UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

February 6, 2015

Brian H. Whitley
Regulatory Affairs Director
Southern Nuclear Operating Company
42 Inverness Center Parkway
BIN B237
Birmingham, AL 35242

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4 – NRC INTEGRATED INSPECTION REPORTS 05200025/2014005, and 05200026/2014005

Dear Mr. Whitley:

On December 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant (VEGP) Units 3 and 4. The enclosed inspection report documents the inspection results, which the inspectors discussed on January 6, 2015, with Mr. Mark Rauckhorst, Vogtle 3 & 4 Construction Vice President, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

One NRC-identified findings of very low safety significance (Green) was identified during this inspection. This finding was determined to involve violations of NRC requirements. However, because of its very low safety significance, and because the issue was entered into your corrective action program, the NRC is treating the issue as non-cited violation (NCV) in accordance with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector office at the VEGP Units 3 and 4.

If you disagree with the cross-cutting aspect assigned to this finding, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector office at the VEGP Units 3 and 4.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of

NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this letter, please contact us.

Sincerely,

/RA by George Khouri Acting for/

Michael Ernstes, Branch Chief
Construction Projects Branch 4
Division of Construction Projects

Docket Nos.: 5200025, 5200026
License Nos.: NPF-91, NPF-92

Enclosure: NRC Inspection Report 05200025/2014004
and 05200026/2014004
w/Attachment: Supplemental Information

NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

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Letter to B. Whitley from Michael E. Ernstes dated February 6, 2015

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4 – NRC INTEGRATED INSPECTION REPORTS 05200025/2014005, and 05200026/2014005

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U.S. NUCLEAR REGULATORY COMMISSION
Region II

Docket Numbers:	5200025 5200026
License Numbers:	NPF-91 NPF-92
Report Numbers:	05200025/2014005 05200026/2014005
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Vogtle Unit 3 Combined License Vogtle Unit 4 Combined License
Location:	Waynesboro, GA
Inspection Dates:	October 1, 2014 through December 31, 2014
Inspectors:	C. Abbott, Resident Inspector, DCP A. Artayet, Senior Construction Inspector, DCI J. Fuller, Senior Resident Inspector, DCP D. Harmon, Construction Inspector, DCI B. Lehman, Construction Inspector, DCI E. Michel, Senior Construction Inspector, DCI C. Oelstrom, Construction Inspector, DCI A. Ponko, Senior Construction Inspector, DCI M. Shannon, Senior Construction Inspector, DCI T. Steadham, Senior Construction Inspector, DCI K. Steddenbenz, Construction Inspector, DCI S. Temple, Resident Inspector, DCP
Accompanying Personnel:	
Approved by:	Michael Ernstes, Branch Chief Construction Projects Branch 4 Division of Construction Projects

Enclosure

SUMMARY OF FINDINGS

Inspection Report (IR) 05200025/2014005, 05200026/2014005; 10/01/2014 through 12/31/2014; Vogtle Unit 3, Vogtle Unit 4 routine integrated inspection report.

This report covers a three-month period of inspection by resident inspectors and announced Inspections, Tests, Analysis, and Inspection Criteria (ITAAC) inspections by both regional and resident inspectors. The Nuclear Regulatory Commission's (NRC's) program for overseeing the construction of commercial nuclear power reactors is described in Inspection Manual Chapter (IMC) 2506, "Construction Reactor Oversight Process General Guidance and Basis Document."

A. NRC-Identified and Self Revealed Findings

Cornerstone: Construction/Installation

- Green. The inspectors identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion IX, "Special Processes," for the licensee's failure to assure that special processes, including welding, were controlled and accomplished using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements. The licensee entered the issue into their corrective action program under condition report numbers 898717, 10008446, and 10009103, and took immediate actions to revise three welding procedure specifications to meet American Welding Society (AWS) D1.1: 2000 and post-qualify them to justify a "use-as-is" disposition for the associated welds in CA01, CA05, and CA20.

  The finding was associated with the Construction/Installation cornerstone. The inspectors determined the performance deficiency was more than minor because the issue was similar to the "not minor if" statement of example 6 in IMC 0613, "Power Rector Construction Inspection Reports," Appendix E, in that the issue was related to a change in an essential variable, and the welding procedure specification (WPS) required re-qualification. The inspectors evaluated the finding using the construction significance determination process and determined the finding was of very low safety significance (Green) because the licensee was able to create additional procedure qualification records to post-qualify the WPSs and disposition the associated welds "use-as-is." The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAACs 3.3.00.02a.i.a (760) and 3.3.00.02a.i.d (763). The acceptance criteria of these ITAACs require that a reconciliation report, concluding the as-built structure conforms to the approved design and will withstand the design basis loads without loss of structural integrity, is completed for the areas associated with the ITAAC. This finding is associated with deviations from design requirements that would not have been reconciled by the licensee, as required by the ITAAC, because the welds were not welded with qualified welding procedures resulting in a deviation from AWS D1.1:2000 and a failure to meet Section Q1.17, "Welds," of American Institute of Steel Construction (AISC) N690:1994 requirements. This finding has a cross-cutting aspect in the area of Human Performance, Resources because the licensee failed to ensure that procedures were adequate to assure construction quality. Specifically, the licensee failed to ensure that welding procedures were qualified in accordance with the Code. [H.1] (Sections 1A12 and 1A21)

B. Licensee-Identified Violations

No findings were identified.

REPORT DETAILS

Summary of Plant Construction Status

During this inspection period, for Unit 3, construction continued on the auxiliary building walls and floors from elevations 66'6" to 100'0", concrete pours inside and outside of the containment vessel (CV), the assembly of modules CA01, and CA03, and the assembly and preparation of the CV middle, and upper rings. For Unit 4, construction continued on the auxiliary building walls and floors from elevations 66'6" to 100'0", and of the CV lower ring.

1. CONSTRUCTION REACTOR SAFETY

Cornerstones: Design/Engineering, Procurement/Fabrication, Construction/Installation, Inspection/Testing

IMC 2503, Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)-Related Work Inspections

1A01 (Unit 3) ITAAC No. 72 / Family: 05F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 72 (2.1.03.03):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3. The components identified in Table 2.1.3-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built components as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built components identified in Table 2.1.3-1 as ASME Code Section III.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed fabrication, material, and examination documents associated with the assembly of the Vogtle Unit 3 reactor vessel closure head to verify that applicable codes, standards, and specifications were met, proper reviews and approvals were documented, nondestructive examination (NDE) results were acceptable, and material traceability was maintained in accordance with the requirements of the following:

- 1998 Edition through 2000 Addenda of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NB, Class 1 Components;

- Westinghouse Electric Company (WEC), APP-MV01-Z0-101, Design Specification for the AP1000 Reactor Vessel; and
- Unit 3 Updated Final Safety Analysis Report (UFSAR) with documents referencing applicability to 10 CFR Part 50, Appendix B, and 10 CFR Part 21.

Specifically, the inspectors reviewed ASME Code Data Report Forms N-1 for WEC and N-2 for Doosan certifying a hydrostatic test pressure of 3,125 psia, and to verify traceability of the parts, adequate completion of the forms, and signature by the commissioned Authorized Nuclear Inspector (ANI). The inspectors reviewed seventeen certified material test reports (CMTRs) for base and weld filler metals to determine whether results of the chemical analysis and mechanical testing were in accordance with the applicable requirements of ASME Sections II and III for fracture toughness, tensile and yield strengths, chemical compositions, heat treatment, nondestructive examinations, and delta ferrite content and thicknesses of cladding for the following:

- carbon steel closure head forging and internal low-carbon stainless steel cladding;
- latch housing and nozzle assemblies for three Control Rod Drive Mechanisms (CRDM) with location numbers 6 (H10), 22 (H12), and 58 (H14);
- three canopy seal welds of the latch housing to rod travel housing for CRDM location numbers 6 (H10), 22 (H12), and 58 (H14);
- internal stainless steel cladding for two QuickLoc Instrument Nozzles (QIN) with location numbers A2 and A3;
- vent pipe; and
- closure studs, nuts, and washers.

The inspectors reviewed the following two Doosan welding procedure specifications (WPSs) with supporting procedure qualification records (PQRs) for stainless steel strip cladding on the internal surfaces of the closure head to determine whether the essential and nonessential variables for submerged arc welding processes were in accordance with requirements of ASME Section IX, Article II, Welding Procedure Qualifications:

- A-A-0308-149 for machine stainless steel strip cladding using submerged arc welding (SAW); and
- A-A-0308-151 for machine stainless steel strip cladding using SAW.

The inspectors reviewed thirteen Doosan welder or welding operator performance qualification records (WPQs) for stainless steel cladding to determine whether the essential variables for shielded metal arc welding (SMAW), gas tungsten arc welding (GTAW), and flux-cored arc welding processes using manual, semi-automatic, and machine welding techniques were in accordance with the requirements of ASME Section IX, Article III, Welding Performance Qualifications.

The inspectors reviewed the following two Doosan WPSs with supporting PQRs, and five welding operator performance qualification records for the canopy seal welds to determine whether the essential variables and testing for machine GTAW were in accordance with the requirements of ASME Section III, NB-4360, Qualification Requirements for Welding Specially Designed Welded Seals:

- A-T-0808-472 for manual and machine welding canopy seal welds using GTAW

- A-T-0808-473 for manual welding canopy seal welds using GTAW

The inspectors reviewed seven weld filler metal CMTRs consisting of five for low-carbon stainless steel cladding of the closure head and QINs, and two for canopy seal welds to determine whether chemical compositions and mechanical properties were in accordance with the requirements of ASME Section III, NB-2400, Welding Material, and ASME Section II, Part C, Specifications for Welding Rods, Electrodes, and Filler Metals.

The inspectors reviewed the results of Doosan reports for ultrasonic thickness measurements, delta ferrite determination, liquid penetrant examinations, magnetic particle examinations, and ultrasonic examinations to determine whether applicable thickness measurements, ferrite content, and nondestructive examinations for the closure head forging, stainless steel cladding, and canopy seal welds were performed by Doosan in accordance with the requirements of ASME Section III, Subsection NB, Class 1 Components, and Section V, Nondestructive Examination.

The inspectors reviewed a Doosan Nonconformance Report (NCR) 120781 for deviating from the backing gas flow rate described on the WPS during canopy seal welding of weld-no. 104-10-12 to determine whether the issue was identified, properly dispositioned "use-as-is" as a nonessential variable, and documented by Doosan in accordance with the requirements of 10 CFR Part 50 Appendix B, Criterion 10, "Inspection".

b. Findings

No findings were identified.

1A02 (Unit 3) ITAAC No. 73 / Family: 05B

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 73 (2.1.03.04):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
4. Pressure boundary welds in components identified in Table 2.1.3-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.05-02.01 - Purchase and Receipt of Components
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection

- 65001.B-02.06 - Records

The inspectors reviewed Doosan fabrication records for assembly of the reactor vessel closure head (RVCH) to verify that applicable codes, standards, specifications, and procedure requirements were met, proper reviews and approvals were documented, and traceability of materials, welders, and welding operators were provided for welding activities. The inspectors reviewed a variety of weld maps and travelers to determine whether CMTRs of weld filler metal, WPSs with supporting PQRs, welder and welding operator performance qualifications, and NDE reports were in accordance with the requirements of ASME Section III, Subsection NB, Class 1 Components, and WEC APP-MV01-Z0-101, Design Specification for the AP1000 Reactor Vessel, for the following pressure boundary welds:

- Internal RVCH J-groove welds with Inconel 690 buttering for the vent pipe and three CRDMs at the zero azimuth location numbers 6 (H10), 22 (H12), and 58 (H14);
- Dissimilar metal (DSM) groove butt welds (performed by WEC – Newington) between the stainless steel latch housing and Inconel 690 nozzle for CRDMs 6, 22, and 58;
- Carbon steel weld metal buildup starting on the outside surface of the closure head for the bottom portion of two QINs at location numbers A2 and A3; and
- DSM groove butt welds between the weld metal buildup QIN with Inconel 690 buttering and stainless steel QuickLoc flange at location numbers A2 (Joint-No. 101-10H) and A3 (Joint-No. 101-10A)

Specifically, the inspectors reviewed Doosan weld travelers for the above welds to verify documentation and traceability between weld filler metal heat/lot numbers, welders and welding operators, NDE reports, and quality control (QC) inspections. The inspectors reviewed twelve CMTRs of weld filler metal to verify the material yield strength, tensile strength, elongation, chemical composition, and applicable fracture toughness were in accordance with the requirements of ASME Section III, Subarticle NB-2400, Welding Material, and Section II, Part C, Specifications for Welding Rods, Electrodes, and Filler Metals. The inspectors reviewed 11 WPSs to verify they had adequate supporting PQRs and were up to date, accurate, and in conformance with the requirements for the essential, nonessential, and applicable supplementary essential variable requirements of ASME Section III, Subarticle NB-4300, Welding Qualifications, and Section IX, Article II, Welding Procedure Qualifications.

The inspectors reviewed 46 WPQs for welders and welding operators to determine whether each certified welder and welding operator was assigned a unique identification number, demonstrated their skills by performing specific performance qualification tests, and the qualification testing conditions and qualification limits were fully documented, and the appropriate number of acceptable test results were achieved in accordance with the requirements of ASME Section IX, Article III, Welding Performance Qualifications.

The inspectors reviewed final NDE reports to verify examinations were performed and deemed acceptable by the proper certification level of NDE personnel, and techniques were in accordance with the requirements of ASME Section V, Nondestructive Examination and WEC's design specification.

