

January 15, 2015

Mr. Ryan Zurkuhlen, Director of Modular Operations  
Chicago Bridge & Iron Lake Charles  
3191 West Lincoln Road  
Lake Charles, LA 70605

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT OF  
CHICAGO BRIDGE & IRON LAKE CHARLES NO. 99901425/2014-202, NOTICE  
OF NONCONFORMANCE

Dear Mr. Zurkuhlen:

From December 1–5, 2014, U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Chicago Bridge & Iron Lake Charles (CB&I LC) facility in Lake Charles, LA. The purpose of this limited-scope reactive inspection was to assess CB&I LC's compliance with the provisions of selected portions 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 of Production and Utilization Facilities," and 10 CFR Part 21, "Reporting of Defects and Noncompliance.

This technically focused inspection specifically evaluated CB&I LC's implementation of quality activities associated with the fabrication and inspection activities of Westinghouse Electric Company's AP1000 reactor design of structural sub-modules for commercial nuclear power plant applications. The enclosed report presents the results of the inspection. This NRC inspection report does not constitute NRC endorsement of CB&I LC's overall quality assurance (QA) or 10 CFR Part 21 programs.

Based on the results of this inspection, the NRC inspection team found that the implementation of your QA program did not meet certain regulatory requirements imposed on you by your customers or NRC licensees. Specifically, the NRC inspection team determined that CB&I LC was not fully implementing its QA program in the area of corrective action. The enclosed Notice of Nonconformance (NON) with this letter identifies the specific findings and references to the pertinent requirements, and the enclosed inspection report describes in detail the circumstances surrounding it.

Please provide a written explanation or statement within 30 days of this letter in accordance with the instructions specified in the enclosed NON. The agency will consider extending the response time if you show good cause for us to do so.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," the NRC will make available electronically for public inspection a copy of this letter, its enclosure, and your response through the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), which is accessible at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible (and if

applicable), your response should not include any personal privacy, proprietary, or Safeguards Information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

*/RA/*

Kerri A. Kavanagh, Chief  
Quality Assurance Vendor Inspection Branch  
Division of Construction Inspection  
and Operational Programs  
Office of New Reactors

Docket No.: 99901425

Enclosures:

1. Notice of Nonconformance
2. Inspection Report No. 99901425/2014-202  
and Attachment

applicable), your response should not include any personal privacy, proprietary, or Safeguards Information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

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and Attachment

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See next page.

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| <b>OFC</b>  | NRO/DCIP/ QVIB | NRO/DCIP/ QVIB | NRO/DCIP/ MVIB | NRO/DE/MCB    |
| <b>NAME</b> | TKendzia       | PPrescott      | R.Patel        | SDowney       |
| <b>DATE</b> | 01/12/15       | 01/13/15       | 01/13/15       | 01/13/15      |
| <b>OFC</b>  | RII/DCI/CIB3   | NRO/DCIP/ MVIB | NRO/DCIP       | NRO/DCIP/QVIB |
| <b>NAME</b> | AArtayet       | ABelen         | TFrye*         | KKavanagh     |
| <b>DATE</b> | 01/13/15       | 01/13/15       | 01/13/15       | 01/15/15      |

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Letter to Ryan Zurkuhlen from Kerri Kavanagh dated January 15, 2015

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT OF  
CHICAGO BRIDGE & IRON LAKE CHARLES NO. 99901425/2014-202, NOTICE  
OF NONCONFORMANCE

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## NOTICE OF NONCONFORMANCE

Chicago Bridge & Iron Lake Charles  
3191 West Lincoln Road  
Lake Charles, LA 70605

Docket No. 99901425  
Report No. 2014-202

Based on the results of a U.S. Nuclear Regulatory Commission (NRC) inspection conducted at the Chicago Bridge & Iron Lake Charles (CB&I LC) facility in Lake Charles, LA, from December 1, 2014 through December 5, 2014, certain activities were not conducted in accordance with NRC requirements contractually imposed on CB&I LC by its customers or NRC licensees:

- A. Criterion XVI, "Corrective Action," of Appendix B to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 states: "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management."

Section 16, "Corrective Action," of CB&I LC's Quality Assurance Manual, Revision 10, dated November 19, 2014, paragraph 16.1.6.b, states, in part, that "measures shall be developed for determining the root cause(s) of significant conditions adverse to quality. The root cause is the main underlying source of a condition adverse to quality that, when corrected, eliminates recurrence of the condition."

Contrary to the above, as of December 5, 2014, CB&I LC failed to assure that the cause of significant conditions adverse to quality was determined and corrective action taken to preclude recurrence. Specifically, CB&I LC failed to provide adequate objective evidence that the corrective actions to preclude the repetition of significant conditions adverse to quality associated with the quality assurance (QA) program breakdowns have been effectively determined and implemented. The NRC inspection team reviewed the corrective actions associated with the November 2013, December 2013 and September 2014 10 CFR 50.55(e) notifications related to CB&I LC QA program breakdowns categorized as significant conditions adverse to quality. The NRC inspection team noted that CB&I LC took corrective actions for the condition adverse to quality related to welding only. However, the NRC inspection team determined that CB&I LC did not perform a comprehensive review of the current effectiveness of the overall QA program in its entirety to verify that the root causes of the significant QA breakdown had been corrected.

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

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Quality Assurance Vendor Inspection Branch, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this Notice of Nonconformance. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include for each noncompliance: (1) the reason for the noncompliance or, if contested, the basis for disputing the noncompliance; (2) the corrective steps that have been and the results achieved; (3) the corrective steps that will be taken to avoid further noncompliance; and (4) the date when the corrective action will be completed. Where good cause is shown, the NRC will consider extending the response time.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), which is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or Safeguards Information (SGI) so that the NRC can make it available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If SGI is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Dated this 15th day of January 2015.

**U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF NEW REACTORS  
DIVISION OF CONSTRUCTION INSPECTION AND OPERATIONAL PROGRAMS  
VENDOR INSPECTION REPORT**

Docket No.: 99901425

Report No.: 99901425/2014-202

Vendor: Chicago Bridge & Iron Lake Charles  
3191 West Lincoln Road  
Lake Charles, LA 70605

Vendor Contact: Ryan Zurkuhlen  
Director of Modular Operations  
Ryan.zurkuhlen@cbi.com  
980-322-8193

Nuclear Industry Activity: Chicago Bridge & Iron Lake Charles is under contract to Chicago Bridge & Iron Power to fabricate, assemble, inspect, transport, and deliver Westinghouse Electric Company's AP1000 reactor design of structural sub-modules for commercial nuclear power plant applications. Specifically, the structural sub-modules are for the Vogtle & V.C. Summer new construction sites.

Inspection Dates: December 1-5, 2014

Inspection Team: Aixa Belen-Ojeda NRO/DCIP/MVIB Team Leader  
Paul Prescott NRO/DCIP/QVIB  
Tom Kendzia NRO/DCIP/QVIB  
Raju Patel NRO/DCIP/MVIB  
Steven Downey NRO/DE/MCB  
Alain Artayet RII/DCI/CIB3

Approved by: Kerri A. Kavanagh, Chief  
Quality Assurance Vendor Inspection Branch  
Division of Construction Inspection  
and Operational Programs  
Office of New Reactors

## **EXECUTIVE SUMMARY**

Chicago Bridge & Iron Lake Charles  
99901425/2014-202

The U.S. Nuclear Regulatory Commission (NRC) staff conducted a vendor inspection at the Chicago Bridge & Iron Lake Charles (hereafter referred to as CB&I LC) facility to verify that it had implemented an adequate quality assurance (QA) program that complies with the requirements 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 of Production and Utilization Facilities." In addition, the NRC inspection team also verified that CB&I LC had implemented a program under 10 CFR Part 21, "Reporting of Defects and Noncompliance," that met the NRC's regulatory requirements. The NRC inspection team conducted the inspection from December 1 through 5, 2014.

This limited scope technically focused inspection specifically evaluated CB&I LC's implementation of quality activities associated with the fabrication activities of Westinghouse Electric Company's (WEC) AP1000 reactor design of structural sub-modules for commercial nuclear power plant applications. Specifically, the structural sub-modules are for the Vogtle & V.C. Summer new construction sites.

Some of the specific activities observed by the NRC inspection team included:

- Welding and nondestructive examination (NDE) activities being performed at the weld test facility
- In-process twin-wire machine welding in the flat position of double-welded fillet welds joining a carbon steel angle iron stiffener to a duplex stainless steel plate for the Vogtle Unit 4 subassembly CA20-27-200 structural module and to a plate for the V.C. Summer Unit 3 subassembly CA20-27-100 structural module
- Base Plate Repair No. Stud 60-0014 on CA-20-23 sub-module for V.C. Summer Unit 3 performed for the Fabrication Change Notice No. 2014-2197, Work Order No. 2997224-Stud, as part of the disposition of nonconformance report (NCR) No. 2014-1614.
- Receipt Inspection of eight 2.5 in. X 2.5 in. X 8.9 ft. long angle iron, part number 4316530, purchase order number 867113, in accordance with QC-PC-304, "Receiving Inspection," Revision 5, October 22, 2014
- Qualification records of receipt and quality control inspectors, coating inspectors, nondestructive technicians, lead auditors, and welders
- Distortion correction operation performed on CA20-17-100 sub-module assembly for V.C. Summer Job No. 430012, Work Order No. 3027105-100



- Implementation of a porta-power tool during Sequence No. 70, “Fit and Tack of 200 Assembly to 100 assembly,” on Job No. 430012, Work Order No. 2997216 for the V.C. Summer CA20-18 sub-module
- Root Cause Analysis Report for Corrective Action Report (CAR) Nos 2014-1106 and 2014-1107
- Ongoing inspections and peer checks on the shop floor
- Corrective Action Program (CAP) Screening Committee

In addition to observing these activities, the NRC inspection team verified that measuring and test equipment (M&TE) was properly identified, marked, calibrated, and used within its calibrated range. The NRC inspection team also walked down CB&I LC’s assembly floor and verified that nonconforming components were properly identified, marked, and segregated when practical, to ensure that they were not reintroduced into the manufacturing processes.

