAR 499 was closed on September 29, 2015. This C/PAR identifies a potential adverse trend associated with four hydro tests that were conducted at pressure in excess of the specified limit. Corrective actions had not been determined at the time of the NRC inspection because the analysis of the condition had not been completed at that time. There are four (4) NCR's referenced in C/PAR 499. The NCRs are S3/1111, V4/1263, V4/1399, and V4/1280. These NCRs were still open on September 29, 2015, and the material was found to be still on hold, segregated, and properly identified as nonconforming. Nonconformance & Disposition (N&D) Reports have been submitted to the design authority to facilitate disposition of the CB&I Laurens NCRs. Three (3) of the four N&D Reports have been returned with "USE-AS-IS" disposition and the fourth is still in process due to the need for additional calibration information and operational condition information for the gauges used. Objective evidence that shows the current status of the NCRs has been placed in the C/PAR 499 record. It is currently expected that the NCRs with "USE-AS-IS" disposition will be closed out when the current Stop Work is lifted or upon release of the affected material through the management review board process.

C/PAR 508

C/PAR 508 was closed on August 15, 2015. This C/PAR identifies the lack of a weld rod oven temperature log. Corrective actions had not been determined at the time of the NRC inspection because the analysis of the condition had not been completed at that time. On August 15, 2015, the C/PAR record was revised to describe the cause, immediate actions taken, and the corrective action. The Objective Evidence for the immediate actions and corrective action has been verified and attached to the C/PAR 508 record to support closure. Objective evidence includes the weld rod oven temperature form that is now being used in accordance with procedural requirements. Additionally objective evidence was added to the record to show that the needed training was performed, including the training records for required personnel. The procedural controls that are in place and the training that reinforced log use ensure that the weld material is properly stored prior to issuance.

C/PAR 517

C/PAR 517 was closed on September 28, 2015. This C/PAR identifies inadequate documentation of NCR resolution for purchaser identified conditions prior to shipment of



some material. Corrective actions had not been determined at the time of the NRC inspection because the analysis of the condition had not been completed at that time. As corrective action for this C/PAR, CB&I Laurens implemented a database of purchaser identified notice of unsatisfactory conditions (NOUC), which is being used for tracking from the time an NOUC is submitted until closure. This includes status verification during documentation final review and prior to shipping. The data base was reviewed to verify proper utilization and is determined to be adequate as a supplementary means of ensuring the NOUC documentation is completed a closed prior to shipping. Review of the database, which has been maintained since June 1, 2015, shows that an NCR has been initiated for the issues identified on each NOUC that is determined to be associated with hardware nonconformance. The issuance of a CB&I Laurens NCR places a "hold" on the item and prevents shipping the item until the NCR is resolved. Implementation of the NCR program for purchaser identified NOUC ensures adequate implementation of this corrective action. Verification that the NCR program being properly implemented (as pertaining this action), was performed by review of the NCR Log since June 1, 2015. A copy of the NOUC database and NCR Logs from June thru September 2015, have been included with the CAR-517 record as objective evidence.

NRC Request:

2. ***Your response to NON 99901432/2015-201-02 failed to address several areas of concern to the NRC staff. Clarify your response as follows:***
 - a. ***The response states, in part, that the "Extent of condition review of this issue included review of identified unsatisfactory conditions associated piping still at the Laurens facility, as no ASME Section III work was being performed at that time, and it was concluded that deficiencies with the performance of and inspection of ISI preparations does exist." Your extent of condition only included components that were still at the CB&I Laurens facility and did not address the components that had already been shipped. Provide the extent of condition review for the components that had already been shipped.***

CB&I Laurens Response:

The issues pertaining to In-Service Inspection (ISI) preparation were identified by the NRC on a spool that had not yet reached a point of completion. There were additional steps remaining for this spool that were opportunities to identify any nonconformity in the ISI preparation. These steps included CB&I Laurens QC Inspection, CB&I Power source inspection, and document reviews performed by both organizations. The documentation for the fabrication of this specific spool also shows that the ISI preparation inspection had not yet been performed. Therefore, the available barriers were still in place to identify this situation and it is currently judged that conditions of incorrect ISI preparation are being identified and corrected prior to delivery. Therefore, the extent of condition for this circumstance does not include material that was previously shipped.