Specifically, the inspectors reviewed 33 liquid penetrant examination reports to verify there were no recordable defects on the surface of the weld. The inspectors reviewed a magnetic particle examination report to verify the proper yoke lifting power, visible light source, and surface temperature requirements were met to ensure adequate performance of the test. The inspectors reviewed four ultrasonic examination reports to verify adequate use of straight and angled beams, frequencies, amplitude, size of transducers, and calibration blocks to determine whether welds were adequately deemed acceptable. The inspectors reviewed four radiography examination reports along with the associated films to verify there were no rejectable indications in the welds.

b. Findings

No findings were identified.

1A03 (Unit 3) ITAAC No. 91 / Family: 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 91 (2.2.01.02a):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The components identified in Table 2.2.1-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built components as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built components identified in Table 2.2.1-1 as ASME Code Section III.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06-02.02 - Component Welding
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.03 - Observation of Fabrication Activities
- 65001.11-02.03 - Installation and Welding
- 65001.11-02.05 - Nondestructive Examination
- 65001.11-02.07 - Offsite Fabrication of Assemblies
- 65001.11-02.08 - Electrical and Instrumentation and Controls Penetrations
- 65001.11-02.01 - Purchase Orders
- 65001.11-02.02 - Storage and Handling

The inspectors reviewed the CMTR for lot 1115G of flux cored arc welding wire E91TG-H4 which was used to weld the containment lower ring to the bottom head to determine if it was tested and met the physical and chemical requirements of ASME Code Section III.

The inspectors reviewed documentation associated with the upper personnel airlock insert plate (E-23) to determine if it met the requirements of ASME Section III.

Specifically, the inspectors reviewed JFE CMTR 5988-1, dated 7/7/2010 to verify product and ladle chemistry, tensile test, and ultrasonic examination (UT) test results met the SA-738 product specification and purchase order. Additionally, the inspectors reviewed IHI vendor audit report RS-11-05-108, Rev 0 of the CMTR supplier.

The inspectors reviewed documentation associated the lower equipment hatch insert plate (F-12) to determine if it met the requirements of ASME Section III. Specifically, the inspectors reviewed three CMTRs to verify product and ladle chemistry, tensile test, and UT test results met the SA-738 product specification. Additionally, the inspectors reviewed IHI vendor audit report RS-11-05-108, Rev. 0 of the CMTR supplier.

The inspectors reviewed documentation associated the penetration sleeves for mechanical penetrations P-21, P-27 and P-35, to determine if they met the requirements of ASME Section III. Specifically, the inspectors reviewed CMTRs to verify product and ladle chemistry, tensile tests, UT, magnetic particle examination (MT) and liquid penetrant examination (PT) test results, and heat treatment met the SA-350 product specification. Additionally, the inspectors reviewed Sumitomo Metal Corporation ASME Materials Organization Certificate.

The inspectors reviewed documentation associated the fuel transfer tube penetration insert plate (IHI part AC-C33-1) to determine if it met the requirements of ASME Section III. Specifically, the inspectors reviewed the CMTR to verify product and ladle chemistry, tensile test to ensure if met the SA-738 product specification requirements and IHI purchase specification. The inspectors reviewed the ASME N-2 Data Report to ensure it complied with the requirements of ASME Section III. Additionally, the inspectors reviewed IHI vendor audit report RS-11-05-108, Rev. 0 of the CMTR supplier.

b. Findings

No findings were identified.

1A04 (Unit 3) ITAAC No. 91 / Family: 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.02a (91). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06 - Inspection of ITAAC-Related Installation of Mechanical Components
- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.06-02.05 - Problem Identification and Resolution
- 65001.F- Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.04 - General QA Review
- 65001.11 - Construction Inspection Program Inspection of ITAAC-Related Containment Integrity and Containment Penetrations
- 65001.11-02.06 - PWR Containment Construction

- 65001.11-02.11 - Problem Identification and Resolution

The inspectors reviewed Ishikawajima-Harima Heavy Industries Co., Ltd. (IHI) and Chicago Bridge and Iron (CB&I) records for fabrication of the Unit 3 containment vessel lower ring to determine whether code, design, and material specifications were met; proper reviews, approvals, and inspections were documented; traceability of shell and insert plates, and weld filler metals were maintained; qualified welding procedures, welders, and welding operators were used for welding activities; and nondestructive examinations with acceptable results were performed in accordance with the requirements of:

- ASME Section II, Part A - Ferrous Material Specifications, and Part C - Specifications for Welding Rods, Electrodes, and Filler Metals;
- ASME Section III, Subsections NCA - General Requirements, NC - Class 2 Components, and NE - Class MC Components;
- ASME Section V - Nondestructive Examination;
- ASME Section IX - Welding and Brazing Qualification;
- UFSAR with reference to 10 CFR Part 50, Appendix B, and 10 CFR 21 applicability; and
- WEC containment vessel design specification APP-MV50-Z0-001, Rev. 8.

The inspectors reviewed records related to the following mechanical penetration insert plates that were welded to the containment vessel lower ring:

- P40 (spare penetration) insert plate to containment vessel shell weld;
- B3-A13 insert plate to containment vessel shell weld; and
- B3-4 insert plate to containment vessel shell weld.

For each of the selected welds, the inspectors reviewed:

- base and weld material CMTRs to determine whether physical and chemical properties were in accordance with the requirements of ASME Section II, Part A, and ASME Section III, Subsection NE;
- weld travelers to determine if welding processes and materials were being properly controlled and documented;
- welder and welding operator qualification records to determine if all welders were qualified;
- welding procedures to determine if the procedures used to make the welds were adequately supported by procedure qualification records and that the welding procedures complied with the requirements of ASME Section III and ASME Section IX; and
- NDE reports to determine if acceptable results were achieved in accordance with the requirements of ASME Section III and ASME Section V.

b. Findings

No findings were identified.

1A05 (Unit 3) ITAAC No. 91 / Family: 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 91 (2.2.01.02a). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06-02.02 - Component Welding
- 65001.06-02.04 - Testing and Verification
- 65001.F-02.02 - Fabrication Records Review
- 65001.11-02.05 - Nondestructive Examination
- 65001.11-02.07 - Offsite Fabrication of Assemblies

The inspectors reviewed IHI Corporation welding records associated with the Unit 3 containment vessel, upper ring, course 10, base plates B3-C37, B3-C38, and B3-C48 to verify that the receipt, fabrication, and material properties met the applicable requirements of the ASME Section III Code. Specifically, the inspectors reviewed three CMTRs for the base metal and two CMTRs for the weld filler metal to verify the materials' chemical composition, tensile strength, yield strength, elongation, and impact testing requirements were met. The inspectors reviewed three ultrasonic testing reports from JFE Steel Corporation related to the base metal to determine whether the testing conditions and recorded results were in compliance with applicable code requirements. The inspectors also reviewed these fabrication records to verify there was traceability between the welds, material heat numbers, and applicable certifications of analysis for the following two weld seams:

- U3-USA-S10-C37/C38
- U3-USA-S10-C48/C37

b. Findings

No findings were identified.

1A06 (Unit 3) ITAAC No. 93 / Family: 06B

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 93 (2.2.01.03a):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.a) Pressure boundary welds in components identified in Table 2.2.1-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.B-02.01 - Program and Procedures Review
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.11-02.03 - Installation and Welding
- 65001.11-02.05 - Nondestructive Examination
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.03 - Observation of Fabrication Activities
- 65001.11-02.01 - Purchase Orders
- 65001.11-02.02 - Storage and Handling

The inspectors observed in process welding of the root pass of the horizontal girth weld joining the containment vessel lower ring to bottom head to determine if it was performed in accordance with the welding procedure, ASME Code Section III Subsection NE, and 10 CFR Part 50 Appendix B. The inspectors observed these activities to verify that:

- welding machines were calibrated and that the variables were correctly set;
- welding was performed within procedure limits of preheat and interpass temperatures which were verified using approved and unexpired temp-sticks;
- base metals being welded were adequately cleaned and that welding was protected from weather or other contaminants;
- flux cored arc welding was performed using the filler metal size and specification listed on the welding procedure; and
- QC routinely performed checks of heat input.

The inspectors also reviewed a sample of records associated with welding of the containment lower ring to bottom head. Specifically the inspectors reviewed a sample of welders' performance qualification records to determine if they had been qualified in accordance with ASME Code Section IX to perform the welding. The inspectors also reviewed the welding procedure and associated procedure qualification records to determine if the procedure had been written and qualified in accordance with the requirements of ASME Code Sections IX and III, Subsection NE.

The inspectors selected the following four welds from the containment vessel bottom head and reviewed a selection of records to determine if the welds met the requirements of ASME Code Section III, Subsection NE:

- A3-B-20 to A3-B-14
- A3-C-11 to A3-C-16
- A3-B-4 to A3-B-12
- A3-C-10 to A3-C-28

Specifically, associated with these four welds, the inspectors:

- reviewed qualification records of welders to verify they were qualified in accordance with ASME Code Section IX;
- reviewed welding filler metal CMTRs to verify it had been tested in accordance with and met the requirements of the ASME Code Section II;
- reviewed associated magnetic particle, leak test, and radiography NDE reports to determine if the welds had been examined and found acceptable in accordance with the ASME Code Sections V and III Subsection NE; and
- reviewed the radiography film from weld A3-B-4 to A3-B-12 for intervals 0 to 9 inclusively to determine that the final weld was free of rejectable defects.

The inspectors reviewed a sample of records from the vendor, IHI, to determine if welding of the insert plate to sleeve of the upper personnel airlock penetration (E-23) met the requirements of ASME Code Section III, Subsection NE; and 10 CFR Part 50, Appendix B. Specifically the inspectors:

- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code;
- reviewed the associated ultrasonic inspection reports to determine if volumetric examination of the welds had been performed in accordance with the ASME code and that the weld did not contain any rejectable defects;
- reviewed the associated welder qualification records to determine if the welders had been qualified in accordance with ASME Code Section IX; and
- reviewed the welding procedure to verify it met the requirements of ASME Code Section IX; and Section III, Subsection NE.

The inspectors reviewed a sample of records from the vendor, IHI, to determine if welding of the insert plate to sleeve of the lower equipment hatch penetration (F-12) met the requirements of ASME Code Section III, Subsection NE; and 10 CFR Part 50, Appendix B. Specifically the inspectors:

- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code;
- reviewed the associated ultrasonic inspection reports to determine if volumetric examination of the welds had been performed in accordance with the ASME code, and that the weld did not contain any rejectable defects;
- reviewed the ultrasonic examination procedure to verify the examinations had been done in accordance with the requirements of ASME Section V; and Section III, Subsection NE;
- reviewed the associated welder qualification records to determine if the welders had been qualified in accordance with ASME Code Section IX; and
- reviewed the welding procedure to verify it met the requirements of ASME Section V; and Section III, Subsection NE.

The inspectors reviewed a sample of records from the vendor, IHI, to determine if the equipment hatch penetration insert plate had been welded in accordance with the requirements of ASME Code Section III, Subsection NE and 10 CFR Part 50 Appendix B. Specifically the inspectors:

- reviewed the associated weld check list to verify visual examinations and hold points had been performed and signed as applicable;
- reviewed the associated welder qualification records to verify the welders had been qualified in accordance with ASME Code Section IX;
- reviewed the welding filler metal CMTRs to verify it had been tested in accordance with and met the requirements of the ASME Code Section II;
- reviewed the welding procedure used to verify it met the requirements of ASME Section V; and Section III, Subsection NE; and
- reviewed the associated radiography report to determine if the radiography had been adequately performed and the final welds did not contain defects.

The inspectors reviewed a sample of records from the vendor, IHI, to verify that welding of the insert plate to sleeve for electrical penetration E-25 met the requirements of ASME Section III, Subsection NE; and 10 CFR Part 50, Appendix B. Specifically the inspectors:

- reviewed the weld checklist to determine if necessary inspections such as fit-up and final visual had been performed;
- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code; and
- reviewed the associate ASME N-2 Code Data report to determine if it had been signed by the ANI for compliance with the ASME Code.

The inspectors reviewed a sample of records from the vendor, IHI, to verify that welding of the insert plate to sleeve for electrical penetration E-24 met the requirements of ASME Code Section III, Subsection NE; and 10 CFR Part 50, Appendix B. Specifically the inspectors:

- reviewed the associated weld check list to determine if visual examinations and hold points had been performed and signed as applicable;
- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code;
- reviewed the CMTR associated with the equipment hatch insert plate to determine if it had been tested and met the physical and chemical requirements of ASME Section III; and
- reviewed the associate ASME N-2 Code Data report to determine if it had been signed by the ANI for compliance with the ASME Code.

The inspectors reviewed a sample of records from the vendor, IHI, to determine if welding of the insert plate to sleeve of electrical penetration E-29 met the requirements of ASME Code Section III, Subsection NE; and 10 CFR Part 50, Appendix B. Specifically the inspectors:

- reviewed the associated weld check list to determine if visual examinations and hold points had been performed and signed as applicable;
- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code; and
- reviewed CMTR associated with the equipment hatch insert plate to determine if it had been tested and met the physical and chemical requirements of ASME Section II.