These regulations served as the bases for the NRC inspection:

- Appendix B to 10 CFR Part 50
- 10 CFR Part 21

During the course of this inspection, the NRC inspection team implemented Inspection Procedure (IP) 43003, “Reactive Inspections of Nuclear Vendors”; supplemented by IP 43002, “Routine Inspection of Nuclear Vendors”; and IP 36100, “Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance.”

This was the fifth NRC inspection at the CB&I LC facility. CB&I LC is currently under contract to Chicago Bridge and Iron Power to fabricate, assemble, inspect, transport and deliver structural sub-modules for the Vogtle and V.C. Summer construction projects.

With the exception of the nonconformance described below, the NRC inspection team determined that, in general, the fabrication activities that CB&I LC conducted for the structural sub-modules were performed in accordance with the Commission’s rules and regulations and the technical and quality requirements passed down to CB&I LC from NRC licensees or its contractors. The information below summarizes the results of this inspection.

### Corrective Action

The NRC inspection team determined that CB&I LC did not adequately implement the requirements of Criterion XVI, “Corrective Action,” of Appendix B to 10 CFR Part 50. The NRC inspection team issued Nonconformance 99901425/2014-202-01 for CB&I LC’s failure to provide adequate objective evidence that the preventive corrective actions to preclude the repetition of significant conditions adverse to quality associated with the QA program breakdowns have been effectively determined and implemented. Specifically, CB&I LC did not perform a comprehensive review of the current effectiveness of the overall QA program in its

entirety to verify that the root causes of the significant QA breakdown in quality had been corrected.

#### 10 CFR Part 21

The NRC inspection team determined that CB&I LC's processes and procedures complied with the requirements of 10 CFR Part 21. Based on the limited sample of documents reviewed, the NRC inspection team issued Unresolved Item 99901425/2014-202-02 to request that CB&I LC and CB&I Power provide an explanation of its process for discovery, evaluation and reporting under the requirements of 10 CFR 50.55(e) related to the timeliness of the September 10, 2014, notifications of a significant QA program breakdown.

#### Other Inspection Areas

The NRC inspection team determined that CB&I LC is implementing its programs for nonconforming materials, parts, or components; control of special processes; inspection; instructions, procedures, and drawings; commercial grade dedication; and control of measuring and test equipment in accordance with the applicable regulatory requirements of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and activities observed, the NRC inspection team also determined that CB&I LC is implementing its policies and procedures associated with these programs. No findings of significance were identified.

## REPORT DETAILS

### 1. 10 CFR Part 21 Program

#### a. Inspection Scope

The NRC inspection team verified the adequacy of the evaluations and corrective actions, for selected 10 CFR Part 21 and 10 CFR 50.55(e) reports by CB&I LC to the NRC or its customers. The NRC inspection team reviewed CB&I LC's processes and procedures to verify compliance with the requirements of 10 CFR Part 21. For the nonconformance reports (NCR) and corrective action reports (CAR) reviewed, the NRC inspection team verified that 10 CFR Part 21 was properly screened, evaluated and reported when applicable. The NRC inspection team reviewed several CARs associated with 10 CFR Part 21 and 10 CFR 50.55(e) reports. The NRC inspection team determined that the threshold for determining 10 CFR Part 21 reportability appeared adequate, and that corrective action was initiated for the conditions adverse to quality.

The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

#### b. Observations and Findings

The NRC inspection team reviewed CB&I LC's and CB&I Power's actions to address the September 10, 2014, §50.55(e) notifications. The notifications from V.C. Summer and Vogtle identified a significant breakdown in CB&I LC's quality assurance (QA) program. The NRC inspection team discussed with CB&I LC and CB&I Power staff the timeline for discovery, evaluation and reporting of the September 10, 2014, §50.55(e) notifications.

CB&I LC's initial description of the problem was documented in CAR 2013-1641, dated December 13, 2013. CAR 2013-1641 identified that a welding procedure specification (WPS) was found to be non-compliant with the American Welding Society (AWS) code. As required by the regulations in §21.21(b), CB&I LC notified CB&I Power in a letter dated December 23, 2013 about the welding issue; a possible QA program breakdown and determined that further evaluation was necessary. CB&I LC documented the root causes and contributing causes in a root cause analysis (RCA) performed for CAR 2013-1641 that was completed in March 2014 and determined a significant QA program breakdown had occurred.

On July 9, 2014, CB&I LC initiated another §21.21(b) letter to CB&I Power again requesting that an evaluation be initiated to assess potential reportability to the NRC. Based on CB&I Power's guidance developed to assess a potential significant QA program breakdown, CB&I LC met the threshold for reporting.

CB&I Power staff stated that the process of further evaluation was not begun until the RCA for CAR 2013-1641 was complete. CB&I Power staff stated that the evaluation was initiated in late June 2014. However, CB&I Power initiated CAR 2014-1316 on July 9, 2014, to evaluate the potential QA program breakdown.

The NRC inspection team noted that CB&I LC completed the RCA in March 2014 and sent another §21.21(b) letter to CB&I Power on July 9, 2014. However the NRC was not notified until September 10, 2014. Also, CB&I Power did not send to the NRC any interim notifications related to a significant QA program breakdown in this timeframe.

The NRC inspection team is requesting that CB&I LC and CB&I Power provide an explanation of its process for discovery, evaluation and reporting under the requirements of §50.55(e) related to the September 10, 2014, notifications of a QA program breakdown. The NRC inspection team considered the process for reporting timeliness of the September 10, 2014, 50.55(e) notifications to be Unresolved Item (URI) 99901425/2014-202-02.

c. Conclusions

The NRC inspection team determined that CB&I LC's processes and procedures complied with the requirements of 10 CFR Part 21. Based on the limited sample of documents reviewed, the NRC inspection team issued Unresolved Item 99901425/2014-202-02 to request that CB&I LC and CB&I Power provide an explanation of its process for discovery, evaluation and reporting under the requirements of §50.55(e) related to the timeliness for the September 10, 2014, notifications of a significant QA program breakdown.

2. Corrective Action

a. Inspection Scope

The NRC inspection team reviewed CB&I LC's policies and implementing procedures that govern the Corrective Action Program (CAP) to verify compliance with the requirements of Criterion XVI, "Corrective Action," 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 of Production and Utilization Facilities."

The NRC inspection team observed the CAP Screening Committee to determine whether CB&I LC staff demonstrated sufficient knowledge of the CAP and whether the meeting provided an adequate review of the CAR, including proposed categorization and appropriate screening for applicability of 10 CFR Part 21, "Reporting Defects and Noncompliance." During the CAP screening meeting, a total of 13 CARs were screened as significance level (SL) 3 conditions adverse to quality (CAQ). Further, the NRC inspection team reviewed a sample of 10 CARs that includes three (3) SL1- significant conditions adverse to quality (SCAQ), five (5) SL 2- CAQs, and two (2) SL 3 CAQs and verified that the CARs' disposition and control provide adequate documentation and description of conditions adverse to quality, as well as specifying the cause of these conditions and the corrective actions taken to prevent recurrence. In addition, the NRC inspection team noted that CB&I LC established a Corrective Action Review Board (CARB) and performed a CAR and NCR quarterly trend analysis for CAQs. The NRC inspection team reviewed CAR 2014-1106 and 2014-1107 that were screened as SL-1

SCAQs requiring root cause analysis be performed. The two CARs were a result of the 2<sup>nd</sup> Quarter 2014 Trend Analysis Report CARB's recommendations that indicated: (1) work instructions/travelers are less than adequate causing human based errors due to lack of adequate knowledge or training, and (2) procedure usage and adherence is less than adequate. The NRC inspection team reviewed the RCA report Nos. CAR 2014-1106 and CAR 2014-1107 dated November 4, 2014, and interviewed the CB&I LC's RCA team. The NRC inspection team noted that each RCA included plan, extent of condition, evaluation methods by fault tree and barrier analysis, personnel interviewed and recommendations. The NRC inspection team verified changes made to work instructions and traveler formats and personnel trained as part of corrective action taken to address CAR 2014-1106 and CAR 2014-1107.

For the 10 CFR 50.55(e) reports, which were for a programmatic breakdown in QA, the NRC inspection team reviewed CB&I LC's corrective actions to ensure they addressed the entire scope of the QA program and implementation issue.

The NRC inspection team discussed the CAP with CB&I LC management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

The NRC inspection team reviewed CB&I LC's and CB&I Power's actions to address the September 10, 2014, §50.55(e) notifications. The notifications from V.C. Summer and Vogtle identified a significant breakdown in CB&I LC's QA program.

CB&I LC's CAR 2013-1641, dated December 13, 2013, documented that a welding procedure specification (WPS) was found to be non-compliant with the AWS code. Additionally, prior revisions of the WPS had not been reviewed as required by CB&I Power. CB&I LC documented the root causes and contributing causes in the RCA performed for CAR 2013-1641 that was completed in March 2014, and determined a significant QA program breakdown had occurred.