NRC Request:

- b. ***The response failed to include any corrective actions taken to address the ridges and valleys, and depressions of greater than 1/32-inch that did not meet the pre-service and***



in-service inspection surface condition requirements on pipe spool 8927-40-010-0031, serial number VS2-RNS-PLW-014-A. Your response should also include any corrective actions taken for other components that did not meet the pre-service and in-service inspection surface condition requirements.

CB&I Laurens Response:

Based on the documentation associated with the fabrication of spool 8927-40-010-0031, the ISI preparation inspection had not yet been completed at the time of the NRC inspection. This item was still in the fabrication process. This spool is currently identified by nonconformance NCR S2/1489 and the material is tagged and segregated as required by 10 CFR 50 Criterion XV. This NCR remains open for this spool and it is expected that any nonconformity to the specified ISI preparation requirements will be corrected during resolution of the NCR. It should be noted that this specific NCR has not yet been addressed and closed due to the Stop Work hold that is currently in place on Section III spools. This will be addressed when released from hold.

During the investigation of these conditions, it was noted that inspection methods and techniques being used for ISI preparation inspections were not consistent, which was resulting in the identification of conditions that may not be correct. C/PAR 570 was initiated to evaluate and correct the possible lack of conformance to the ISI preparation requirements and for proper conduct of ISI preparation inspection. The analysis of C/PAR 570 determined actions to develop a clear inspection process to standardize the Quality Control (QC) inspection methods and to develop training for production personnel performing the ISI preparation. This training module targeted code, specifications, and fabrication requirements along with explanations of why these requirements need to be performed as demonstrated through in-service inspection methodology. The corrective actions included development and implementation of specific training covering ISI preparation, inspection of ISI preparation, and the applicable requirements for ISI preparation. This training has been completed and documented. C/PAR 570 was closed on August 18, 2015, with the objective evidence of the training that was performed. In regards to what actions would be taken for other components that do not meet the pre-service and in-service inspection surface condition requirements, an NCR is required be issued to address the deficiency.

NRC Request:

- c. ***The response states, in part, that the spool “had not yet received ISI inspections as indicated by the shop traveler, however UNSAT conditions, identified by purchaser Source Inspection were reviewed. This review determined that instances of ISI preparations being performed incorrectly and subsequently inspected and accepted were identified.” Explain the statement “had not yet received ISI inspections as indicated by the shop traveler.” The NRC notes that ISI programs are established at licensees and required inspections occur over a 10 year period time frame and are performed after the plant (or component) has commenced operation, and is not normally performed by a manufacturing vendor. In addition, confirm that CB&I Laurens visually inspected and accepted the surface area, since the statements above imply that this had not been performed.***



CB&I Laurens Response:

The inspection of the welds on the subject spool, after the ISI preparation was performed, was not yet completed and the statement should have read, "...had not yet received ISI preparation inspections as indicated by the shop traveler..." This was stated incorrectly in the previous submittal, as CB&I Laurens does not perform in-service inspection. CB&I Laurens performs inspection of the in-service inspection (ISI) preparation.

The final weld had been inspected and the subsequent ISI preparation performed however the subsequent ISI preparation inspection had not been performed as identified by the "QC ISI Grind'g Insp" requirement that had not yet been completed. The documentation traveler showed a visual examination (VT) inspection signoff that had been completed but the post ISI preparation inspection had not yet been completed or signed-off. This spool is currently on hold and upon release from the "hold" the ISI preparation inspection will be completed.