The inspectors reviewed a sample of records from the vendor, IHI, to verify that welding of the insert plate to sleeve of mechanical penetration P-21 met the requirements of ASME Code Section III, Subsection NE and 10 CFR Part 50 Appendix B. Specifically the inspectors:

- reviewed the associate ASME N-2 Code Data report to determine if it had been signed by the ANI for compliance with the ASME Code;
- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code; and
- reviewed the associated weld check list to determine if visual examinations and hold points had been performed and signed as applicable.

The inspectors reviewed a sample of records from the vendor, IHI, to determine if welding of the insert plate and sleeve of mechanical penetration P-27 met the requirements of ASME Code Section III, Subsection NE; and 10 CFR Part 50, Appendix B. Specifically the inspectors:

- reviewed the associate ASME N-2 Code Data report to determine if it had been signed by the ANI for compliance with the ASME Code; and
- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code.

The inspectors reviewed a sample of records from the vendor, IHI, to determine if welding of the insert plate to sleeve of mechanical penetration P-35 met the requirements of ASME Code Section III, Subsection NE; and 10 CFR Part 50, Appendix B. Specifically the inspectors:

- reviewed the associate ASME N-2 Code Data report to determine if it had been signed by the ANI for compliance with the ASME Code;
- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code; and
- reviewed the associated weld check list to determine if visual examinations and hold points had been performed and signed as applicable.

The inspectors reviewed a sample of records from the vendor, IHI, to determine if welding of the insert plate to sleeves of the main steam/feed penetration P-23 met the

requirements of ASME Code Section III, Subsection NE; and 10 CFR Part 50, Appendix B. Specifically the inspectors:

- reviewed the associated ASME N-2 Code Data report to determine if it had been signed by the ANI for compliance with the ASME Code;
- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code;
- reviewed the associated weld check list to determine if visual examinations and hold points had been performed and signed as applicable;
- reviewed CMTR associated with the mechanical penetration P-35 insert plate to determine if it had been tested and met the physical and chemical requirements of ASME Section III; and
- reviewed the associated ultrasonic inspection report to determine if volumetric examination of the welds had been performed in accordance with the ASME code and that the weld did not contain any rejectable defects.

The inspectors reviewed a sample of records from the vendor, IHI, to determine if welding of the insert plate to sleeve of the fuel transfer tube penetration (P-11) met the requirements of ASME Section III Subsection NE and 10 CFR Part 50 Appendix B. Specifically the inspectors:

- reviewed the weld checklist to determine if necessary inspections such as fit-up and final visual had been performed;
- reviewed magnetic particle test reports for the initial weld groove surfaces and final weld inspection to determine that the surface exams had been performed as required by the ASME Code;
- reviewed the associated ultrasonic inspection reports to determine if volumetric examination of the welds had been performed in accordance with the ASME Code, and that the weld did not contain any rejectable defects; and
- reviewed the associate ASME N-2 Code Data report to determine if it had been signed by the ANI in compliance with the ASME Code.

b. Findings

No findings were identified.

1A07 (Unit 3) ITAAC No. 93 / Family: 06B

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 93 (2.2.01.03a). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06 - Inspection of ITAAC-Related Installation of Mechanical Components
- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.06-02.05 - Problem Identification and Resolution

- 65001.11 - Construction Inspection Program Inspection of ITAAC-Related Containment Integrity and Containment Penetrations
- 65001.11-02.11 - Problem Identification and Resolution
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.04 - General QA Review

The inspectors reviewed IHI and CB&I records for fabrication of the Unit 3 containment vessel lower ring to determine whether code, design, and material specifications were met; proper reviews, approvals, and inspections were documented; traceability of shell and insert plates, and weld filler metals were maintained; qualified welding procedures, welders, and welding operators were used for welding activities; and nondestructive examinations with acceptable results were performed in accordance with the requirements of:

- ASME Section II, Part A - Ferrous Material Specifications, and Part C - Specifications for Welding Rods, Electrodes, and Filler Metals;
- ASME Section III, Subsections NCA - General Requirements, NC - Class 2 Components, and NE - Class MC Components;
- ASME Section V - Nondestructive Examination;
- ASME Section IX - Welding and Brazing Qualification;
- Updated Final Safety Analysis Report (UFSAR) with reference to 10 CFR Part 50, Appendix B, and 10 CFR 21 applicability; and
- WEC containment vessel design specification APP-MV50-Z0-001, Rev. 8.

The inspectors performed these reviews on the following pressure boundary welds:

- P40 (spare penetration) insert plate to containment vessel shell weld;
- B3-A13 insert plate to containment vessel shell weld; and
- B3-4 insert plate to containment vessel shell weld.

For each of the selected samples, the inspectors reviewed:

- base and weld material CMTRs to determine whether physical and chemical properties were in accordance with the requirements of ASME Section II, Part A, and ASME Section III, Subsection NE;
- weld travelers to determine if welding processes and materials were being properly controlled and documented;
- welder qualification records to determine if all welders were qualified;
- welding procedures to determine if they were adequately supported by procedure qualification records and that the welding procedures complied with the requirements of ASME Section III and ASME Section IX; and
- NDE reports to determine if acceptable results were achieved in accordance with the requirements of ASME Section III and ASME Section V.

For the containment vessel vertical welds, the inspectors reviewed RT film of the completed welds to determine if:

- any relevant indications were previously identified and properly dispositioned by CB&I, WEC, and the licensee; and
- radiography technique and final film met the requirements of ASME Section V through the observance of the required image quality indicators and proper film density.

b. Findings

No findings were identified.

1A08 (Unit 3) ITAAC No. 93 / Family: 06B

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 93 (2.2.01.03a). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.B-02.01 - Program and Procedures Review
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.11-02.05 - Nondestructive Examination
- 65001.F-02.02 - Fabrication Records Review

The inspectors observed welding activities and reviewed welding records associated with the Unit 3 containment vessel, upper ring, course 10, base plates B3-C37, B3-C38, and B3-C48 to verify applicable codes, standards, specifications, and procedure requirements were met, proper reviews and approvals were documented, and traceability of materials and welders was provided for welding activities. Specifically, the inspectors reviewed welding procedure specifications and supporting procedure qualification records, welder qualification records, certified material test reports for the base metal and filler material, as well as observed in-process NDE and reviewed associated NDE records for the following two weld seams:

- U3-USA-S10-C37/C38
- U3-USA-S10-C48/C37

The inspectors reviewed two associated WPSs to verify they were available, up to date, accurate, and in conformance with the ASME Code requirements, specifying all applicable essential, nonessential, and supplementary essential variables. The inspectors reviewed the supporting eight PQRs to verify the specific ranges of welding variables listed in the WPSs were appropriately qualified and the type and number of

qualification tests required received acceptable results. The inspectors reviewed nine welder performance qualification records to determine whether (1) the welders were assigned a unique identification number and demonstrated their skill by performing specific performance qualification tests, (2) the qualification testing conditions and qualification limits were fully documented, and (3) the appropriate number of acceptable test results was achieved.

The inspectors reviewed IHI Corporation records to verify there was traceability between the welds, material heat numbers, and applicable certifications of analysis. The inspectors reviewed three CMTRs for the base metal and two CMTRs for the weld filler metal to verify the materials' chemical composition, tensile strength, yield strength, elongation, and impact testing requirements were met. The inspectors also reviewed three ultrasonic testing reports from JFE Steel Corporation related to the base metal to determine whether the testing conditions and recorded results were in compliance with applicable Code requirements.

The inspectors observed in-process NDE and reviewed final NDE reports to verify they were performed and found acceptable by the proper certification level of personnel and in accordance with the applicable sections of the ASME Code. Specifically, the inspectors observed in-process radiographic examination using CB&I Services procedure CMS-830-15-PR-45154, “Radiographic Examination ASME Section III, Division 1 – Subsection NE,” revision 1, to verify (1) the image quality indicators were properly certified, selected, and placed, (2) an adequate barrier was placed around the area of testing, and (3) all measuring and test equipment was properly calibrated in accordance with applicable requirements. The inspectors also reviewed the associated film and final NDE reports to verify the required density of the film was met and there were no rejectable indications in the welds.

b. Findings

No findings were identified.

1A09 (Unit 3) ITAAC No. 96 / Family: 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 96 (2.2.01.04a.ii):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
4.a) The components identified in Table 2.2.1-1 as ASME Code Section III retain their pressure boundary integrity at their design pressure.	ii) Impact testing will be performed on the containment and pressure-retaining penetration materials in accordance with the ASME Code Section III, Subsection NE, to confirm the fracture toughness of the materials.	ii) A report exists and concludes that the containment and pressure-retaining penetration materials conform with fracture toughness requirements of the ASME Code Section III.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed the CMTR associated with the upper personnel airlock penetration insert plate (E-23) to verify it met the impact toughness requirements of ASME Section III for the containment vessel pressure boundary.

The inspectors reviewed CMTRs associated with the lower equipment hatch insert plate to verify that they met the impact toughness requirements of ASME Section III for the containment vessel pressure boundary.

The inspectors reviewed CMTRs associated with the mechanical penetration insert plates for P-21, P-27 and P-35 to determine if they met the impact toughness requirements of ASME Section III for the containment vessel pressure boundary.

The inspectors reviewed the CMTR for the fuel transfer tube insert plate to verify it met the impact toughness requirements of ASME Section III for the containment vessel pressure boundary.

The inspectors reviewed spare penetration P-40 penetration sleeve CMTR to verify that the material met the impact toughness requirements of ASME Section III for the containment vessel pressure boundary.

The inspectors reviewed spare penetration P-40 flange CMTR to verify that the material met the impact toughness requirements of ASME Section III for the containment vessel pressure boundary.

b. Findings

No findings were identified.

1A10 (Unit 3) ITAAC No. 96 / Family: 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 96 (2.2.01.04a.ii). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed IHI Corporation welding records associated with pressure boundary materials of the Unit 3 containment vessel upper ring to verify that fracture toughness requirements were met in accordance with ASME Code Section III, Division 1, Subsection NE; Section II, Part C, SFA 5.01, 5.5, and 5.29; and applicable welding material specifications. Specifically, the inspectors reviewed three certified material test reports for the base metal (plates B3-C37, B3-C38, and B3-C48) and two CMTRs for the

weld filler metal (E9018M-H4R and E91TG-H4) to verify the materials met all applicable Charpy V-Notch impact testing requirements.

b. Findings

No findings were identified.

1A11 (Unit 3) ITAAC No. 96 / Family: 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 96 (2.2.01.04a.ii). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06-02.04 - Testing and Verification
- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed CMTRs associated with IHI fabrication of the containment vessel middle shell ring plates B3-C34 and B3-E3 to determine whether the plates met the AP1000 impact toughness requirements for the containment vessel pressure boundary. The report of impact testing for plate B3-C34 were contained in CMTR 6134-10, dated May 16, 2011, and the report of impact testing for plate B3-E3 were contained in CMTR 6103-02, dated February 22, 2011. The results of both Charpy impact testing were in accordance with the fracture toughness requirements of ASME Section III, Subsection NE.

b. Findings

No findings were identified.

1A12 (Unit 3) ITAAC No. 760 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 760 (3.3.00.02a.i.a):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.a) A report exists which reconciles deviations during construction and concludes that the as-built containment internal structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.05 - Steel Structures
- 65001.01-02.06 - Records
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records

The inspectors reviewed welding activities associated with the structural module welds on CA01 to verify activities were in conformance with applicable Code requirements. Specifically, the inspectors selected the weld seam between submodules CA01-07 and CA01-08 and reviewed the applicable drawings, weld data records, welding procedure specifications and supporting procedure qualification records, as well as calibrated measuring and test equipment used in the field.

The inspectors observed the erection, fit-up, and tack welding of submodule CA01-07 to CA01-08 to verify it was conducted in accordance with the applicable work package, meaning associated procedures and instructions were followed and established hold points were appropriately signed off. The inspectors also reviewed three weld data sheets and one welding material requisition (WMR) from the associated work package to determine whether the correct WPS, base material, filler material, and joint type were selected.

As specified on the weld data sheets, the inspectors reviewed three WPSs to verify they were available, up to date, accurate, and in conformance with the requirements of American Welding Society (AWS) D1.1:2000. Specifically, the inspectors reviewed the WPSs and 10 supporting PQRs to verify the specific ranges of parameters indicated on the WPS were adequately qualified by the essential variables recorded on the PQRs, such as welding process and position, base material and filler metal, the use of backing, electrical source and transfer mode, shielding gas composition and flow rate, as well as welding parameters including amperage, voltage, and travel speed. The inspectors also reviewed the applicable testing demonstrated on the PQRs to verify the test specimen received acceptable results for visual inspection, radiographic testing, tensile testing, bend testing, and if applicable, Charpy impact testing.

b. Findings

Introduction

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion IX, “Special Processes,” for the licensee’s failure to assure that special processes, including welding, were controlled and accomplished using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.

Description

On November 17, 2014, while conducting a review of welding activities associated with the fit-up of submodules CA01-07 and CA01-08, the inspectors identified that welders

were using welding procedure specifications not qualified in accordance with AWS D1.1:2000. Specifically, the inspectors found parameters listed as essential variables for the applicable welding process in the WPS that were outside the range qualified by the supporting PQRs.

The inspectors reviewed three WPSs associated with the CA01-07 to CA01-08 weld seam and determined that two of them were not qualified by the supporting PQRs. Specifically, the gas tungsten arc welding (GTAW) welding procedure, WPS2-1.1T71, revision 3, allowed a higher gas flow range than what was qualified by the supporting PQRs (SP157, SP214, SP227) in the overhead position. The gas metal arc welding (GMAW) welding procedure, WPS2-1.1M72, revision 2, allowed a higher travel speed range than what was qualified by the supporting groove weld PQR (SP125).