However, the NRC inspection team was aware of the longstanding history of problems associated with CB&I LC's QA program implementation related to the fabrication of structural support sub-modules for the AP1000 projects at V.C. Summer Units 2 and 3, and Vogtle Units 3 and 4.

On April 18, 2013, the NRC issued a Chilling Effect Letter (CEL) to CB&I LC. The CEL discussed NRC inspections performed January 2011, November 2011, and September 2012, that identified issues with the effectiveness of the corrective action program. The NRC also noted concerns associated with programmatic controls in: 1) special processes; 2) inspections; 3) personnel training and qualification; 4) instructions, procedures, and drawings; and 5) corrective action.

A significant QA program breakdown at CB&I LC was previously reported by both current AP1000 combined license holders in November 2013, and December 2013. Both of these reports were based on a CB&I Power evaluation of CB&I LC's RCA for

CAR 2013-739. The evaluation identified seven criterion of Appendix B to 10 CFR Part 50 as ineffectively implemented: 1) QA program; 2) instructions, procedures, and drawings; 3) control of purchased material, equipment, and services; 4) special processes; 5) inspection; 6) corrective action; and 7) records.

The NRC inspection team also noted that a self-imposed stop-work order was in effect on January 13, 2014, and was progressively eased until it was finally lifted on April 8, 2014. The areas of focus for the stop-work order were: 1) production, 2) corrective action, 3) procedures, and 4) training. In February 2014, the NRC conducted an inspection and determined that CB&I LC was not fully implementing its QA program in the areas of corrective action and control of nonconforming items. Additionally, the NRC identified several missed opportunities that should have led to an earlier initiation of the stop-work order and for an evaluation to determine the impact on previously fabricated sub-modules.

On July 9, 2014, CB&I Power initiated CAR 2014-1316 for CB&I LC's CAR 2013-1641, and identified that CB&I LC had deficiencies in the following four criteria of Appendix B to 10 CFR Part 50: 1) QA program; 2) instructions, procedures, and drawings; 3) control of purchased material, equipment, and series; and 4) special processes. The NRC inspection team reviewed the recommended corrective actions for CAR 2013-1641, and noted that only the WPS process was evaluated, and did not include the other criteria identified by CB&I LC. Neither CB&I LC nor CB&I Power have, to date, reviewed the current effectiveness of the CB&I LC's overall QA program in its entirety to verify that the root causes of the significant QA breakdown in quality had been corrected. The issue is significant as the NRC considers any significant breakdown in any portion of the QA program as potentially impacting a vendor's ability to provide a product or service free of defects. The NRC inspection team determined that CB&I LC lacked objective evidence that a comprehensive review of the QA program has been performed to verify the effectiveness of the corrective actions taken for previous issues and for the September 2014 10 CFR 50.55(e) notifications. The NRC inspection team's determination that CB&I LC has not performed a comprehensive review of the current effectiveness of the overall QA program in its entirety was an example of Nonconformance 99901425/2014-202-01.

c. Conclusions

The NRC inspection team determined that CB&I LC did not adequately implement the requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. The NRC inspection team issued Nonconformance 99901425/2014-202-01 for CB&I LC's failure to provide adequate objective evidence that the preventive corrective actions to preclude the repetition of significant conditions adverse to quality associated with significant QA program breakdowns have been effectively determined and implemented. Specifically, CB&I LC did not perform a comprehensive review of the current effectiveness of the overall QA program in its entirety to verify that the root causes of the significant QA breakdown in quality had been corrected.

### 3. Nonconforming Materials, Parts, or Components

#### a. Inspection Scope

The NRC inspection team reviewed CB&I LC's policies and implementing procedures that govern the control of nonconformances to verify compliance with the requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," in Appendix B to 10 CFR Part 50.

For the sample of NCRs reviewed, the NRC inspection team verified that CB&I LC implemented an adequate program to assess and control nonconforming items, including appropriate identification, documentation, segregation, evaluation, and disposition of these items. This process properly applies the principles of acceptable, repair, rework, hold, scrap, or use-as-is, and it provides for the necessary technical justifications to be adequately supported and properly documented. The NRC inspection team also toured the shop floor to verify that there are designated areas to segregate and control the various classes of nonconforming materials. The NRC inspection team observed ongoing craft work and inspection activities for the identification and control of NCR base metal repair activity on the CA20-23 sub-module for V.C. Summer Unit 3. In addition, the NRC inspection team also verified that CB&I LC's nonconformance process provides a link to the 10 CFR Part 21 program.

The NRC inspection team discussed the nonconformance program with CB&I LC's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

#### b. Observations and Findings

No findings of significance were identified.

#### c. Conclusions

The NRC inspection team concluded that CB&I LC is implementing its nonconforming materials, parts or components program in accordance with the regulatory requirements of Criterion XV in Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that CB&I LC was effectively implementing its policies and procedures associated with the nonconformance materials, parts and components program. No findings of significance were identified.

### 4. Control of Special Processes

#### a. Inspection Scope

The NRC inspection team reviewed CB&I LC's policies and implementing procedures that govern the control of special processes ( i.e., welding, nondestructive examination (NDE) inspections) to verify compliance with the regulatory requirements of Criterion IX,

“Control of Special Processes,” of Appendix B to 10 CFR Part 50 as well as with the requirements of the AWS D1.1, “Structural Welding Code-Steel,” 2000 Edition, AWS D1.4, “Structural Welding Code – Reinforcing Steel,” 1998 Edition, and American Society for Nondestructive Testing (ASNT) SNT-TC-1A, “Personnel Qualification and Certification in Nondestructive Testing,” 1992 Edition.

The NRC inspection team reviewed a sample of welding and NDE documents, observed welding and NDE activities being performed at the weld test facility, and reviewed completed NDE and welding records associated with the fabrication and inspection of the AP1000 structural sub-modules.

The NRC inspection team verified that CB&I LC had established and implemented procedures for the control of NDE (e.g. visual testing (VT), penetrant testing (PT), magnetic particle testing (MT), ultrasonic testing (UT) and radiographic testing (RT)). The procedures provided measures for the generation of special process control documents such as inspection reports, equipment qualification records, travelers, weld logs, and nonconformance reports. The NRC inspection team verified that process control documents include personnel and equipment requirements, conditions for accomplishing the process, acceptance criteria, results of inspections, and appropriate signatures. The NRC inspection team also verified that the applicable NDE procedures were in accordance with the applicable AWS requirements.

The NRC inspection team observed in-process twin-wire machine welding in the flat position of double-welded fillet welds joining a carbon steel angle iron stiffener to a duplex stainless steel plate for the Vogtle Unit 4 subassembly CA20-27-200 structural module and to a plate for the V.C. Summer Unit 3 subassembly CA20-27-100 structural module to determine whether weld and base metal traceability, fit-up and tack inspection acceptability, qualification of identified welding operator, welding parameters, and weld dimensions were in accordance with the requirements of CB&I LC’s welding procedures, weld traveler, and respective structural welding codes. In addition, the NRC inspection team reviewed the certified material test report and NDE record associated with duplex stainless steel plate heat number 423171 to determine whether the results for chemical analysis, mechanical properties, and UT were in accordance with the requirements of American Society of Testing & Materials (ASTM) A240-S32101 material specification, and A577 and A578 for angle-beam and straight-beam UT, respectively.

The NRC inspection team reviewed a sample of completed transfer packages for sub-modules that have recently been transferred to the AP1000 construction sites (Vogtle and V.C. Summer) and the supporting documentation such as shop travelers, weld logs, weld log data sheets, and NDE inspection reports. The NRC inspection team verified that the NDE requirements for the various weld types (fillet, full penetration, partial penetration, stud, etc.) were identified on the shop traveler and other applicable documents, and that the process requirements were consistent with the contract requirements and procedures.

The NRC inspection team witnessed VT of fit-up and tack welds on V.C. Summer sub-module CA20-71; VT and MT on a section of the base metal in the Vogtle CA20-03 sub-module where a wall plug was removed (NCR-2014-1736); UT on the base metal in



the CA20-23 sub-module where a row of studs were removed due to a design change made by WEC (NCR-2014-1614); and RT of a full penetration weld in the V.C. Summer CA20-29 sub-module. In all cases, the NRC inspection team verified that the NDE was performed by qualified personnel and in accordance with contract, procedural, and regulatory requirements.

The NRC inspection team observed cut lengths of the carbon steel angle irons, duplex stainless plate, and carbon steel plate to determine whether the transfer of heat numbers, ASTM designations and grades for material traceability were in accordance with the requirements of procedures.

The NRC inspection team observed material heat traceability of concrete anchor studs on carbon steel plates for the CA20-20 structural module to determine whether stud material control and identification was consistent with the layout established by engineering drawings and as documented on CB&I shop weld logs, and in accordance with the requirements of the AWS D1.1 structural welding code, Section 7, Stud Welding.

The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that the implementation of the CB&I LC program for control of special processes is consistent with the regulatory requirements of Criterion IX of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team determined that CB&I LC was effectively implementing its quality assurance manual (QAM) and the associated procedures for control of special processes. No findings of significance were identified.

5. Inspections

a. Inspection Scope

The NRC inspection team reviewed CB&I LC's QA processes and procedures to verify compliance with the requirements of Criterion X, "Inspection," of Appendix B to 10 CFR Part 50 for activities affecting quality and the applicable welding code requirements in the AWS D1.1, "Structural Welding Code – Steel." The NRC inspection team reviewed CB&I LC's QAM, and Level II and III procedures which require and implement inspections. The NRC inspection team also reviewed the shop traveler process, which specifies when inspections are required in the fabrication process.