NRC Request:

3. ***Your response to NON 99901432/2015-201-03 states, in part, that "Extent of Condition reviews began immediately upon identification of the issues associated with C/PAR's 533 and 534. This included a review of Lead Auditor Qualifications, Vendor Qualifications, Commercial Grade Dedication Plans and the Qualifications of service providers such as M&TE Calibrations, pickling/passivating and heat treatment/solution annealing. This review also included a review of the Quality Assurance Manual and associated procedures that directed these processes." However, it did not address the specific examples cited. Describe details of the actions taken by CB&I Laurens to ensure that the services provided by the companies identified in the NON were adequate and that the components would still meet their intended safety function.***

CB&I Laurens Response:

Palmetto Plating - A commercial grade survey was completed on May 4, 2015, by CB&I Laurens for the qualification of Palmetto Plating to perform commercial grade dedicated services. Palmetto Plating was listed on the CB&I Laurens Approved Supplier List (ASL) on May 6, 2015, for performing pickling and passivating services by use of CB&I Laurens Commercial Grade Dedication. Additionally, the audit conducted in accordance with ISO 9001:2008 on June 3, 2014, was also reviewed. These completed actions provide reasonable assurance that the services performed by Palmetto Plating facility are adequate and that the appropriate controls are in place for the services provided. Inspections of materials that were treated by Palmetto Plating have been performed at the CB&I Laurens facility following the pickling/passivation activity, as well as during receipt inspection, and field installation at the site. Both internal and external cleanliness were found acceptable.

Pinson Valley Heat Treating - A commercial grade survey was completed on April 30, 2015, by CB&I Laurens for Pinson Valley Heat Treating. The use of Pinson Valley Heat Treating services is performed by use of CB&I Laurens Commercial Grade Dedication. The Commercial Grade Dedication Plan was submitted to and approved by CB&I Power. Pinson



Valley uses ISO/IEC 17025:2005 accredited companies to perform calibration. Investigation into how the original qualification of Pinson Valley Heat Treating was performed showed that the heat charts were reviewed by the CB&I Laurens QC Manager. This QC Manager review is considered to have satisfied the acceptance of this critical characteristic and the subsequent commercial grade survey found adequate programmatic controls were in place at Pinson Valley Heat Treating. The programmatic controls in conjunction with the procedure that Pinson Valley uses, which is approved by CB&I Laurens and CB&I Power, along with verification through survey, provides reasonable assurance that the services provided are adequate and that the components meet their intended safety function.

Welding Testing Laboratory - A review of the commercial grade dedication plan packages was performed on all heat numbers that were certified utilizing Welding Testing Laboratory (WTL) in order to comparatively verify the accuracy of information acquired after being tested by Laboratory Testing Inc. (LTI). The preceding response to NRC Request 1.a describes how LTI was determined to be acceptable for performing these confirmatory tests.

A total of fifty two (52) heat numbers were identified as tested by WTL and twenty one (21) of those heat numbers were subsequently tested by LTI, which was a forty percent (40%) sampling. Upon review of the results from both companies, it was found that there were no discrepancies between the analysis of the tested materials by WTL and the results of testing by LTI in accordance with ASTM standards. The results for the tension test, chemical analysis, and flattening test provided concurring information when compared to the results in question. Both companies found the material associated with the tested heat numbers to be acceptable. Evaluation of the testing results of WTL in comparison to LTI provides reasonable assurance that WTL was capable of producing adequate results of their programmatic and quality competence. Material integrity was demonstrated by satisfaction of ASTM requirements and code compliance was maintained.

Therefore the services provided by WTL were adequate and the components meet their intended safety function.

Wyman Gordon- CB&I Laurens has taken the following actions to determine Wyman Gordon (WG) supplied materials that meet the purchasing requirements:

1. A sample of material was cut from one of the tubes supplied and was sent to an NQA-1 approved laboratory for testing. The results revealed the material was in conformance with the specified requirements. This testing also satisfies the ASME NCA-3842(i) requirement for performance assessment;
2. Each tube was inspected during receipt inspection by Quality Control in accordance with the Laurens QAM, Receiving procedure BFS-QC-1 and the PO requirements. The inspection results were recorded on the Receiving Report (RR) and dimensions are recorded on a Dimensional Inspection Report. All results were satisfactory.



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The following actions are being undertaken by CB&I Laurens to determine the programmatic compliance to 10CFR50 Appendix B, 10CFR21, and ASME NCA 3800:

1. An audit of Wyman Gordon has been scheduled to performed and will cover the following elements:
 - Title 10 of the Code of Federal Regulations, Part 50, Appendix B;
 - Title 10 of the Code of Federal Regulations, Part 21, Reporting of Defects and Noncompliance;
 - ASME Section III NCA 3800

The results of the audit will determine what further actions will be required.