The licensee initiated CR 898717, CAR 2014-2434, and nonconformance and disposition (N&D) reports SV0-CA00-GNR-000001 and SV3-CA00-GNR-000002 to track, disposition, and correct the issue. Through their extent of condition, the licensee identified seven work packages, associated with CA01 and CA05, impacted by WPS2-1.1M72 and over 157 work packages, associated with CA01, CA05, and CA20, impacted by WPS2-1.1T71.

On December 29, 2014, the inspectors also identified a WPS associated with the welding of mechanical couplers to CA20 overlay plates that was not qualified by the supporting PQRs. Specifically, the GTAW welding procedure, WPS8-1.1T71, revision 3, allowed ranges for the shielding gas flow rate, amperage, and voltage that were outside the parameters qualified by PQR 1-1-233, revision 1. The licensee initiated CR 10008446, CAR 2015-0026, and N&D SV0-CA00-GNR-000003 to track, disposition, and correct the issue.

Analysis

The inspectors determined that the failure to meet 10 CFR Part 50, Appendix B, Criterion IX, represented a performance deficiency. The finding was determined to be more than minor because the issue was similar to the “not minor if” statement of example 6 in IMC 0613, “Power Rector Construction Inspection Reports,” Appendix E, in that the issue was related to a change in an essential variable, and the welding procedure specification required re-qualification.

The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAACs 3.3.00.02a.i.a (760) and 3.3.00.02a.i.d (763). The acceptance criteria of these ITAACs require that a reconciliation report, concluding the as-built construction conforms to the approved design and will withstand the design basis loads without loss of structural integrity is completed for the areas associated with the ITAAC. This finding is associated with deviations from design requirements that would not have been reconciled by the licensee, as required by the ITAAC, because the welds were not welded with qualified welding procedures resulting in a deviation from AWS D1.1:2000 and a failure to meet Section Q1.17, “Welds,” of American Institute of Steel Construction (AISC) N690:1994 requirements.

The inspectors concluded that this finding was associated with the Construction/Installation Cornerstone, listed at the end of Appendix B, “Issue Screening,” of IMC 0613. The inspectors utilized IMC 2519, “Construction Significance Determination Process,” to evaluate the finding and determined that the finding was of

very low safety significance (Green). This was determined because the licensee was able to create additional PQRs to post-qualify the WPSs and disposition the associated welds "use-as-is." Specifically, to post-qualify WPS2-1.1T71, the licensee created PQR numbers SP428, SP429, SP430, and SP431; and similarly for WPS2-1.1M72, the licensee created PQR number SP427. While the post-qualification of WPS8-1.1T71 was not completed by the time of the exit meeting, the inspectors concluded that the deficiency would not have impaired the design function of the structure.

The inspectors screened the finding for a possible construction cross-cutting aspect in accordance with Appendix F, "Construction Cross-Cutting Components and Aspects" of IMC 0613. This finding has a cross-cutting aspect in the area of Human Performance, Resources because the licensee failed to ensure that procedures were adequate to assure construction quality. Specifically, the licensee failed to ensure that welding procedures were adequately qualified in accordance with the Code. [H.1]

Enforcement

10 CFR, Part 50, Appendix B, Criterion IX, "Special Processes," requires, in part, that measures shall be established to assure that special processes, including welding, are controlled and accomplished using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.

Section Q1.17, "Welds," of ANSI/AISC N690-1994. "American National Standard Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities," states in part, "All provisions of the Structural Welding Code – Steel, AWS D1.1…apply to work performed under this specification."

AWS D1.1:2000, "Structural Welding Code – Steel," Section 4.1.1, states, in part, that except for prequalified WPSs in conformance with section 3, a WPS for use in production welding shall be qualified in conformance with section 4, Part B. Part B, Section 4.6, states in part, a WPS shall specify all of the applicable essential variables referenced in 4.7, and that the specific values for these WPS variables shall be obtained from the procedure qualification record, which serves as written confirmation of a successful WPS qualification. Section 4.7.1 states changes beyond the limitation of PQR essential variable for the SMAW, SAW, GMAW, GTAW, and flux-cored arc welding (FCAW) processes shown in Table 4.5 shall require requalification of the WPS.

Table 4.5 lists a change in the travel speed greater than 25% (No. 17) as an essential variable for GMAW. For GTAW, a change in the amperage by greater than 25% (No. 13), a change in voltage by greater than 25% (No. 15), and a change in total gas flow rate by and increase greater than 50% or a decrease less than 20% (No. 20) are all listed as essential variables.

Contrary to the above, as of November 18, 2014, the licensee failed to qualify three WPSs in conformance with AWS D1.1:2000. Specifically, (1) WPS2-1.1M72, revision 2, a GMAW procedure, allowed an increase in travel speed greater than 25% of the range qualified by its supporting PQRs, (2) WPS2-1.1T71, revision 3, a GTAW procedure, allowed an increase in shielding gas flow rate greater than 50% of the range qualified by its supporting PQRs, and (3) WPS8-1.1T71, revision 3, a GTAW procedure, allowed a decrease in amperage greater than 25%, an increase in voltage greater than 25%, and a decrease in shielding gas flow rate greater than 20% of the range qualified by its supporting PQRs.

Because this violation was of very low safety significance (Green) and it was entered into the licensee's corrective action program under condition report number 10009103, this violation is being treated as a non-cited violation (NCV 05200025/2014005-01, Failure to Establish Qualified Welding Procedures In Accordance With AWS D1.1:2000), consistent with Section 2.3.2 of the NRC Enforcement Policy and EGM 11-006.

Upon post-qualifying the WPSs with additional PQRs, the licensee was able to disposition the associated welds previously fabricated using WPS2-1.1M72 and WPS2-1.1T71 "use-as-is." However, the licensee was unable to complete the required re-qualification testing for WPS8-1.1T71 by the time this inspection report was finalized. Therefore, the inspectors determined that the deficiencies associated with WPS2-1.1M72 and WPS2-1.1T71 no longer impact the ITAAC acceptance criteria, but the NCV is to remain open pending the successful requalification of WPS8-1.1T71.

1A13 (Unit 3) ITAAC No. 760 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 760 (3.3.00.02a.i.a). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed an independent inspection to determine whether the critical attributes of the as-built system, structure, or component (SSC) conformed to the final design. Specifically, the inspectors observed the CA05 module and reviewed applicable drawings to verify the adequacy of the final as-built condition. The inspectors reviewed a sample of as-built deviations and nonconformances that were used to identify differences between the as-designed and as-built SSC to verify that the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program, as well as to determine if (1) the difference, if not corrected to comply with the as-designed conditions, was properly documented and incorporated in the final as-built drawings or (2) the difference, if corrected to comply with the as-designed configuration, was completed and accepted by qualified personnel.

The inspectors reviewed two N&D reports and applicable supporting documents associated with structural module welds on CA05 that did not comply with the AWS D1.1:2000 Code. Specifically, the inspectors reviewed applicable design drawings, engineering & design coordination reports (E&DCRs), and supporting calculations, as well as observed the associated welds in the field, to determine whether the conditions identified in the following N&Ds were adequately reviewed and accepted, rejected,

repaired, or reworked in accordance with the QA program implementing documents for the control of nonconforming material, parts, and components:

- SV3-CA05-GNR-000090, “CA05 Bent Stud #2 – Accessible (QTY 50)," Rev. 0
- SV3-CA05-GNR-000091, “CA05 Bent Stud #2 – Non-accessible (QTY 95)," Rev. 0

During the review of the above N&D reports, the inspectors determined whether the reports properly identified the nonconforming items, and whether the systems for initiating, processing, and closing nonconformances were adhered to. The inspectors specifically reviewed the N&D reports to determine whether:

- the disposition and technical justification, for use-as-is, repair, rework, or reject of nonconforming items were properly identified and adequately documented;
- nonconformances to design requirements dispositioned use-as-is were subjected to design control measures commensurate with those applied to the original design, and the as-built records properly reflected the accepted deviation;
- repaired or reworked items were re-examined in accordance with applicable procedures and the original acceptance criteria; and
- reportability screening and evaluations under 10 CFR Part 21 and 10 CFR 50.55(e) were performed.

b. Findings

No findings were identified.

1A14 (Unit 3) ITAAC No. 760 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 760 (3.3.00.02a.i.a). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed a direct inspection of construction activities associated with the assembly of containment internal structures module CA01 in the module assembly building (MAB). The inspectors reviewed documentation associated with the exterior seam welds joining submodules CA01-01 and CA01-02 (Welds CV3466-FW-01-1 and CV3466-FW-01-2), and the exterior seam welds joining sub-modules CA01-21 and CA01-22 (Welds CV4058-FW-L19-1 and CV4058-FW-L19-2). These sub-module assemblies form part of the east and west refueling cavity walls from elevation 98'-0" to 135'-3", respectively. The inspectors reviewed design drawings, weld procedures, and supporting procedure qualification records to determine whether the welding activities

were performed in accordance with the design drawings, construction specifications, and AWS D1.1, Structural Steel Welding Code. The inspectors also reviewed the welder qualification records to determine whether the welders performing the activities were qualified in accordance with the applicable AWS D1.1 requirements. The inspectors reviewed the weld travelers to verify the traceability of each welder and the filler material used to the weld observed. The inspectors also reviewed the CMTRs for the weld filler material used to determine whether the material was in accordance with the WPS, and observed PT of the interior seam welds joining sub-modules CA01-21 and CA01-22 (Welds CV3466-FW-01-1 and CV3466-FW-01-2).

The inspectors performed an inspection on a sample of submodules that comprise multiple wall sections. These sections include the walls of the east and west reactor vessel cavity walls (submodules CA01-04, CA01-11, and CA01-19), east and west refueling cavity walls (CA01-04 and CA01-19) and the south walls of the east and west steam generator compartments (CA01-04 and CA01-19). The inspectors measured the overall dimensions of each submodule to determine whether they were in accordance with approved design drawings. The inspectors also performed measurements of the steel components including the face plates, stiffeners, cross beams, and other supporting steel to ensure the member size, shape, and grade were in accordance with the design drawings and design specifications. The inspectors visually inspected the welds to determine whether they were the correct type, size, in the proper location, and free of any visual defects. The inspectors also reviewed nonconformance documents associated with the submodules to verify if deviations from the design were being identified at the appropriate threshold, adequately documented, and controlled within the applicable nonconformance and parallel receipt inspection process.

b. Findings

No findings were identified.

1A15 (Unit 3) ITAAC No. 760 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 760 (3.3.00.02a.i.a). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.05 - Steel Structures
- 65001.F-02.02 - Fabrication Records Review
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed an independent visual inspection of the following CA03 submodules, which form a portion of the steel wall of the In-Containment Refueling Water Storage Tank (IRWST), to determine whether the critical attributes of the items were compliant with the approved design and licensing basis:

- CA03-08
- CA03-09

Specifically, the inspectors verified that a sample of the following attributes were consistent with Figure 3.8.3-8, Sheet 3, “Structural Modules – Typical Design Details,” of the UFSAR; and the design drawings listed in the documents reviewed section of this report:

- IRWST wall thickness;
- the use, spacing, and size of angles and tees to stiffen the wall; and
- the number, size, and use of studs provided to anchor the module.

The inspectors performed independent visual inspections of weld S4K-CV3282-09 (CA03-08 to CA03-09) to determine whether the final weld met the requirements of the AWS D1.6:1999 Code and other quality and technical requirements.

The inspectors performed this inspection after the licensee’s contractor had completed the relevant receipt inspections and had released the submodules for construction. The inspectors reviewed a sample of WEC design drawings for the CA03-08 and CA03-09 submodules to determine whether these documents adequately translated the relevant regulatory requirements and design basis described in the UFSAR. The inspectors also reviewed a sample of shop drawings and as-built records provided by the submodule supplier to determine whether these documents were compliant with the WEC design drawings and UFSAR.

The inspectors reviewed the certificate of conformance and a sample of fabrication records for CA03-08 and CA03-09 to determine whether these documents were adequate to furnish evidence of activities affecting quality. Specifically, the inspectors reviewed a sample of certified material test reports for the submodule base materials and weld filler metals to verify that the materials met the required mechanical and chemical testing requirements. The inspectors also reviewed a sample of welding and nondestructive testing records to determine whether these records were adequate to demonstrate compliance with the AWS D1.1:2000, AWS D1.6:1999, and AISC N690:1994.

The inspectors also reviewed a sample of nonconformance reports associated with the fabrication of CA03-08 and CA03-09 to determine whether the conditions were adequately reviewed and accepted, rejected, repaired, or reworked in accordance with 10 CFR Part 50, Appendix B, Criterion XV, “Nonconforming Materials, Parts, or Components,” and Supplement 15S-1, “Supplementary Requirements for the Control of Nonconforming Items,” of ASME NQA-1-1994.

The inspectors reviewed these nonconformance reports, which documented a difference between the as-designed and as-built configurations to determine whether the difference was properly documented, evaluated, and incorporated into the as-built drawings. The inspectors reviewed the supporting technical justification for each nonconformance report and verified that the engineering disposition was subjected to design control measures commensurate with those applied to the original design. The inspectors verified that these conditions were properly evaluated against the current licensing basis.

The inspectors observed the onsite storage of CA03-08 and CA03-09 to determine whether the storage conditions were consistent with the CB&I quality assurance program, 10 CFR Part 50, Appendix B, and ASME NQA-1-1994.