The NRC inspection team reviewed in process work documentation, specifically the shop travelers and weld logs for CA20-21 Vogtle Unit 4 and CA20-73 V.C. Summer Unit 3, to ensure inspections, and any problems identified, were being documented in accordance with regulatory and procedural requirements. The NRC inspection team observed in process inspections for weld fit up, dimensional checks, Authorized Nuclear Inspector materials inspection, and receipt inspection to ensure the inspection was performed by qualified inspectors who are independent of the work, and that the inspections were performed and documented in accordance with the regulatory and procedural requirements. The NRC inspection team interviewed shop personnel such as welders, engineering personnel, quality control (QC) inspectors, and various manufacturing staff personnel who perform inspections, and manufacturing foremen, and supervisors to ensure they are knowledgeable of the regulatory and procedural requirements.

The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that the implementation of CB&I LC's program for inspection is consistent with the regulatory requirements of Criterion X of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that CB&I LC was effectively implementing its QAM and the associated procedures for inspection. No findings of significance were identified.

6. Verification Process

a. Inspection Scope

The NRC inspection team reviewed policies, implementing procedures, and records that govern verification that the module meets the purchase order requirements, including the latest design drawings, to verify compliance with applicable portions of Criterion V, "Instructions, Procedures, and Drawings," of Appendix B to 10 CFR Part 50. Specifically, the NRC inspection team reviewed CB&I LC's QAM which describes the overall requirements for instructions, procedures and drawings for compliance with the regulatory requirements.

The NRC inspection team reviewed the level II and III procedures for development and approval for the module Certificate of Conformance (C of C) which is the process for final CB&I LC QA verification that a module meets the purchase order requirements. The NRC inspection team also reviewed the Component Verification (CV) process, which is a process used during fabrication to check that all sub-components and parts are being installed or documented as not installed in accordance with the latest drawing

revision. The NRC inspection team reviewed implementation of the C of C process, and one completed C of C package to ensure that the process was being implemented in accordance with the procedural requirements. The NRC inspection team reviewed five completed CV packages and supporting documentation on modules that had been shipped to ensure that any identified problems had been documented and corrected. The NRC inspection team interviewed personnel who perform C of C preparation and CV inspections to ensure their understanding of regulatory and procedural requirements.

The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

The NRC inspection team review of the CV process determined that the process had changed (in response to CAR 2014-928) from an engineering/QC/production implemented verification process after module fabrication was completed to an engineering verification process during the later stages of fabrication. The CV process is used during and after fabrication to check that all sub-components and parts are being installed or documented as not installed in accordance with the latest drawing revision. The CV process is initiated by the Shop Traveler and is implemented by performing a checklist which is a guideline, not a level II or III procedure. The NRC inspection team verified that the CV process is not performing inspections as required by Criterion X, "Inspections," of Appendix B to 10 CFR Part 50. Instead, this is an additional level of verification taken by CB&I LC. The NRC inspection team reviewed completed CV packages for CA01-04 V.C. Summer Unit 2 and Vogtle Unit 3, CA01-07 V.C. Summer 2 and Vogtle Unit 3, and CA01-29 V.C. Summer Unit 2 to ensure that any problems were being documented in an Appendix B process in accordance with regulatory and procedural requirements. The NRC inspection team reviewed NCRs (14-898, 1285, & 1287), drawing changes (APP-CA01-GEF-107, 218, 235, 276, 310, 477, 850006, 850039, & 850080), shop drawing changes (FCN-2014-538 & 1432), and design change EN/DCR-058 to ensure that the problems from the CV process were documented, corrected, and the resolution appeared appropriate for the identified problem. The NRC inspection team verified that the C of C process did not use the CV process as a basis. The NRC inspection team reviewed the completed C of C for the V.C. Summer Unit 2 CA01-07 wall sub-module and verified that it was completed in accordance with the procedure, used quality records (weld logs, shop traveler, material certification packages, etc.), and did not use the completed CV package as part of the basis.

No findings of significance were identified.

c. Conclusions

The NRC inspection team determined that the implementation of CB&I LC's program for verification that the module meets the purchase order requirements was consistent with the applicable regulatory requirements of Criterion V, "Instructions, Procedures, and Drawings," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

## 7. Personnel Training and Qualification

### a. Inspection Scope

The NRC inspection team reviewed CB&I LC's policies and procedures to verify that CB&I LC was implementing training activities in a manner consistent with regulatory requirements and industry standards. The NRC inspection team reviewed the personnel training and qualification process to verify conformance with the requirements in Criterion II, "Quality Assurance Program," of Appendix B to 10 CFR Part 50.

The NRC inspection team reviewed the welder qualification list and associated welder qualification records and confirmed that the welders had completed the required training and had maintained their qualifications in accordance with CB&I procedures. The NRC inspection team also verified that the applicable procedure for welder qualification met the requirements of AWS D1.1 and AWS D1.6.

The NRC inspection team reviewed CB&I LC's procedure for qualifying NDE inspectors for VT, PT, UT and RT inspections, and verified that it was consistent with the applicable code requirements. The NRC inspection team also reviewed the Level III nondestructive examiner and Level II nondestructive inspector qualification records and confirmed they were qualified in accordance with the requirements in ASNT SNT-TC-1A and had sufficient training and previous inspection experience and that their qualifications were current.

The NRC inspection team reviewed CB&I LC's procedure for qualifying internal auditors and lead auditors and reviewed their qualification and certification records and confirmed they were qualified in accordance with the applicable code requirements, and that annual performance records were current.

In addition, the NRC inspection team discussed the personnel training and qualification process with CB&I LC management and staff, attended a training session, interviewed QC personnel, and observed them during the performance of their work. Particular attention was placed on CB&I LC training of QC personnel performing quality activities associated with the fabrication of structural sub-modules being supplied to U.S. commercial nuclear power reactors as part of WEC's AP1000 design.

To verify effectiveness, the NRC inspection team reviewed a representative sample of training and certification records for QC staff members, including 13 QC inspectors, 2 QC foremen, 2 coating inspectors, 6 lead auditors, 4 auditors, and the current QC ASNT Level III. Personnel records included indoctrination and training to the QAM and procedures, 10 CFR Part 21, Kaizan Blitz process improvement training, as well as major revisions to procedures. The NRC inspection team also observed QC personnel and craft personnel during the performance of their work, including those jobs such as fit & tack of assemblies using a port-a-power tool, distortion correction, VT, PT and UT on sub-module assemblies for the CA20-23 sub-module undergoing base metal repair. The individuals interviewed were knowledgeable of their job requirements, and the QC

inspections were performed by qualified personnel other than those who performed or directly supervised the work being inspected.

The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that CB&I LC's program requirements for training and qualification of personnel are consistent with the requirements of Criterion II of Appendix B to 10 CFR Part 50. The NRC inspection team also concluded that CB&I LC's QAM and associated training and qualification procedures were adequate and effectively implemented. No findings of significance were identified.

8. Commercial Grade Dedication

a. Inspection Scope

The NRC inspection team reviewed CB&I LC's policies and implementing procedures that govern the commercial-grade dedication (CGD) program to verify compliance with the regulatory requirements of Criterion III, "Design Control," Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50.

The NRC inspection team reviewed the revised CGD program. Various samples were selected to assess the different elements of the CGD program which consisted of purchase orders, dedication plans, receipt inspection reports, certificates of compliance, and surveys and annual evaluations for all commercial vendors on CB&I LC's Approved Suppliers List. The NRC inspection team evaluated the criteria for the selection of critical characteristics, the basis for sampling plan selection, and the selection of verification methods to verify effective implementation of CB&I LC's dedication process. The NRC inspection team also discussed the conduct of CGD activities with CB&I LC personnel involved in the development of the technical evaluations, surveys, and assessment of results from these activities.

The NRC inspection team reviewed the CGD packages and associated documents prepared for safety-related material and services, conducted interviews with personnel responsible for quality, and reviewed program documents and records in order to assess the adequacy of the CGD program.

The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified

c. Conclusions

The NRC inspection team concluded that CB&I LC has adequately implemented its process for control of CGD and satisfies the regulatory requirements set forth in Criterion III, "Design Control," Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

9. Control of Measuring and Test Equipment

a. Inspection Scope

The NRC inspection team reviewed CB&I LC's policies and procedures for control of measuring and test equipment (M&TE) to verify compliance with Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50. Specifically, the NRC inspection team reviewed CB&I LC's QAM, and Control of M&TE Level II and III procedures (QP-QC-212 & QP-QC-316) which describes the requirements for control and calibration of test equipment. The NRC inspection team reviewed the use of M&TE during inspections to ensure it was calibrated, controlled, and documented in accordance with the procedural requirements. The NRC inspection team reviewed the database to ensure documentation matched the observed use of M&TE, and that M&TE was calibrated to a nationally recognized standard, and the calibration was current. The NRC inspection team reviewed CARs and NCRs to ensure M&TE found out of calibration, broken, or missing were documented and evaluated in accordance with requirements. The NRC inspection team interviewed personnel who used M&TE equipment, or were responsible for the M&TE program to ensure their understanding of regulatory and procedural requirements.

The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified

c. Conclusions

The NRC inspection team determined that the implementation of CB&I LC's program for M&TE was consistent with the regulatory requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

## 9. Entrance and Exit Meetings

On December 1, 2014, the NRC inspection team discussed the scope of the inspection with Mr. Ryan Zurkuhlen, Director of Modular Operations, and other CB&I LC management and technical staff. On December 5, 2014, the NRC inspection team presented the inspection results and observations during an exit meeting with Mr. Zurkuhlen and other CB&I LC management and technical staff. The attachment to this report lists the attendees of the entrance and exit meetings.

## 1. ATTACHMENT

### 1. ENTRANCE/EXIT MEETING ATTENDEES

| <b>Name</b>       | <b>Title</b>   | <b>Affiliation</b>             | <b>Entrance</b> | <b>Exit</b> |
|-------------------|--|--------------------------------|-----------------|-------------|
| Ryan Zurkuhlen    | Director of Modular Operations   | Chicago Bridge and Iron (CB&I) | X               | X           |
| Chris Fordham     | General Manager  | CB&I                           | X               | X           |
| Ryan Whitford     | Director QA/QC   | CB&I                           | X               | X           |
| Brian Gibson      | Site Quality Manager   | CB&I                           | X               | X           |
| Rob Pinell        | QC manager   | CB&I                           | X               | X           |
| Secilia Gayle     | Nuclear Safety Manager   | CB&I                           | X               | X           |
| Kamlesh Panwala   | Corporate QA/QC  | CB&I                           | X*              | X           |
| Patricia Utley    | QA manager   | CB&I                           | X               | X           |
| Jimmy Staus       | Quality Manager  | CB&I                           | X               | X           |
| Steven Muilenburg | QA Specialist  | CB&I                           | X               | X           |
| Jack Gallagher    | Employee Concerns Manager  | CB&I                           |                 | X           |
| Remi Bonnezazes   | President – Fabrication & Manufacturing  | CB&I                           |                 | X           |
| Michael Annacone  | Vice President – Nuclear Safety  | CB&I                           |                 | X           |
| Brad Lukehart     | Director of Operations for America Fabrication & Manufacturing                         | CB&I                           |                 | X           |
| David Portus      | Engineering Manager  | CB&I                           |                 | X           |
| Craig Peterson    | CAP Manager  | CB&I                           |                 | X           |
| Curt Castell      | Licensing  | CB&I                           |                 | X           |
| Lee Presley       | Nuclear Operations Manager   | CB&I                           |                 | X*          |
| Calvin Morrow     | Licensing Engineer   | CB&I                           |                 | X*          |
| Aixa Belen        | Team Leader  | NRC                            |                 | X           |
| Glenn Tracy       | Director, Office of New Reactor  | NRC                            |                 | X           |
| Frederick Brown   | Deputy Regional Administrator, Region II   | NRC                            |                 | X           |
| Andrea Valentin   | Deputy Division Director, Division of Construction Inspection and Operational Programs | NRC                            |                 | X           |
| Kerri Kavanagh    | Chief, Quality Assurance Vendor Inspection Branch                                      | NRC                            |                 | X           |
| Paul Prescott     | Inspector  | NRC                            | X               | X           |
| Alain Artayet     | Inspector  | NRC                            | X               | X           |
| Raju Patel        | Inspector  | NRC                            | X               | X           |
| Thomas Kendzia    | Inspector  | NRC                            | X               | X           |
| Steven Downey     | Inspector  | NRC                            | X               | X           |

**\*Participated by teleconference**



2. INSPECTION PROCEDURES USED

Inspection Procedure (IP) 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated February 13, 2012.

IP 43003, "Reactive Inspections of Nuclear Vendors"; dated October 3, 2013

IP 43002, "Routine Inspections of Nuclear Vendors," dated July 15, 2013.

IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated April 25, 2011.

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

| Item Number          | Status | Type | Description    |
|----------------------|--------|------|----------------|
| 99901425/2014-201-01 | Opened | NON  | Criterion XVI  |
| 99901425/2014-201-02 | Opened | URI  | 10 CFR Part 21 |

4. DOCUMENTS REVIEWED

Policies and Procedures

1. QP-SMS-QAM-01, "SMS Quality Assurance Manual," Revision 10, dated November 19, 2014
2. Quality Procedure (QP) QA-01, "Qualification of Auditors," Revision 6, dated May 9, 2012
3. QP-QA-310, "10 CFR Part 21 and 10 CFR 50.55(e) Compliance," Revision 1 dated August 14, 2014
4. QP-WE-301, "Weld Procedure Specification Development and Qualification – AWS" Revision 1 dated April 21, 2014
5. QP-WE-301, "Weld Procedure Specification Development and Qualification – AWS" Revision 4 dated March 1, 2013
6. Approved Suppliers List, Revision 14-007, dated December 4, 2014
7. QP-QC-207a, "Commercial Grade Dedication," Revision 2, dated July 11, 2014
8. QP-QA-304, "Source Verification," Revision 0 dated November 1, 2014
9. QP-QA-303, "Commercial Grade Surveys," Revision 0 dated September 30, 2014
10. CB&I Quality Assurance Manual, Section 9.5, "Non Destructive Testing"
11. QP-QC-210, Revision 6, "Inspection", October 7, 2014
12. QP-NDT-VT-301, Revision 1, "Visual Testing", July 28, 2014
13. QP-NDT-MT-301, Revision 0, "Magnetic Particle Testing (AC Yoke, Visible Dry Particles)", March 28, 2014
14. QP-NDT-PT-301, Revision 2, "Penetrant Testing (Type II, Method C, Form d), July 31, 2014

15. QP-NDT-RT-301, Revision 0, "Radiographic Testing (AWS, Computed)", March 28, 2014
16. QP-NDT-UT-301, Revision 0, "Ultrasonic Testing (AWS D1.1)", March 28, 2014
17. QP-NDT-UT-303, Revision 0, "Ultrasonic Thickness Testing", March 28, 2014
18. QP-PC-301, Revision 10, "Implementation of Shop Traveler", November 6, 2014
19. QP-PE-307, Revision 3, "Repair/Rework and Affected Weld Area- AWS.", October 20, 2014
20. CB&I Procedure QP-WH-208, Rev. 1, Identification and Control of Items, dated August 4, 2014
21. QP-PC-203, "Shop Travelers," Revision 2, May 7, 2014
22. QP-QC-210, "Inspection," Revision 6, October 7, 2014
23. QP-QC-212, "Control of Measuring and Test Equipment", Revision 1, May 7, 2014
24. PSP-QC-01, "Certificate of Conformance," Revision 1, September 5, 2014
25. QP-DC-301, "Document Review," Revision 1, July 28, 2014
26. QP-DC-303, "Shop Traveler Control," Revision 2, July 28, 2014
27. QP-DC-304, "Quality Assurance Records Turnover Packages," Revision 1, July 28, 2014
28. QP-PC-301, "Implementation of Shop Traveler," Revision 10, November 6, 2014
29. QP-PC-302, "Shop Traveler Development," Revision 6, October 1, 2014
30. QP-QC-304, "Receiving Inspection," Revision 5, October 22, 2014
31. QP-QC-306, "Qualification and Certification of Inspection & Testing Personnel," Revision 3, June 9, 2014
32. QP-QC-307, "Inspection and Test Planning", Revision 3, March 22, 2014
33. QP-QC-315, "General Inspection", Revision 2, October 8, 2014
34. QP-QC-316, "M&TE Issuance, Control and Calibration", Revision 2, October 17, 2014
35. PQAP-SNS-AP1000-12, "Certificate of Conformance for AP1000 Modules and Engineered Products," Revision 1, September 5, 2014
36. QP-TR-202, "Training," Revision 2, dated April 23, 2014
37. QP-TR-302, "Training Processes," Revision 5, dated September 12, 2014
38. QP-QC-306, "Qualification and Certification of Inspection and Testing Personnel," Revision 3, dated June 9, 2014
39. QP-QA-301, "Qualification of Auditors," Revision 1, dated September 4, 2014
40. QP-CA-216, "Corrective Action Program," Revision 4, dated November 26, 2014
41. QP-CA-305, "Condition Report Processing," Revision 2, dated October 28, 2014
42. QP-CA-303, "Trending Manual," Revision 0, dated November 20, 2012
43. QP-CA-304, "Condition Reporting," Revision 0, dated March 29, 2014
44. QP-PC-304, "Procedure for Applicator Qualification," Revision 1, dated August 13, 2014
45. QP-EG-215, "Nonconformance Program," Revision 1, dated November 20, 2014 provides
46. QP-EG-305, "Initiating Nonconformance Reports," Revision 1, dated November 5, 2014
47. QP-EG-306, "Processing Nonconformance Reports," Revision 6, dated November 18, 2014
48. QP-PE-303, "Fabrication Change Notice," Revision 3, Change 1, dated November 18, 2014
49. CMS-710-02-PR-06800, "Portable Hydraulic Cylinders (Jacks and Port-A-Powers)," Revision 1, dated October 23, 2014
50. QP-EG-303, "Distortion Correction," Revision 3, dated November 7, 2014

## Traceability

1. Carbon steel angle irons of ASTM A992 with heat-no. DL13104239 for CA05-04
2. Duplex stainless plate of ASTM A240-S32101 with heat-no. 423542 for CA20-28
3. Carbon steel plate of ASTM A572-60 with heat-no. 3504715 for CA20-28.