Furthermore, the inspectors compared the marking on each sub-module to determine whether traceability to the fabrication records was maintained throughout the receipt, storage, and assembly of the submodules.

b. Findings

No findings were identified.

1A16 (Unit 3) ITAAC No. 760 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 760 (3.3.00.02a.i.a). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.05 - Steel Structures
- 65001.B-02.01 - Program and Procedures Review
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.A.02.01 - Observation of in-Process Installation Activities

The inspectors observed in-process welding of the Vogtle Unit 3 CA03 module (IRWST Steel Wall), to determine whether the welding was performed within the ranges allowed by WPS numbers WPS5-10H.10HM70 and WPS5-10H.10HT70. The inspectors also compared the in-process welding to the requirements of AWS D1.6:1999, "Structural Welding Code - Stainless Steel." Specifically, the inspectors observed the in-process welding (fit-up and tack welding) of weld number S4K-CV3282-09, which joined submodule CA03-08 to CA03-09. The inspectors reviewed the welding records for a sample of temporary attachment welds to the inside face of CA03-09 to determine whether these welds complied with the requirements of AWS D1.6 and welding specification number SV3-VW20-Z0-023, "Welding Specification for ASTM A240 UNS S32101 Duplex Stainless Steel Plate," revision 3.

The inspectors observed the in-process fit-up of submodule CA03-08 to CA03-09 to determine whether the following activities were in accordance with AISC N690:1994, AWS D1.6:1999, welding procedure specifications, and related design drawings:

- The identification of welds and welders was maintained for each weld;
- The welding procedures and welders were qualified in accordance with the AWS D1.6:1999 Code;
- The welding material and weld processes were properly controlled;
- NDE activities were performed according to the inspection procedures, AWS D1.6:1999 Code, and other design documents.

The inspectors performed an independent inspection of the tack welds and temporary attachment welds to evaluate the weld quality. Specifically, the inspectors reviewed the

condition of the welds to determine if they met the requirements from the industry standards and design specifications with regard to size, length, and location of welds. The inspectors also completed this visual inspection to determine if any of the following conditions were present:

- cracks;
- lack of fusion;
- undercut;
- porosity; and
- insufficient weld size.

As discussed above, the inspectors observed the in-process assembly of the CA03 module to determine whether the licensee had established adequate controls to ensure that the module was constructed in accordance with the Vogtle updated final safety analysis report (UFSAR). Specifically, during the inspector's observations of the in-process fit-up, welding, and inspection activities, the inspectors verified the following attributes:

- the identity of the submodules were in accordance with the latest approved-for-construction drawings, equipment lists, specifications, and established procedures;
- the latest approved-for-construction procedures, drawings, manuals, and other work instructions were available at the installation area;
- the submodules were not damaged prior to assembly and that nonconformances associated with the submodules had been resolved or were properly being tracked in accordance with the quality assurance program requirements;
- the applicable revisions of approved procedures, drawings, and instructions were being followed;
- processes, materials, tools, and other equipment used were qualified and approved in accordance with site procedures;
- personnel conducting work and quality assurance roles were qualified in accordance with site procedures;
- the installation, inspection, and testing sequences were maintained according to the work package;
- nonconforming items were clearly identified, segregated, and dispositioned;
- design changes or field modifications relevant to the work observed were properly controlled and processed in accordance with quality and technical requirements;
- inspection and test reports were current, accurate, and complete; and
- the item(s) were located, installed, assembled, or connected in accordance with the latest approved-for-construction drawings, manufacturer’s instructions, and procedures.

The inspectors reviewed the applicable portions of the CB&I AWS welding program to determine the following attributes:

- CB&I had approved procedures describing the administrative controls and work processes; and

- work control and inspection requirements prescribed adequate methods to ensure that the as-built condition of the module met the relevant design documents, codes and standards, and current licensing basis.

The inspectors reviewed a sample of welding procedure specifications associated with the tack welding (fit-up) of CA03-08 to CA03-09, and the installation of temporary attachments to both submodules. The inspectors reviewed these welding procedures and associated procedure qualification records, if applicable, to determine whether:

- the welding procedures (qualified by testing and prequalified) were in accordance with the AWS D1.6:1999 Code, and the specific ranges of welding variables were appropriately qualified;
- the welding procedures specified all the applicable essential, nonessential, and supplementary essential (if applicable) variables;
- welding procedures were up to date, accurate, contained within the work package, and available to the welder during production welding activities;
- welding positions qualified for each WPS were supported by relevant PQRs; and
- the type and number of qualification tests required to qualify a WPS for a given thickness were specified and in conformance with the AWS D1.6:1999 Code.

The inspectors reviewed a sample of welder qualification records related to the fit-up of CA03-08 to CA03-09 to determine whether these welders were qualified in accordance with the AWS D1.6:1999 code requirements and CB&I procedure WQ-1, "Qualification of Welders and Welding Operators," revision 3. Specifically, the inspectors reviewed welder qualification records to verify:

- welders were qualified to weld to the applicable WPS;
- welders demonstrated their skill by performing specific performance qualification tests prescribed by the applicable Code;
- performance qualification tests were fully documented;
- welder qualification tests were traceable to the welder; and
- welders used the welding process within the last six months to maintain their qualification.

The inspectors observed in-process welding, including the tack welds, for weld S4K-CV3282-09, which was a complete joint penetration weld between CA03-08 to CA03-09. During this inspection, the inspectors verified that a sample of welding variables were within the ranges allowed by the WPS and AWS D1.6:1999 Code, such as: filler metal size and classification, voltage, amperage, travel speed, wire feed speed, shielding gas composition, and shielding gas flow rate. Furthermore, during the in-process welding, the inspectors verified the following attributes:

- the work was conducted in accordance with a traveler (weld data sheet) that provided for the proper sequencing of the work and that this weld data sheet properly referenced the applicable procedures, drawings, specifications;
- the weld data sheet established adequate hold points as required by the quality inspection plan;
- the weld joint was sufficiently protected from inclement conditions such as high wind;

- surfaces to be welded were smooth, uniform, and free from significant surface discontinuities such as cracks or seams, and free from paint, oil, rust, scale, slag, grease, moisture or other harmful foreign materials that would be detrimental to welding;
- the weld joint geometry, including root opening and fit-up tolerances, was in accordance with the applicable WPS;
- the temperature of the base material at the joint prior to welding met the minimum preheat requirements specified in the welding procedure;
- the maximum interpass temperature was checked to ensure that it did not exceed the value specified in the welding procedure;
- other welding variables specified in the WPS were routinely verified by quality control;
- the weld was traceable to the welder;
- the filler metal and backing bar (as applicable) used in the joint were traceable and were qualified materials in accordance with the AWS D1.6:1999 Code; and
- tack welds between the backing bar (as applicable) and base material were fabricated by qualified welders using qualified welding procedure specifications.

The inspectors reviewed the CMTRs for the welding material used to fabricate welds CV3282-AT-09-IF-017, CV3282-AT-09-IF-018, CV3282-AT-09-IF-019, CV3282-AT-09-IF-020, and S4K-CV3282-09 to determine that the material met the applicable quality and technical requirements established by the following:

- AWS D1.6:1999 Code;
- AWS A5.01, "Procurement Guidelines For Consumables - Welding and Allied Processes - Flux and Gas Shielded Electrical Welding Processes";
- AWS A5.9, "Specification For Bare Stainless Steel Welding Electrodes and Rods"; and
- CB&I weld filler material specification TR-5.9-309L, "ER309L Stainless Steel Bare Wire/Rods or Electrodes," revision 0.

Specifically, for the temporary attachments, the inspectors reviewed the CMTR for Heat 1030A for conformance to the aforementioned technical requirements. The inspectors also verified that this safety-related welding material was supplied under the requirements of 10 CFR Part 21.

The inspectors observed quality control personnel perform the fit-up inspection on weld number S4K-CV3282-09 (seam weld between CA03-08 and CA03-09) to determine whether the visual inspection was performed according to inspection procedure F-S561-004, “Structural Weld Inspection-Modules, AWS D1.1/D1.6 and Fabrication, Submodule Assembly, and Module In Plant Installation Tolerances,” revision 11.1. The inspectors also reviewed the QC inspector's qualification and certification records to verify that the inspector was qualified in accordance with the CB&I procedure QAD-2.15, “Qualification and Certification of Inspection and Test Personnel," revision 3.A. Furthermore, the inspectors verified the following:

- the quality control inspector was properly qualified;
- the work package contained the appropriate hold points for quality-related inspection activities;

- the inspection procedure required the quality control inspector to verify the size, length, weld profile tolerances, and location of welds conformed to the design requirements; and
- the acceptance criteria for completed welds were in accordance with the AWS D1.6:1999 Code.

The inspectors reviewed the in-process and completed weld records for the following temporary attachment and submodule seam welds: CV3282-AT-09-IF-017, CV3282-AT-09-IF-018, CV3282-AT-09-IF-019, CV3282-AT-09-IF-020, and S4K-CV3282-09; which were contained in work package number SV3-CA03-S4W-CV2253, "CA03 Submodule Wall Assembly (07, 08, 09, 10, 11)," to determine whether:

- the welding activity was properly documented in the work traveler;
- records provided adequate traceability to all aspects of the welding activity, including traceability to the welder who performed the work;
- records adequately documented the following attributes: reference to procedure and welder qualifications, inspector qualifications, weld material certifications and receipt inspection reports, weld data or process records (travelers), weld maps, weld inspection records, and NDE records;
- records were appropriately retained and stored in accordance with quality assurance (QA) program requirement;
- required inspections were identified in the traveler with hold points, as appropriate; and
- accepted, rejected, and repaired items were documented in written reports.

b. Findings

No findings were identified.

1A17 (Unit 3) ITAAC No. 762 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 762 (3.3.00.02a.i.c):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.c) A report exists which reconciles deviations during construction and concludes that the as-built structures in the non-radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.F-02.01 - Design Document Review
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed a field inspection of two Auxiliary Building segments for Wall I reinforcing steel from elevation 82'-6" to 100'-0" between column line 7.3 to 10 and column line 10 to 11. The inspectors reviewed applicable design drawings, design specifications, and interviewed licensee personnel to determine whether structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures. Specifically, the inspectors verified that:

- structural concrete design and construction was accomplished under controlled conditions and in accordance with applicable procedures, specifications, drawings, and approved procedures using qualified personnel;
- deviations from the design due to as-built conditions were identified and documented appropriately;
- records reflected that completed work met design specifications and acceptance criteria;
- reinforcing steel installation was controlled and performed in accordance with the applicable specifications, codes, drawings, and procedures; and
- reinforcing steel was located properly in the structures, secured, free of excess rust, and had proper clearances.

b. Findings

No findings were identified.

1A18 (Unit 3) ITAAC No. 762 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 762 (3.3.00.02a.i.c). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.F-02.01 - Design Document Review
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed a field inspection of Auxiliary Building floor reinforcing steel at elevation 82'-6" between Column Lines P and Q and between the Shield Building and Wall 11 (Room 12211). The inspectors reviewed applicable design drawings, design specifications, and interviewed licensee personnel to determine whether structural

concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures. Specifically, the inspectors verified that:

- structural concrete design and construction was accomplished under controlled conditions and in accordance with applicable procedures, specifications, drawings, and approved procedures using qualified personnel;
- deviations from the design due to as-built conditions were identified and documented appropriately;
- the documents were consistent with the design commitments and requirements of the technical specifications, the UFSAR, and code commitments;
- reinforcing steel installation was controlled and performed in accordance with the applicable specifications, codes, drawings, and procedures; and
- reinforcing steel was located properly in the structures, secured, free of excess rust, and had proper clearances.

The inspectors also observed concrete placement activities to determine whether:

- accepted procedures and specifications were followed throughout the concrete placement;
- the equipment used was suitable and sized for the work;
- placement drop distances did not exceed specification requirements and did not result in segregation;
- vibrators were handled and operated to ensure adequate consolidation and avoid voiding or honeycombing; and
- inspection during placement was performed as required.

The inspectors reviewed a sample of nonconformances to verify:

- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program;
- any differences between the as-built and as-designed SSCs were documented and dispositioned in accordance with approved modification or change procedures; and
- the nonconformances were resolved and their dispositions had adequate technical bases.

b. Findings

No findings were identified.

1A19 (Unit 3) ITAAC No. 763 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 763 (3.3.00.02a.i.d):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.d) A report exists which reconciles deviations during construction and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors observed welding activities and reviewed welding records associated with the CA20 module to verify they were in conformance with applicable codes, standards, specifications, criteria, and other special requirements. Specifically, the inspectors observed in-process fit-up, tacking, welding, and QC inspection of overlay plates welded to CA20. The inspectors also reviewed applicable drawings, engineering and design coordination reports, welding procedure specifications, certified material test reports, weld data records, and inspection reports to verify accuracy and adequacy in accordance with Code requirements.