## Commercial Grade Dedication Documents

1. Commercial Grade Dedication Plan Number CGDP-12-00002, Revision 4, dated January 30, 2014, for Outokumpu Stainless AB Degerfors, Sweden
2. Commercial Grade Survey Checklist Number CGS-14-001 dated December 3, 2014, for Outokumpu Stainless Steel, Inc., New Castle, IN
3. Commercial Grade Survey Report Number CGS-14-001, dated December 3, 2014, for Outokumpu Stainless Steel, Inc., New Castle, IN
4. Commercial Grade Dedication Package Number CGD-12-00002, Revision 1, dated April 24, 2014, for Outokumpu Stainless Inc., New Castle, IN
5. Commercial Grade Dedication Plan Number CGD 12-000022, dated February 5, 2014, for duplex stainless plate from Outokumpu Stainless Inc.
6. Industrial Testing Laboratory Services, LLC Certified Material Test Report Number L21920, dated March 27, 2013, for 2" thick Duplex Plate from Outokumpu Stainless Inc.
7. Industrial Testing Laboratory Services, LLC Certified Material Test Report Number L23428, dated October 1, 2013, for 2" thick Duplex Plate from Outokumpu Stainless Inc.
8. Receipt Inspection Report Number RIR-13-0001010, dated April 24, 2014, for steel plate from Outokumpu Stainless Inc.
9. Shaw Modular Solutions Purchase Order Number 800986 OI, dated August 6, 2012, to Outokumpu Stainless Plate, Inc.
10. Receipt Inspection Report Number RIR-13-0001383, dated September 28, 2013, for steel plate from Outokumpu Stainless AB
11. Ultra-sonic Test Certificate Number 3016028.R00, dated January 28, 2013, for stainless plate from Outokumpu Stainless AB
12. Ultra-sonic Test Certificate Number 3016028.R00, dated January 28, 2013, for stainless plate from Outokumpu Stainless AB
13. Ultra-sonic Test Certificate Number 3016027.R00, dated January 28, 2013, for stainless plate from Outokumpu Stainless AB
14. Shaw Modular Solutions Purchase Order Number 804272 OI, dated August 21, 2012, to Outokumpu Stainless AB
15. Shaw Modular Solutions Purchase Order Number 855487 OI, dated May 28, 2013, to Howell Industries, Inc.
16. Receipt Inspection Report Number RIR-13-001467, dated September 10, 2013, for water jet cutting of flat panel plug billets from Howell Industries, Inc.
17. Commercial Grade Dedication Plan Number CGD 13-000002, dated August 29, 2013, for water jet cutting of plate from Howell Industries, Inc.
18. Certificate of Conformance for Purchase Order Number 855487 OI, Item 10 from Howell Industries, Inc. for water jet cutting Corner Leak Chase Plug Billet
19. Certificate of Conformance for Purchase Order Number 855487 OI, Item 1 from Howell Industries, Inc. for water jet cutting Corner Leak Chase Plug Billet
20. Certificate of Conformance for Purchase Order Number 855487 OI, Item 2 from Howell Industries, Inc. for water jet cutting Corner Leak Chase Plug Billet

21. Quality Control Visual Inspection Report Number 4, dated July 3, 2013, for Item 10 from Howell Industries, Inc.
22. Quality Control Visual Inspection Report Number 8, dated July 17, 2013, for Item 1 from Howell Industries, Inc.
23. Quality Control Visual Inspection Report Number 11, dated July 23, 2013, for Item 2 from Howell Industries, Inc.
24. Calibration Suppliers Annual Evaluation Form, dated January 25, 2014, for JM Test Systems, Inc., Baton Rouge, LA, Alexandria, LA, Clute, TX and Odessa, TX locations
25. American Association for Laboratory Accreditation (A2LA) Scope of Accreditation Certificate Number 1995.02, valid to November 30, 2014, for JM Test Systems, Inc., Alexandria, LA
26. A2LA Scope of Accreditation Certificate Number 1995.01, valid to February 28, 2015, for JM Test Systems, Inc., Baton Rouge, LA
27. A2LA Scope of Accreditation Certificate Number 1995.03, valid to November 30, 2014, for JM Test Systems, Inc., Clute, TX
28. A2LA Scope of Accreditation Certificate Number 1995.04, valid to May 31, 2015, for JM Test Systems, Inc., Odessa, TX
29. Calibration Suppliers Annual Evaluation Form, dated August 16, 2014, for Fox Valley Metrology, LTD. Oshkosh, WI, St. Croix Falls, WI, and Fenton, OH locations
30. Assured Calibration and Laboratory Accreditation Select Services (ACLASS) Certificate of Accreditation Certificate Number ACT-1272, issued May 22, 2013, for Fox Valley Metrology, LTD. for Oshkosh, WI, St. Croix Falls, WI, and Fenton, MO.
31. ACLASS Scope of Accreditation Certificate Number ACT-1272, valid to June 15, 2015, for Fox Valley Metrology LTD. for Oshkosh, WI, St. Croix Falls, WI, and Fenton, MO.
32. Receipt Inspection Report Number RIR-13-001768, dated November 20, 2013, for calibration services from Fox Valley Metrology, LTD, Oshkosh, WI
33. Certificate of Compliance for Purchase Order Number 11102 OB & 87709601 OI, from Fox Valley Metrology, LTD, for calibration services
34. Shaw Modular Solutions Purchase Order Number 11102 OB, dated April 23, 2013, to Fox Valley Metrology LTD, Oshkosh, WI

#### Correspondence

1. CB&I Power letter to NRC, "Interim 10 CFR Part 21 Report Regarding Deviations of Modules and Sub-Modules Supplied for AP1000 Projects," dated April 30, 2014
2. CB&I Power letter to NRC, "Updated Interim 10 CFR Part 21 Report Regarding CB&I Lake Charles Welding Procedure Specification Nonconformance for AP1000," dated April 22, 2014
3. CB&I Power letter to NRC, "Interim 10 CFR Part 21 Report Regarding Sub-Module Coupler Welding Qualification," dated April 28, 2014
4. CB&I Power letter to NRC, "Interim 10 CFR Part 21 Report Regarding CB&I Lake Charles Welding Procedure Specification Nonconformance for AP1000," dated February 21, 2014
5. CB&I Power letter to NRC, "Interim 10 CFR Part 21 Report Regarding Deviations of Modules and Sub-Modules Supplied for AP1000 Projects," dated May 2, 2014
6. CB&I Power letter to NRC, "Updated Interim 10 CFR Part 21 Report Regarding Deviations of Modules and Sub-Modules Supplied for AP1000 Projects," dated November 5, 2014

7. Event Notification Summary (ENS) from Vogtle Units 3 and 4, "Welding Program Deviations During Construction," dated September 10, 2014
8. ENS from V.C. Summer Units 2 and 3, "Welding Program Deviations During Construction," dated September 10, 2014
9. CB&I LC Letter L-PM-ZZ-000014, dated March 27, 2014, from R. Whitford to P. Bagwell, "Stop Work Order Revision #5"
10. CB&I LC Letter L-PM-ZZ-000015, dated April 8, 2014, from R. Whitford to P. Bagwell, "Lifting of Stop Work Order"
11. CB&I LC Letter L-D100-2014-000097, dated July 9, 2014, from R. Whitford to C. Castell, "Request for Evaluation Under 10 CFR 50.55(e) for the Conditions Identified in CBI LC CAR 2013-1641"
12. CB&I LC Letter L-D100-2014-000002, dated January 3, 2014 from J. Mathis to K. Niemer, "Potential Part 21 Issue with WPS Found Noncompliant (Revision1)"
13. Letter dated April 18, 2013 from G. M. Tracy, USNRC to P. K. Asherman, President and CEO, CB&I, "Chilled Work Environment for Raising and Addressing Safety Concerns at Chicago Bridge & Iron Fabrication Lake Charles Facility (Formerly Known as Shaw Modular Solutions)," (ADAMS Accession No. ML13092A077)
14. Letter dated May 17, 2013 from P. K. Asherman, President and CEO, CB&I, to G. M. Tracy, USNRC, "Response to April 18, 2013, NRC Letter Regarding Chilled Work Environment at Chicago Bridge & Iron Fabrication Lake Charles Facility," (ADAMS Accession No. ML13149A351)
15. Letter dated December 20, 2013, from L. W. Scorsone, Executive VP, Fabrication Services, CB&I, to M. C. Cheok, USNRC, "Update to CB&I Response Letter Dated May 17, 2013, to April 18, 2013, NRC Letter Regarding Chilled Work Environment at Chicago Bridge & Iron Fabrication Lake Charles Facility," (ADAMS Accession No. ML13357A509)
16. Letter dated April 18, 2013, from R.P. Zimmerman, USNRC to D. Barry, President, CB&I, "Notice of Violation and Imposition of Civil Penalties - \$36,400 (Office of Investigations Report No. 2-2011-047) (ADAMS Accession No. ML13050A597)
17. Letter dated October 19, 2012, from R.P. Zimmerman, USNRC to E. Smith, President, Shaw Power Group, "Apparent Violation of Employee Protection Requirements (Office of Investigations Report No. 2-2011-047) (ADAMS Accession No. ML12270A171)
18. Confirmatory Order for Chicago Bridge and Iron (CB&I) – EA-12-189 (ADAMS Accession No. ML13233A432)
19. Revised Confirmatory Order for Chicago Bridge and Iron (CB&I) – EA-12-189 and EA-13-196 (ADAMS Accession No. ML14248A434)
20. Letter dated June 16, 2014, from M. Annacone, Vice President Nuclear Safety, CB&I, to USNRC, "Chicago Bridge & Iron Corrective Actions Regarding EA-13-196," (ADAMS Accession No. ML14170A034)

#### Drawings, Specifications, Work Orders and Associated Technical Documents

1. APP-CA20-02-20-120-SM1, Rev. 0, associated with WO# 2997206 for studs
2. CB&I WPS 1-10-218, Rev. 1, dated July 9, 2012, with supporting qualification records
3. Weld Traveler CA20-27-200 for WO# 3046478-200
4. Outo Kumpu CMTR 3016049.R01 with heat no. 423171 for duplex stainless steel plate
5. WPS 1-1-86, Rev. 13, dated July 2, 2014, with supporting qualification records
6. Weld Traveler CA20-27-100 for WO# 3046481-100 for weld no. 100-20-0177 and -0178

7. Certificate of Conformance Package for CA-01-07 V.C. Summer 2, Wall Sub-Module PO Number 527363, dated November 21, 2014
8. Mechanical POD for December 2, 2014
9. Drawings changes: APP-CA01-GEF-107, 218, 235, 276, 310, 477, 850006, 850039, & 850080
10. FCN-2014-538 & 1432
11. 43002-WA-3039859-100-New Format Shop Traveler for Job No. 3039859-100 Vogtle Unit 4 CA-05-04-100 sub-module issue date November 12, 2014
12. 430002-WA-3039859-STUD New Format Shop Traveler for Job No. 43002 Vogtle Unit 4 CA05-04-Stud sub-module issue date November 12, 2014
13. Fabrication Change Notice (FCN) No. 2014-2091, "Base Metal Repair (BMR)," on Work Order No. 29997224-Stud dated November 9, 2014
14. QP-PE-307 F042, "Base Metal Repair Form," for BMR Stud 60-0014, FCN No. 2014-2091, indicate operation No. 2 evacuate performed on November 12, 2014, operation 3 base metal inspection to visual test (VT) and penetrant test performed and documented on WVT 14-0-14568 and WPT-14-005326 on November 25, 2014
15. Form F042 for BMR 000-60-0006 on FRN No. 2014-2197 for work order No. 2997224 CA20-23 sub-module with VT performed on WVT-14-014254 with MT rejected on December 1, 2014
16. Fit & Tack 200 assembly to 100 assembly of CA20-18 using port-a-power tool gage numbers 124397, 114063 and 124418 on Work Order No. 2997216, for V.C. Summer Unit 3 Job No. 430012

#### Training Records and Associated Documents

1. Qualification and training records for 3 lead auditors and 5 auditors
2. Form F000036-00, "Lead Auditor Certification," for Patricia Utley qualified on May 20, 2013 with annual assessed on June 16, 2014
3. Form F000036-00 Lead auditor certification record for Seven Akerman qualified on April 29, 2014
4. Form F000036-00 Lead auditor certification record for Senn T. Coleman qualified on August 21, 2014
5. Form F000036-00 Lead auditor certification for Donald Liebro qualified on August 21, 2014
6. Form F000036-00 Lead auditor certification for Jimmy Staus qualified on October 7, 2014
7. Form F000036-00 Lead auditor certification for Ryan Whitford qualified on September 27, 2011 with annual evaluation performed on 2012, 2013, and September 15, 2014;
8. Form F088, "Inspection and Test (I&T) Personnel Qualification and Certification Record," for Ronnie Arnold as Level II Hardness Rebound Tester qualified on October 17, 2014, due October 17, 2017
9. QP-QC-306-F3, "Certificate of Qualification/Certificate," for Ronnie Arnold as Mechanical Inspector Level II qualified December 3, 2012, due December 2, 2015
10. Form F0000027-00, "Nondestructive Examination of Personnel Qualification Record," for Ronnie Arnold as Level II VT qualified December 21, 2011 due December 21, 2014
11. Form F089, "I&T Personnel - Visual Examination Record," for Ronald Broussard dated October 23, 2012 due October 23, 2015

12. Form F091, "Inspection & Testing (I&T) Personnel," Annual Competency Review Record for Derik Durio, Coating Inspector to QP-NDT-WP-301, QP-QC-301, dated November 13, 2014
13. QP-NDE-WP-301-F-1, "Nondestructive Examination of Personnel Qualification Record," for Jacob Styron, Level II VT, MT, PT, UT, Process, qualified on January 2, 2014, due January 1, 2017, with vision exam
14. QP-NDE-WP-301-F-1, for Clifton Young as Level II PT, UT, qualified on October 18, 2013, due October 18, 2016
15. Form F088, I&T Personnel Qualification and Certification Record for Clifton Young as Level II Hardness Rebound Tester qualified on May 22, 2014, due May 22, 2017
16. QP-NDE-WP-301-F-1 for Clifton Young as Level II RT Process, qualified on January 6, 2014, due January 6, 2017, with vision exam;
17. QP-NDE-WP-301-F-4, "Certification of NDE Personnel-Annual Technical Evaluation," for Ken Odom, Level II VT, MT, PT, assessed on February 21, 2014
18. FRM00027-00, "Nondestructive Examination of Personnel Qualification Record," for Ken Odom Level II PT dated March 22, 2012 due March 22, 2015
19. FRM00027-00, "Nondestructive Examination of Personnel Qualification Record," for Robert Bulawa Level II PT dated October 23, 2012 due October 23, 2015
20. FRM00027-00, "Nondestructive Examination of Personnel Qualification Record," for Paul Highfill Level II PT, VT, MT and UT, qualified on March 29, 2012 due March 29, 2015
21. FRM00027-00 for Philip Hunsucker Level II UT, VT, and Welding Inspector qualified on October 08, 2012 due October 08, 2015
22. Form 088, I&T Personnel Qualification and Certification Record for Anthony Garland - Level II MT, PT, VT, UT qualified on April 8, 2014, due April 8, 2017
23. Form 088, I&T Personnel Qualification and Certification Record for Frankie Ziegler - Level II VT, qualified on October 23, 2014, due October 23, 2017
24. Form 088, I&T Personnel Qualification and Certification Record for Timothy Bollhalter as Level II in VT, MT and PT qualified on May 27, 2014, due June 11, 2017
25. CB&I LC Letter of Approval of APPLUS RTO's (QISI) NDT Certification Program and Personnel approving Michael Shannon as Level II in VT, MT and PT qualified on December 10, 2013 due December 10, 2016,
26. CB&I LC Letter of Approval of APPLUS NDT Certification Program and Personnel approving Carlos Quintana as Level II in VT, MT, PT and UT qualified on May 2, 2014, due May 2, 2017
27. Anthony J. Garland qualified as AWS Certified Welding Inspector (CWI) qualification expires on March 1, 2015
28. Form F227, "Inspection & Test Personnel Technical Performance Evaluation Record," for Brent Chupp qualified in VT, MT, and PT Level II evaluated on May 22, 2014, due April 15, 2015
29. FRM000044-00, "Certificate of Qualification," for Robert Bulawa Welding Inspector qualified on August 15, 2012 due August 15, 2015
30. FRM180, "Welder or Welding Operator Qualification AWS D1.4," for Do Lien qualified to Welder Procedure Specification (WPS) I-1-347, Revision 4, to GMAW-P, qualified date April 7, 2014
31. FRM185, "Welder or Welding Operator Qualification Continuity Log," (WQCL) for Do Lien to FCAW expires on February 16, 2015 and GTAW expires on February 18, 2015

32. FRM-00067-00, "Welder or Welding Operator Qualification Test Record (D1.6)," for Ellzey Michael, welder stencil HA, to WPS 1-10-352, Revision 0, GMAW-P IG position qualified on January 4, 2013
33. QP-WE-302-F-9, "Stud Welder Qualification Record," (SWQR) for Perez Jorge (WG) of WPS 1-10-98 Revision 01, qualified on July 18, 2013
34. FRM-00070-01, "Welder or Welding Operator Qualification Test Record (D1.1)," (WPQ) for Chris Raymond (FX) to WPS-1-1-43, Revision 5, GMAW-P process, qualified on March 12, 2012
35. QP-WE-302-F-9 SWQR for Brian Tran (XD) to WPS 1-10-98 Revision 01, qualified on April 16, 2014
36. WPQ form QP-WE-302-F1 for Brian Tran, welder ID. XD, qualified in Flux Core Arc Welding (FCAW) to WPS 1-1-500, Revision 0 to AWS D1.1 on November 21, 2013
37. WQCL for Brian Tran (XD) to GMAW-Pulse and FCAW, last updated March 25, 2014
38. WPQ form QP-WE-302-F4 for Jose Vargas, welder Id. TS, qualified in GMAW- Pulse to WPS-1-10-352, Revision 0, to AWS D1.6 on May 21, 2013
39. WPQ form QP-WE-302-F1 for Jose Vargas (TS) qualified in GTAW to WPS 1-1-318, Revision 01, to AWS D1.1 on November 5, 2013
40. Form F000066, "Welder or Welding Operator Qualification Continuity Log," for Daniel Signer
41. WQCL for Jose Vargas (TS), to GMAW-P, FCAW and Gas Tungsten Arc Welding (GTAW) process last updated March 27, 2014
42. Certificate of Completion for Kaizan Blitz Training 1-6 and Final Exam for Bryan Bennett, Brad Cassidy, Clifton Day, Steve Sommer, Thomas Bunke, Euley Joe Oubre performed on January 27, 2014, and February 3, 2014
43. Quality Training Matrix dated December 1, 2014
44. Training Record dated November 7, 2017 of CB&I personnel to QP-EG-303 procedure Revision 3
45. HSE Training Attendance Sheet for High Pressure Hydraulic Tools performed on July 23 through October 2, 2014,
46. High Pressure Hydraulic Tool Test qualification results for David Neviex, Ryan Blanchard, Bink Nguyen, Jocy Burns, Cong Tran dated August 29, 2014
47. Computer Based Training (CBT) for David Bryan (QA Specialist 5) to QP-CA-305, "Condition Report Processing," Revision 02, performed on November 12, 2014
48. CBT for William Couter (Construction Field Engineer 1) to QA-CA-305 Revision 02, performed on November 4, 2014
49. CBT for Brandon Leger (Designer 2) to QA-CA-305 Revision 02, performed on October 29, 2014
50. CBT for Chad Laughlin (Industrial Warehouseman) to QP-EG-306, "Processing Nonconforming Reports," Revision 6, performed on November 20, 2014
51. CBT for Cory McGlory (Construction Field Engineer 1) to QP-EG-306, Revision 6, performed on November 21, 2014
52. CBT for Sarah Horn (Drafter 2) to QP-EG-306, Revision 6, performed on November 20, 2014
53. CBT for Jamison Marsh to QP-QC-210, " Inspection," Revision 6, performed on November 22, 2014
54. CBT for James Staus (Shop NDE Technician) to QP-QC-210, Revision 6, performed on November 22, 2014