The inspectors observed welding activities for one overlay plate temporarily tack welded to CA20:

- SV3-OLP-OB2-E546, Weld No. S4K-CV3125-E546

The inspectors observed welding activities for eight overlay plates with direct welds to CA20:

- SV3-12264-SS-N755, Weld No. S4K-CV2361-E257
- SV3-12264-SS-N756, Weld No. S4K-CV2361-E258
- SV3-12264-SS-N757, Weld No. S4K-CV2361-E259
- SV3-12264-SS-N758, Weld No. S4K-CV2361-E260
- SV3-12161-SS-N551, Weld No. S4K-CV0972-E63
- SV3-12161-SS-N552, Weld No. S4K-CV0972-E64

- SV3-12161-SS-N553, Weld No. S4K-CV0972-E65
- SV3-12161-SS-N554, Weld No. S4K-CV0972-E66 and S4K-CV0972-E66-BDU1

For the above overlay plates, the inspectors observed the in-process welding and reviewed the associated weld data sheets and welding material requisition forms to determine whether the correct WPSs, base material, filler material, and joint type were selected. The inspectors also witnessed QC inspections of the welds and performed independent assessments to verify that CB&I followed Inspection Plan F-S561-004, "Structural Weld Inspection – Modules, AWSD1.1/D1.6, and "Fabrication," "Submodule Assembly," and "Module in Plant" Installation Tolerances," revision 11. The inspectors reviewed the condition of the welds to determine if they met the requirements from the industry standards and design specifications with regard to size, length, and location of welds. The inspectors also completed this visual inspection to determine whether cracks, lack of fusion, undercut, porosity, or insufficient weld size existed.

The inspectors reviewed material records associated with the above overlay plates. Specifically, the inspectors reviewed three inspection reports and two material receiving reports to verify the overlay plates conformed to requirements and there was adequate traceability between the documents, drawings, and plates.

The inspectors reviewed weld records associated with the above overlay plates. Specifically, the inspectors reviewed two filler metal CMTRs to determine whether the material yield strength, tensile strength, elongation, and chemical composition requirements were met. The inspectors reviewed three prequalified WPSs to verify they were up to date, accurate, and in conformance with the AWS D1.1:2000 Code requirements. The inspectors reviewed a welder qualification record to determine whether the welder was assigned a unique identification number and demonstrated their skill by performing specific performance qualification tests, the qualification testing conditions and qualification limits were fully documented, and the appropriate number of acceptable test results was achieved.

b. Findings

No findings were identified.

1A20 (Unit 3) ITAAC No. 763 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 763 (3.3.00.02a.i.d). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.F-02.01 - Design Document Review
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed a field inspection of two Auxiliary Building segments of Wall I reinforcing steel from elevation 82'-6" to 100'-0" between column line 4 to 5 and column line 5 to 7.3. The inspectors reviewed applicable design drawings, design specifications,

and interviewed licensee personnel to determine whether structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures. Specifically, the inspectors verified that:

- structural concrete design and construction was accomplished under controlled conditions and in accordance with applicable procedures, specifications, drawings, and approved procedures using qualified personnel;
- deviations from the design due to as-built conditions were identified and documented appropriately;
- records reflected that completed work met design specifications and acceptance criteria;
- reinforcing steel installation was controlled and performed in accordance with the applicable specifications, codes, drawings, and procedures; and
- reinforcing steel was located properly in the structures, secured, free of excess rust, and had proper clearances.

b. Findings

No findings were identified.

1A21 (Unit 3) ITAAC No. 763 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 763 (3.3.00.02a.i.d). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.B-02.02 - Welding Procedure Qualification

The inspectors reviewed a welding procedure specification and supporting procedure qualification records associated with the welding of mechanical couplers to CA20 overlay plates. Specifically, the welders reviewed GTAW welding procedure, WPS8-1.1T71, revision 3, and four supporting PQRs to verify (1) the specific ranges of parameters indicated on the WPS were adequately qualified by the essential variables recorded on the PQRs and (2) the test specimens received acceptable results for visual inspection, tensile testing, and microetch testing.

b. Findings

Refer to Section 1A12 of this report

1A22 (Unit 3) ITAAC No. 764 / Family: 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 764 (3.3.00.02a.ii.a):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as□built concrete thickness will be performed.	ii.a) A report exists that concludes that the containment internal structures as-built concrete thicknesses conform to the building sections defined in Table 3.3-1.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed inspection of construction activities to determine if the plate separation of sub-modules conforms to the required concrete thicknesses of the building sections.

The inspectors performed independent measurements on a sample of submodules that comprise multiple wall sections. These sections include the walls of the east and west reactor vessel cavity walls (submodules CA01-04, CA01-11, and CA01-19), east and west refueling cavity walls (CA01-04 and CA01-19) and the south walls of the east and west steam generator compartments (CA01-04 and CA01-19).

The inspectors reviewed various documents for the selected modules, such as design drawings, and specifications, to verify the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings and fit-up tolerances for length, depth, and straightness of structural members were as specified.

b. Findings

No findings were identified.

1A23 (Unit 3) ITAAC No. 766 / Family: 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 766 (3.3.00.02a.ii.c):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as□built concrete thickness will be performed.	ii.c) A report exists that concludes that as-built concrete thicknesses of the non-radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed independent inspection and measurements of the non-radiological controlled auxiliary building walls to determine whether they conformed to the as-built thickness requirements as specified in the Updated Final Safety Analysis Report (UFSAR) Tier 1, Table 3.3 1. Specifically, the inspectors verified the as-built thickness of the following walls:

- Column Line I wall between Column Lines 7.3 and 11 from elevation 82'-6" to 100'-0"
- Column Line 7.3 wall from elevation 82'-6" to 100’-0”

b. Findings

No findings were identified.

1A24 (Unit 3) ITAAC No. 767 / Family: 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 767 (3.3.00.02a.ii.d):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as□built concrete thickness will be performed.	ii.d) A report exists that concludes that the as-built concrete thicknesses of the radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed independent inspection and measurements of the radiological controlled auxiliary building walls to determine whether they conformed to the as-built thickness requirements as specified in the Updated Final Safety Analysis Report (UFSAR) Tier 1, Table 3.3 1. Specifically, the inspectors verified the as-built thickness of the wall along Column Line I between Column Lines 4 and 7.3 from elevation 82'-6" to 100'-0".

b. Findings

No findings were identified.

1A25 (Unit 4) ITAAC No.91 / Family: 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 91 (2.2.01.02a):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The components identified in Table 2.2.1-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built components as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built components identified in Table 2.2.1-1 as ASME Code Section III.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06 - Inspection of ITAAC-Related Installation of Mechanical Components
- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.06-02.05 - Problem Identification and Resolution
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.03 - Observation of Fabrication Activities
- 65001.F-02.04 - General QA Review
- 65001.11-02.03 - Installation and Welding
- 65001.11-02.04 - Post Weld Heat Treatment
- 65001.11-02.05 - Nondestructive Examination
- 65001.11-02.06 - PWR Containment Construction
- 65001.11-02.07 - Offsite Fabrication of Assemblies
- 65001.11-02.11 - Problem Identification and Resolution

The inspectors reviewed IHI and CB&I records for fabrication of the Unit 4 containment vessel lower ring shell to determine whether code, design, and material specifications were met; proper reviews, approvals, and inspections were documented; traceability of shell and insert plates, and weld filler metals were maintained; qualified welding procedures, welders, and welding operators were used for welding activities; and nondestructive examinations with acceptable results were performed in accordance with the requirements of:

- ASME Section II, Part A - Ferrous Material Specifications, and Part C - Specifications for Welding Rods, Electrodes, and Filler Metals;
- ASME Section III, Subsections NCA - General Requirements, NC - Class 2 Components, and NE - Class MC Components;
- ASME Section V - Nondestructive Examination;
- ASME Section IX - Welding and Brazing Qualification;
- Updated Final Safety Analysis Report (UFSAR) with reference to 10 CFR Part 50, Appendix B, and 10 CFR 21 applicability; and
- WEC containment vessel design specification APP-MV50-Z0-001, Rev. 8.

The inspectors reviewed records related to the following pressure boundary welds:

- P07 (10" charging line) sleeve to insert plate weld;
- P07 insert plate to containment vessel shell weld;
- P32 (36" containment shutdown purge exhaust) sleeve to insert plate weld;
- P23 (38" main steam line loop 1) sleeve to insert plate weld;
- H04 (personnel hatch) sleeve to insert plate weld;
- S4, vertical weld D7-D8; and
- S4, vertical weld D8-D9.

For each of the selected welds, the inspectors reviewed:

- base and weld material CMTRs to determine whether physical and chemical properties were in accordance with the requirements of ASME Section II, Part A, and ASME Section III, Subsection NE;
- weld travelers to determine if welding processes and materials were being properly controlled and documented;
- welder qualification records to determine if all welders were qualified;
- welding procedures to determine if they were adequately supported by procedure qualification records and that the welding procedures complied with the requirements of ASME Section III and ASME Section IX;
- ASME N-2 data reports for the sleeve to insert plate weld samples (P07, P32, P23, and H04) to determine if they were traceable and signed by the ANI; and
- NDE reports to determine if acceptable results were achieved in accordance with the requirements of ASME Code Sections III and V.

The inspectors performed visual inspections of the completed welds to determine if there were any visible defects. The inspectors measured and visually examined the penetrations to determine if any were distorted or damaged. Additionally, the inspectors recorded visible traceability markings (such as heat numbers) to determine if they were consistent with the markings recorded in the applicable CMTRs and weld travelers.

b. Findings

No findings were identified.

1A26 (Unit 4) ITAAC No.93 / Family: 06B

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.03a (93):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
3.a) Pressure boundary welds in components identified in Table 2.2.1-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non□destructive examination of pressure boundary welds.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.B-02.01 - Program and Procedures Review
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification

- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records

The inspectors observed welding activities and reviewed welding records associated with the Unit 4 steam/feed line insert plate (Weld No. U4-S2-B14) to verify applicable codes, standards, specifications, and procedure requirements were met, proper reviews and approvals were documented, and traceability of materials, welders, and welding operators was provided for welding activities. Specifically, the inspectors observed in-process welding and associated measuring and test equipment as well as reviewed applicable drawings and CB&I Services procedures, welding procedure specifications and supporting procedure qualification records, welder qualification records, and the weld traveler to verify accuracy and adequacy in accordance with all requirements.

The inspectors observed in-process welding of the steam/feed line insert plate to the lower ring base material to verify that a sample of welding variables were within the ranges allowed by the WPS and ASME Code, such as: base material and filler metal thickness and classification, voltage and amperage, and shielding gas composition and flow rate. The inspectors also verified that the work was conducted in accordance with a weld traveler that (1) properly referenced the applicable procedures, drawings, and specifications, (2) provided adequate hold points for QC and ANI signatures, and (3) provided traceability between welding material heat numbers, welders, NDE reports, and QC inspections for each weld. The inspectors observed the surfaces to be welded to determine whether they were adequately cleaned and whether the temperature of the material prior to welding met the minimum preheat and maximum interpass temperature requirements specified in the welding procedure. The inspectors observed measuring and test equipment used during welding to verify they were properly calibrated in accordance with applicable requirements.

The inspectors reviewed the associated WPS to verify it was available, up to date, accurate, and in conformance with the ASME Code requirements, specifying all applicable essential, nonessential, and supplementary essential variables. The inspectors reviewed the supporting four PQRs to verify the specific ranges of welding variables listed in the WPS were appropriately qualified and the type and number of qualification tests required received acceptable results. The inspectors reviewed two welder performance qualification records to determine whether (1) the welders were assigned a unique identification number and demonstrated their skill by performing specific performance qualification tests, (2) the qualification testing conditions and qualification limits were fully documented, and (3) the appropriate number of acceptable test results was achieved.

After the final visual inspection was completed by CB&I Services following procedure CMS-830-15-PR-45158, “Visual Inspection of Welds ASME Section III, Division 1 - Subsection NE,” revision 3, the inspectors performed an independent assessment to verify (1) the weld traveler had received all appropriate signatures, (2) quality personnel had sufficient access for performing direct visual inspections, and (3) the condition of the welds met the requirements from the industry standards and design specifications with regard to size, length, and location. The inspectors also completed a visual inspection to determine whether cracks, lack of fusion, undercut, porosity, insufficient weld size, or arc

strikes existed, and to verify the weld reinforcement did not exceed the maximum requirements allowed by the ASME Code and their visual inspection procedure.

b. Findings

No findings were identified.

1A27 (Unit 4) ITAAC No. 93 / Family: 06B

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.03a (93). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06 - Inspection of ITAAC-Related Installation of Mechanical Components
- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.06-02.03 - Post Installation Activities
- 65001.06-02.04 - Testing and Verification
- 65001.06-02.05 - Problem Identification and Resolution
- 65001.B - Inspection of the ITAAC-Related Welding Program
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.11 - Construction Inspection Program Inspection of ITAAC-Related Containment Integrity and Containment Penetrations
- 65001.11-02.05 - Nondestructive Examination
- 65001.11-02.11 - Problem Identification and Resolution
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.03 - Observation of Fabrication Activities
- 65001.F-02.04 - General QA Review

The inspectors reviewed IHI and CB&I records for fabrication of the Unit 4 containment vessel lower ring to determine whether code, design, and material specifications were met; proper reviews, approvals, and inspections were documented; traceability of shell and insert plates, and weld filler metals were maintained; qualified welding procedures, welders, and welding operators were used for welding activities; and nondestructive examinations with acceptable results were performed in accordance with the requirements of:

- ASME Section II, Part A - Ferrous Material Specifications, and Part C - Specifications for Welding Rods, Electrodes, and Filler Metals;
- ASME Section III, Subsections NCA - General Requirements, NC - Class 2 Components, and NE - Class MC Components;
- ASME Section V - Nondestructive Examination;
- ASME Section IX - Welding and Brazing Qualification;

- Updated Final Safety Analysis Report (UFSAR) with reference to 10 CFR Part 50, Appendix B, and 10 CFR 21 applicability; and
- WEC containment vessel design specification APP-MV50-Z0-001, Rev. 8.