55. CBT for David Lafleur (Shop Welder) to QP-EG-305, "Initiating Nonconforming Reports," Revision 0, performed on February 17, 2014
56. CBT for Allison Peters (Shop Pipe fitter) to QP-EG-305, Revision 0, performed on February 17, 2014
57. CBT for Corey Berwick (Shop welder) to QP-WE-302, "Welder/Operator Qualification – AWS," Revision 12, performed on November 17, 2014
58. CBT for Raymonds Butts (Shop Machinist) to QP-WE-302, Revision 12, performed on November 18, 2014
59. CBT for Horace Hatcher Jr. (Site Superintendent) to QP-WE-302, Revision 12, performed on November 11, 2014
60. CBT for Kimberly Marolla (Engineer 3) to QP-PE-303, "Fabrication Change Notice," Revision 3, performed on November 19, 2014
61. CBT for Harlene McCoy (RIM Technician 2) to QP-PE-303, Revision 3, performed on December 4, 2014
62. CBT for Heather Seamon (Designer 2) to QP-PE-303, Revision 3, performed on December 4, 2014
63. CBT for Kimberly Marolla (Engineer 3) to QP-PE-303, Revision 3, performed on December 4, 2014
64. CBT for Carolyn Self (Procurement Specialist 3) to QP-EG-215, Revision 1, performed on November 21, 2014
65. CBT for Michael Shannon (Shop NDE technician) to QP-EG-215, "Nonconformance Program," Revision 1, performed on November 21, 2014
66. CBT for Rucheer Shah (Construction Field Engineer 1) to QP-EG-215, Revision 1, performed on November 21, 2014
67. CBT for Ivan Tatchim (Construction Field Engineer 1) to QP-PC-302, "Shop Traveler Development," Revision 6, performed on October 3, 2014
68. CBT for Michael Veuleman (Engineer 2) to QP-PC-302, Revision 6, performed on October 2, 2014
69. CBT for Gerald Rather (QA Specialist 4) to QP-PC-302, Revision 6, performed on October 2, 2014
70. CBT for Robert Yeates (Engineer 3) to QP-PC-302, Revision 6, performed on October 2, 2014
71. Training Attendance Record for NU-NSC-1000, "Leadership Actions to Create a Healthy Nuclear Safety Culture," performed on March 21, 2014

#### Calibration and Inspection Related Records

1. Visual Testing Reports,
  - WI-13-0005191 for Vogtle CA01-15-100
  - WI-13-0005389 for Vogtle CA01-15-100
  - WI-13-0005986 for Vogtle CA01-05-100
  - WI-13-0006925 for Vogtle CA01-07-110
  - WI-13-0007011 for Vogtle CA01-07-110
  - WIR-13-014067 for Vogtle CA01-04-210

2. Liquid Penetrant Testing Reports,
  - WPT-13-002003 for Vogtle CA01-15-100
3. Magnetic Particle Testing Reports
  - WMT-13-004404 for Vogtle CA01-04-210
  - WMT-12-001966 for Vogtle CA04-01
  - WMT-12-001976 for Vogtle CA04-04
  - WMT-12-001977 for Vogtle CA04-04
  - WMT-12-001978 for Vogtle CA04-03
  - WMT-12-001993 for Vogtle CA04-02
  - WMT-13-004196 for Vogtle CA01-05-100
4. Ultrasonic Testing Reports
  - WUT-12-001431 for Vogtle CA04-04
  - WUT-12-001435 for Vogtle CA04-03
  - WUT-12-001436 for Vogtle CA04-02
  - WUT-12-001474 for Vogtle CA04-01
  - WUT-13-001990 for Summer CA01-12-400
  - WUT-13-002071 for Vogtle CA01-05-100
  - WUT-14-003388 for Vogtle CA01-34-300
  - WUT-14-003511 for Vogtle CA01-34-300
  - WUT-14-003479 for Summer CA01-28
  - WUT-14-003712 for Summer CA01-28
5. Completed transfer packages recently shipped to the AP1000 Construction sites
  - Summer CA01-04-130
  - Summer CA01-04-300
  - Summer CA01-12-400
  - Summer CA01-20-400
  - Summer CA01-28
  - Vogtle CA01-04-210
  - Vogtle CA01-04-200
  - Vogtle CA01-05-100
  - Vogtle CA01-07-110
  - Vogtle CA01-15-100
  - Vogtle CA01-34-300
  - Vogtle Unit 3 CA04-01
  - Vogtle Unit 3 CA04-02
  - Vogtle Unit 3 CA04-03
  - Vogtle Unit 3 CA04-04
6. Inspection and Test Plan for Receipt Inspection Form # F157
7. Receipt Inspection Report for PO #918652 C/O 01

### Measuring and Test Equipment Records

1. MT Yoke, CBI #124498
2. 10# Bar, MTE #448
3. DS Test Block 1018 Steel, Serial #29701, MTE #326
4. Digital Calipers, MTE #089
5. Digital Pyrometer, MTE #638

### Component Verification Packages

1. CA-01-04 Summer 2, CA-01-04 Vogtle 3, CA-01-07 Summer 2, CA-01-07 Vogtle 3, CA-01-29 Summer

### Nonconformance Reports

- NCR-14-898, 14-1285, 14-1287, 14-770, 14-508, 14-1841, 13-509, 14-1614

### Corrective Action Reports

#### 2013

Condition Report (CR) 2013-1641, "A trending has occurred within the welding program. This trending is based upon several welding procedures issued for fabrication that were not code compliant," dated December 13, 2013

Corrective Action Report (CAR) 2013-1641, "QA Program Issues Associated with CB&I Lake Charles Welding Procedure Specification (WPS) Nonconformances"

#### 2014

CRs, 2014-013(SCAQ), 928, 1790, 372, 511, 601, 654, 797, 878, 972, 1034, 1106(SCAQ), 1107(SCAQ), 1301, 1612, 1641, 1646, 1916, 1925, 1928, 1929, 1930, 1931, 1932, 1935, 1936, 1937, 1938, 1939, 1940

CR 2014-1417, "In compliance with CR 3013-1641 and RCA 2014-1122 training and testing was administered for welding test administrators. Of the 8 individuals tested 1 individual has met the threshold score of 90%" dated September 9, 2014

Form F055, "Root Cause Analysis," Report Nos: CR 2014-1106 and CR 2014-1107, dated November 4, 2014

### Corrective Action Reports Generated During the NRC Inspection

CAR 2014-1937, 1938

## Miscellaneous

1. CAP Screening Committee Meeting and Screening Report dated December 5, 2014

## 5. ACRONYMS USED

|         |   |
|---------|---|
| ADAMS   | Agencywide Documents Access and Management System |
| ASME    | American Society of Mechanical Engineers          |
| ASNT    | American Society for Nondestructive Testing       |
| ASTM    | American Society of Testing & Materials           |
| AWS     | American Welding Society                          |
| CAP     | Corrective Action Program                         |
| CAQ     | Condition Adverse to Quality                      |
| CAR     | Corrective Action Report                          |
| CB&I LC | Chicago Bridge & Iron Lake Charles                |
| CFR     | Code of Federal Regulations                       |
| CGD     | Commercial-grade Dedication                       |
| C of C  | Certificate of Conformance                        |
| CR      | Condition Report                                  |
| CV      | Component Verification                            |
| IP      | Inspection Procedure                              |
| M&TE    | Measuring and Test Equipment                      |
| MT      | Magnetic Particle Testing                         |
| NCR     | Nonconformance Report                             |
| NDE     | nondestructive examination                        |
| NON     | Notice of Nonconformance                          |
| NRC     | Nuclear Regulatory Commission                     |
| PO      | Purchase Order                                    |
| PT      | Penetrating Testing                               |
| QA      | Quality Assurance                                 |
| QAM     | Quality Assurance Manual                          |
| QC      | Quality Control                                   |
| RCA     | Root Cause Analysis                               |
| RT      | Radiographic Testing                              |
| SCAQ    | Significant Condition Adverse to Quality          |
| UT      | Ultrasonic Testing                                |
| VT      | Visual Testing                                    |
| WEC     | Westinghouse Electric Company                     |