The inspectors performed these reviews on the following pressure boundary welds:

- P07 (10" charging line) sleeve to insert plate weld;
- P32 (36" containment shutdown purge exhaust) sleeve to insert plate weld;
- P40 (spare penetration) sleeve to insert plate weld;
- P23 (38" main steam line loop 1) sleeve to insert plate weld;
- H01 (equipment hatch) sleeve to insert plate weld;
- C85 attachment plate to containment vessel shell weld;
- C100 attachment plate to containment vessel shell weld;
- S4, vertical weld D7-D8; and
- S4, vertical weld D8-D9.

For each of the selected samples, the inspectors reviewed:

- base and weld material CMTRs to determine whether physical and chemical properties were in accordance with the requirements of ASME Section II, Part A, and ASME Section III, Subsection NE;
- weld travelers to determine if welding processes and materials were being properly controlled and documented;
- welder qualification records to determine if all welders were qualified;
- welding procedures to determine if they were adequately supported by procedure qualification records and that the welding procedures complied with the requirements of ASME Section III and ASME Section IX; and
- NDE reports to determine if acceptable results were achieved in accordance with the requirements of ASME Section III and ASME Section V (not applicable for the C100 attachment plate because the NDE report for the C100 attachment plate was not complete at the time of inspection).

For the containment vessel vertical welds, the inspectors reviewed RT film of the completed welds to determine if:

- any relevant indications were previously identified and properly dispositioned by CB&I, WEC, and the licensee; and
- radiography technique and final film met the requirements of ASME Section V through the observance of the required image quality indicators and proper film density.

With the exception of the H01 equipment hatch, the inspectors performed visual inspections of the completed welds to determine if there were any visible defects. The inspectors measured and visually examined the penetrations to determine if any were distorted or damaged. Additionally, the inspectors recorded visible traceability markings (such as heat numbers) to determine if they were consistent with the markings recorded in the applicable CMTRs and weld travelers. For the C85 and C100 attachment plate welds, the inspectors measured the plate size and completed fillet welds to determine if

the dimensions met the fabrication requirements as detailed in CB&I drawing 100, sheet 1, Rev. 3, "Attachment Plates - Fab Only."

b. Findings

No findings were identified.

1A28 (Unit 4) ITAAC No. 93 / Family: 06B

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 93 (2.2.01.03a). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.11-02.03 - Installation and Welding
- 65001.11-02.05 - Nondestructive Examination
- 65001.11-02.04 - Post Weld Heat Treatment
- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed CB&I records for fabrication of the Unit 4 containment vessel lower ring shell plates. Specifically, the review focused on the vertical and horizontal containment pressure boundary welds for the specified plates which were reviewed to determine whether code, material specifications, and procedural requirements were met; proper reviews, approvals, and inspections were documented; traceability of welding material for the shell plates were maintained; proper heat treatment techniques were used; and nondestructive examinations with acceptable results were performed in accordance with the specified requirements. Specific requirements are noted as follows:

- ASME Section III, NE - Class MC Components;
- ASME Section V - Nondestructive Examination;
- Updated Final Safety Analysis Report (UFSAR) with reference to 10 CFR Part 50, Appendix B; and
- WEC CV design specification APP-MV50-Z0-001.

Specifically, the inspector reviewed documents associated with vertical seam weld C5/C6, vertical seam weld C9/C10, girth seam weld S1/S2 and girth seam weld S2/S3.

The packages reviewed documented radiographic examinations; provided associated weld travelers which documented plate fit-up, welding sequences, unique welder/operator identification, testing, inspection activities, and repair activities; documented certified material test reports for weld rod; and documented welding operator performance qualification sheets.

The inspectors also reviewed a sample of radiographic films/pictures of the above welds. The reports that were reviewed, documented appropriate/required radiographic examinations, appropriately detailed weld travelers, documented acceptable material test reports for the weld rod, and provided acceptable welder/operator performance qualification records.

b. Findings

No findings were identified.

1A29 (Unit 4) ITAAC No. 96 / Family: 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 96 (2.2.01.04a.ii):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
4.a) The components identified in Table 2.2.1-1 as ASME Code Section III retain their pressure boundary integrity at their design pressure.	ii) Impact testing will be performed on the containment and pressure-retaining penetration materials in accordance with the ASME Code Section III, Subsection NE, to confirm the fracture toughness of the materials.	ii) A report exists and concludes that the containment and pressure-retaining penetration materials conform with fracture toughness requirements of the ASME Code Section III.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06 - Inspection of ITAAC-Related Installation of Mechanical Components
- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.06-02.05 - Problem Identification and Resolution
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.04 - General QA Review

The inspectors reviewed welding procedures and their associated welding procedure qualification records to determine whether the welding procedure qualification was in accordance with the fracture toughness requirements of ASME Section III, Subsection NE for welding portions of the Unit 4 containment vessel lower ring and bottom head.

The inspectors reviewed CMTRs for the following ASME materials used to fabricate the Unit 4 containment vessel to determine whether Charpy V-notch impact tests of pressure retaining materials were performed in accordance with the fracture toughness requirements of ASME Section II-Part A, ASME Section III, Subsection NE, and WEC containment vessel design and material specification APP-MV50-Z0-001, revision 8:

- P11 (fuel transfer tube) insert plate;
- P07 sleeve to insert plate weld;
- P32 sleeve to insert plate weld;
- P23 sleeve to insert plate weld;
- H04 sleeve to insert plate weld;
- S4, vertical weld D7-D8; and
- S4, vertical weld D8-D9.

b. Findings

No findings were identified.

1A30 (Unit 4) ITAAC No. 761 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 761 (3.3.00.02a.i.b):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.b) A report exists which reconciles deviations during construction and concludes that the as-built shield building structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.F-02.02 - Fabrication Records Review
- 65001.02-02.06 - Record Review
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.F-02.01 - Design Document Review

The inspectors reviewed a sample of completed work packages and installation records associated with the April 10, 2014 concrete placement under the Unit 4 containment vessel bottom head (CVBH) to verify:

- the records were reviewed and approved by the responsible organization;
- the recorded information was complete, accurate, and met the licensing basis and ITAAC requirements, and conformed to applicable specifications; and

- the records were correctly stored and maintained in such a manner as to demonstrate conformance with design and procedure requirements.

The inspectors also reviewed a sample of nonconformances to verify:

- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program;
- any differences between the as-built and as-designed SSCs were documented and dispositioned in accordance with approved modification or change procedures; and
- the nonconformances were resolved and their dispositions had adequate technical bases.

For the concrete placement listed above, the inspectors reviewed a sample of design calculations and drawings included in the work packages to determine that design activities were completed in accordance with applicable specifications, drawings, and approved procedures; and the documents were consistent with the design commitments and requirements of the technical specifications, the UFSAR, and code commitments.

b. Findings

No findings were identified.

1A31 (Unit 4) ITAAC No. 761 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.i.b (761). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.02 - Laboratory Testing
- 65001.02-02.03 - Special Considerations
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F-02.01 - Design Document Review

The inspectors performed direct inspection of construction activities associated with the reinforced concrete underneath the CVBH up to elevation 72’-6” for Vogtle Unit 4.

The inspectors reviewed the design calculation, drawings included in the work packages, and specifications to determine whether:

- design activities were completed in accordance with applicable specifications, drawings, and approved procedures;

- design inputs were correctly identified and documented, and that their selection was reviewed and approved by the responsible engineering group;
- design outputs were translated into drawings;
- the documents adequately defined the final design and arrangement of these SSCs;
- critical attributes associated with the ITAAC were correctly identified and documented for review and approval by responsible engineering personnel; and
- the documents were consistent with the design commitments and requirements of the technical specifications, the UFSAR, and code commitments.

The inspectors also reviewed a sample of in-process work packages for reinforcing steel and formwork to determine whether:

- the latest approved procedures, drawings, and other work instructions were available at the installation area;
- the installation, inspection, and testing sequences were maintained;
- the licensee had verified that the items to be installed met specified requirements;
- the items being installed were not damaged prior to installation;
- materials, tools, and other equipment being used were qualified and approved in accordance with site procedures;
- nonconforming items were clearly identified, segregated if possible, and dispositioned;
- inspection and test reports were current, accurate, and complete; and
- design changes, field modifications, and nonconformances associated with the work observed were properly controlled and processed in accordance with the approved QA program.

The inspectors observed concrete pre-placement activities to determine whether pre-placement planning and training had been completed, including appropriate considerations for mass concrete, pumping, and contingency preparations, and the pre-placement inspection was performed by QC before any concrete was placed. Prior to concrete placement, the inspectors independently evaluated whether the reinforcing steel met drawings and specifications included in the work packages, all deviations were adequately captured and addressed, and preparation and cleanliness of the formwork had been completed. The inspectors observed concrete placement activities to determine whether:

- accepted procedures and specifications were followed throughout the concrete placement;
- the equipment used was suitable and sized for the work;
- each batch ticket was reviewed for verification of proper mix, transport time, placement location, and amount of temper water being added at the truck delivery point;
- mixing time and rotations were adequate, including after any additions were made;
- placement drop distances did not exceed specification requirements and did not result in segregation;
- vibrators were approved and calibrated;

- vibrators were handled and operated to ensure adequate consolidation and avoid voiding or honeycombing, including vertical operation and penetration through the new concrete into the previously placed layer;
- concrete was placed in lifts in accordance with the concrete placement plan;
- inspection during placement was performed as required; and
- records were produced, reviewed, and indicate mix, location, time placed, water additions, temperature of the concrete mix, and ambient conditions.

During the placement, the inspectors observed in-process concrete testing to determine whether:

- concrete temperature, slump, air content, and unit weight were determined at the proper location and frequency as required by procedures, specifications, and American Society for Testing and Materials (ASTM) standards;
- sample collection and testing techniques conformed to the procedures, specifications, and ASTM standards;
- concrete strength test sample cylinders were made at the required location and frequency and were cured in accordance with specified requirements; and
- personnel performing sampling and testing were trained and qualified.

The inspectors reviewed test results, including concrete cylinder break results, to determine whether:

- records were complete, accurate, and approved as required;
- test results were reviewed and evaluated against appropriate acceptance criteria;
- the records were retrievable; and
- any adverse trends or problems were identified at an appropriate threshold and documented in accordance with the approved into the corrective action program.

The inspectors observed curing activities and reviewed curing records to determine whether curing was in accordance with specifications and procedures with regard to the method, materials, duration, temperature, inspections, and records. The inspectors reviewed the final inspection results after form removal, test results, and other information related to the placement to determine whether the placement was subjected to an integrated review before acceptance, that the as-built documentation was complete, and that these activities were controlled and accomplished in accordance with the quality assurance program. The inspectors performed independent inspection and measurements of the as-built concrete, including finishes and dimensions, to demine whether the as-built configuration met the design specifications.

The inspectors interviewed licensee and contractor personnel to determine whether:

- contractors performing safety-related work followed approved implementing procedures that describe administrative and procedural controls, approved work processes, and inspection requirements;
- design processes were performed in compliance with applicable instructions and procedures;
- personnel conducting work and quality assurance roles were qualified and knowledgeable; and

- effective oversight in accordance with specifications and program requirements was implemented for the installation activities observed.

The inspectors reviewed a sample of nonconformances to verify:

- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program;
- any differences between the as-built and as-designed SSCs were documented and dispositioned in accordance with approved modification or change procedures; and
- the nonconformances were resolved and their dispositions had adequate technical bases.

b. Findings

No findings were identified.

1A32 (Unit 4) ITAAC No. 762 / Family: 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 762 (3.3.00.02a.i.c):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.c) A report exists which reconciles deviations during construction and concludes that the as-built structures in the non-radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.F-02.01 - Design Document Review
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed independent inspection and measurements of Auxiliary Building Wall I reinforcing steel, including horizontal and vertical reinforcing steel bars

and shear reinforcement, at elevation 82'-6" to 100'-0" between Column Lines 11 and 7.3. The inspectors reviewed applicable design drawings and design specifications and interviewed licensee personnel to determine whether structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures. Specifically, the inspectors verified that:

- structural concrete design and construction was accomplished using qualified personnel under controlled conditions and in accordance with applicable procedures, specifications, drawings, and approved procedures;
- deviations from the design due to as-built conditions were identified and documented accordance with the approved quality assurance program;
- the documents were consistent with the design commitments and requirements of the technical specifications, the UFSAR, and code commitments;
- reinforcing steel installation was controlled and performed in accordance with the applicable specifications, codes, drawings, and procedures; and
- reinforcing steel was located properly in the structures, secured, free of excess rust, and had proper clearances.

b. Findings

No findings were identified.

1A33 (Unit 4) ITAAC No. 766 / Family: 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 766 (3.3.00.02a.ii.c):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as built concrete thickness will be performed.	ii.c) A report exists that concludes that as-built concrete thicknesses of the non-radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed independent inspection and measurements of the non-radiological controlled auxiliary building walls to determine whether they conformed to the as-built thickness requirements as specified in the Updated Final Safety Analysis Report (UFSAR) Tier 1, Table 3.3 1. Specifically, the inspectors verified the as-built thickness of wall along Column Line I between Column Lines 7.3 and 11 from elevation 82'-6" to 100'-0".

b. Findings

No findings were identified.

1A34 (Unit 4) ITAAC No.766 / Family: 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.ii.c (766). The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.01 - Procedures
- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.01-02.06 - Records
- 65001.A.02.02 - Installation Records Review
- 65001.A- As-Built Attributes for SSCs associated with ITAAC

The inspectors reviewed documentation associated with the thickness of the exterior wall sections between elevation 66’-6” and 82’-6 for the non-radiologically controlled area of the Auxiliary Building for Vogtle Unit 4. Specifically, the inspectors reviewed documentation for the following:

- wall section along column line I between column lines 7.3 and 11;
- wall section along column line 11 between column lines I and Q; and
- wall section along column line Q between column line 11 and the shield building.

The inspectors reviewed a sample of approved implementing procedures and specifications for surveying and concrete installation activities to determine whether the documents:

- met the requirements specified in the QA program and the UFSAR, including the reconciliation of construction deviations in critical dimensions and tolerances;
- correctly translated requirements from applicable codes and standards;
- described work controls, approved work processes, and inspection requirements;
- included appropriate quantitative and/or qualitative acceptance criteria for determining that the prescribed activities were accomplished satisfactorily;
- clearly prescribed acceptable methods of quality control inspection to ensure that the as-built condition met specified design requirements, drawings and material specifications;
- required measuring and test equipment to be calibrated and maintained in accordance with approved calibration procedures and vendor requirements; and

- provided qualification requirements for craft and quality control inspection personnel performing installation and testing activities.

The inspectors reviewed the dimensions specified in the Vogtle Unit 4 UFSAR, Appendix C, Table 3.3-1 for the samples listed above. The inspectors assessed the method and controls used by the licensee to verify that the as-built dimensions conformed to the licensing basis to determine whether the methodology used was appropriate and would produce sufficient records to document that completed work met the design specifications and acceptance criteria. Additionally, the inspectors reviewed measuring and surveying records associated with the dimensions inspected to determine whether:

- they were complete, accurate, and documented that the as-built configuration met the design specifications and the acceptance criteria;
- the activities were conducted in accordance with the licensee's quality assurance program requirements; and
- there were any identified deviations.

b. Findings

No findings were identified.

1A35 (Unit 4) ITAAC No. 774 / Family: 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 774 (3.3.00.02f):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.f) The key dimensions of nuclear island structures are defined on Table 3.3-5.	An inspection will be performed of the as-built configuration of the nuclear island structures.	A report exists and concludes that the key dimensions of the as-built nuclear island structures are consistent with the dimensions defined on Table 3.3-5.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.01 - Procedures
- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.01-02.06 - Records
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed a direct inspection of and independently measured a sample of the as-built Nuclear Island key dimensions to determine whether they met the commitments established in the Vogtle Unit 4 UFSAR, Appendix C, Table 3.3-5, "Key

Dimensions of Nuclear Island Building Features". Specifically, the inspectors sampled the following dimensions between 66'-6" and 82'-6":

- Distance between outside surface of walls at Column Line I & N when measured at Column Line 1
- Distance between outside surface of walls at Column Line I & Q when measured at Column Line 11

The inspectors reviewed a sample of approved implementing procedures and specifications for surveying and concrete installation activities to determine whether the documents:

- met the requirements specified in the QA program and the UFSAR, including the reconciliation of construction deviations in critical dimensions and tolerances;
- correctly translated requirements from applicable codes and standards;
- described work controls, approved work processes, and inspection requirements;
- included appropriate quantitative and/or qualitative acceptance criteria for determining that the prescribed activities were accomplished satisfactorily;
- clearly prescribed acceptable methods of quality control inspection to ensure that the as-built condition met specified design requirements, drawings and material specifications;
- required measuring and test equipment to be calibrated and maintained in accordance with approved calibration procedures and vendor requirements; and
- provided qualification requirements for craft and quality control inspection personnel performing installation and testing activities.

The inspectors interviewed licensee and contractor personnel to determine whether:

- contractors performing safety-related work followed approved implementing procedures that describe administrative and procedural controls, approved work processes, and inspection requirements;
- design processes were performed in compliance with applicable instructions and procedures;
- personnel conducting work and quality assurance roles were qualified and knowledgeable; and
- effective oversight in accordance with specifications and program requirements was implemented for the installation activities observed.

The inspectors reviewed the dimensions specified in the Vogtle Unit 4 UFSAR, Appendix C, Table 3.3-5 for samples listed above. The inspectors assessed the method and controls used by the licensee to verify that the as-built dimensions conformed to the licensing basis to determine whether the methodology used was appropriate and would produce sufficient records to document that completed work met the design specifications and acceptance criteria. The inspectors performed independent inspections and measurements to determine whether the as-built concrete dimensions of the installed nuclear island were in accordance with the design, the ITAAC, and UFSAR. Additionally, the inspectors reviewed measuring and surveying records associated with the dimensions inspected to determine whether:

- they were complete, accurate, and documented that the as-built configuration met the design specifications and the acceptance criteria;
- the activities were conducted in accordance with the licensee's quality assurance program requirements; and
- there were any identified deviations.

b. Findings

No findings were identified.

1A36 (Unit 4) ITAAC No. 814 / Family: 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 814 (3.3.00.09):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
9. The reactor cavity sump has a minimum concrete thickness as shown in Table 3.3-5 between the bottom of the sump and the steel containment.	An inspection of the as-built containment building internal structures will be performed.	A report exists and concludes that the reactor cavity sump has a minimum concrete thickness as shown on Table 3.3-5 between the bottom of the sump and the steel containment.

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.01 - Procedures
- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed a direct inspection of and independently measured the installed containment sump (KQ11) to determine whether the distance from the bottom of the containment sump to the top surface of the embedded containment shell met the commitments established in the Vogtle Unit 4 UFSAR, Appendix C, Table 3.3-5, "Key Dimensions of Nuclear Island Building Features".

The inspectors reviewed a sample of approved implementing procedures and specifications for surveying and concrete installation activities to determine whether the documents:

- met the requirements specified in the QA program and the UFSAR, including the reconciliation of construction deviations in critical dimensions and tolerances;

- correctly translated requirements from applicable codes and standards;
- described work controls, approved work processes, and inspection requirements;
- included appropriate quantitative and/or qualitative acceptance criteria for determining that the prescribed activities were accomplished satisfactorily;
- clearly prescribed acceptable methods of quality control inspection to ensure that the as-built condition met specified design requirements, drawings and material specifications;
- required measuring and test equipment to be calibrated and maintained in accordance with approved calibration procedures and vendor requirements; and
- provided qualification requirements for craft and quality control inspection personnel performing installation and testing activities.

The inspectors interviewed licensee and contractor personnel to determine whether:

- contractors performing safety-related work followed approved implementing procedures that describe administrative and procedural controls, approved work processes, and inspection requirements;
- design processes were performed in compliance with applicable instructions and procedures;
- personnel conducting work and quality assurance roles were qualified and knowledgeable; and
- effective oversight in accordance with specifications and program requirements was implemented for the installation activities observed.

The inspectors reviewed the dimensions specified in the Vogtle Unit 4 UFSAR, Appendix C, Table 3.3-5 for the containment sump ITAAC. The inspectors assessed the method and controls used by the licensee to verify that the as-built dimensions conformed to the licensing basis to determine whether the methodology used was appropriate and would produce sufficient records to document that completed work met the design specifications and acceptance criteria. The inspectors performed independent inspections and measurements prior to concrete placement to determine whether the as-built concrete dimension of the installed containment sump was in accordance with the final design, the ITAAC, and UFSAR.

The inspectors observed measuring and surveying activities of the containment sump after the concrete had been placed and cured to determine whether:

- the containment sump shifted or moved during the concrete placement;
- measurements were taken at the required locations;
- the final as-built concrete dimension was in accordance with the final design, the ITAAC, and UFSAR;
- the activities were conducted in accordance with the licensee's quality assurance program requirements;
- personnel performing surveys or measurements were qualified and knowledgeable;
- equipment was properly maintained, calibrated, or certified by a qualified M&TE program;
- field data was correctly recorded and translated into permanent records; and

- any identified deviations were documented in accordance with the licensee's quality assurance program.

Additionally, the inspectors reviewed measuring and surveying records associated with the containment sump to determine whether they were complete, accurate, and documented that the as-built configuration met the design specifications and the acceptance criteria.

The inspectors reviewed nonconformances associated with the installation and surveying of the containment sump to verify:

- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program;
- any differences between the as-built and as-designed SSCs were documented and dispositioned in accordance with approved modification or change procedures; and
- the nonconformances were resolved and their dispositions had adequate technical bases.

b. Findings

No findings were identified.

IMC 2504, Inspection of Construction Programs

1P01 Quality Assurance Implementation, Appendix 3, Inspection of Criterion III – Design Control (IP35007)

a. Inspection Scope

The inspectors reviewed a sample of E&DCRs to determine whether these changes were performed in accordance with procedure number APP-GW-GAP-420, "Engineering and Design Coordination Report." The inspectors evaluated these design changes for conformance to 10 CFR Part 50, Appendix B, Criterion III, "Design Control," and Supplement 3S-1, "Supplementary Requirements for Design Control," of ASME NQA-1-1994. The inspectors also reviewed the licensing impact determination screening associated with each of these design changes to determine whether the change was properly evaluated against the current licensing basis as described in the Vogtle Unit 3 and Unit 4 updated final safety analysis report (UFSAR) and was performed in accordance with procedure APP-GW-GAP-420. Furthermore, the inspectors reviewed these E&DCRs to determine whether each change received the proper level of engineering review and was incorporated into all affected documents.

b. Findings

No findings were identified.

1P02 Quality Assurance Implementation, Appendix 12, Inspection of Criterion XII – Control of Measuring and Test Equipment (IP35007)

a. Inspection Scope

The inspectors performed direct observations, interviewed personnel, and reviewed documents to determine if the licensee had effectively implemented approved procedures for the control of measuring and test equipment (M&TE). The inspectors selected a sample of active M&TE located in the field to determine if the M&TE was identified by a unique number, tagged to indicate current calibration status, and properly stored and handled in the field in accordance with applicable implementing documents. The inspectors reviewed calibration documentation of the selected M&TE to determine whether the M&TE was calibrated in accordance with the specified calibration interval, accuracy was within specified limits, documentation of the test or inspection results were traceable to the M&TE by the unique number, and the tags or labels were in agreement with the calibration documentation. The inspectors reviewed the following M&TE:

- 68782 (Serial No. 1302396), Leica Geosystems Survey Total Station
- DB-0007, Dowel Pin Gap Gage
- PL-0007, Bevel Angle Gage
- S6-0139, Ruler
- 121000448, Clamp Meter
- Lot No. 12434, Tempilstik Temperature Indicator
- Lot No. 12247, Tempilstik Temperature Indicator

b. Findings

No findings were identified.

1P03 Quality Assurance Implementation, Appendix 15, Inspection of Criterion XV – Nonconforming Materials, Parts, or Components (IP35007)

a. Inspection Scope

The inspectors reviewed a sample of N&D reports to determine whether the conditions were adequately reviewed and accepted, rejected, repaired, or reworked in accordance with the QA program implementing documents for the control of nonconforming material, parts, and components. The inspectors compared these N&D reports to Section 15, “Nonconforming Materials, Parts, or Components,” of the CB&I quality assurance program (CMS-720-03-PL-00020-A, Revision 0) and CB&I procedure QS 15.1, “Nonconformance & Disposition Report,” revision 5.

The inspectors selected a sample of nonconforming items that the licensee either rejected, repaired, reworked, or accepted through evaluation. During the review of this sample of N&D reports, the inspectors determined if the reports properly identified the nonconforming items, and if the systems for initiating, processing, and closing nonconformances were adhered to. Moreover, the inspectors reviewed the above N&D report to determine the following:

- reportability screening and evaluations under 10 CFR Part 21 and 10 CFR 50.55(e) were performed;
- the disposition, such as use-as-is, reject, repair, or rework of nonconforming items were properly identified and documented;
- adequate technical justification for the acceptability of a nonconforming item, dispositioned as repair, or use-as-is was appropriately documented;
- nonconformances to design requirements dispositioned as use-as-is or repair were subjected to design control measures commensurate with those applied to the original design;
- the as-built records properly reflected the accepted deviation, if applicable;
- controls were implemented to preclude the inadvertent use of nonconforming items and that nonconforming items were marked or tagged and segregated; and
- repaired or reworked items were reexamined in accordance with applicable procedures and with the original acceptance criteria unless the disposition had established alternate acceptance criteria.

b. Findings

No findings were identified.

1P04 Quality Assurance Implementation, Appendix 16, Inspection of Criterion XVI – Corrective Action (IP35007)

a. Inspection Scope

Daily Corrective Action Program Review

As part of the various inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during inspection activities and plant status reviews to verify they were being entered into the licensee's corrective action program at an appropriate threshold. The inspectors verified that adequate attention was being given to timely corrective actions and any adverse trends were identified and addressed. The inspectors reviewed corrective action program procedures and evaluated implementation of these procedures to determine whether the procedures contained guidance for the following attributes:

- classification, prioritization, and evaluation for reportability (i.e., 10 CFR 50.55(e)) of conditions adverse to quality;
- complete and accurate identification of the problem in a timely manner commensurate with its significance and ease of discovery;
- screening of items entered into the Corrective Action Program (CAP) to determine the proper level of evaluation;
- identification and correction of: procurement documents errors; deviations from procurement document requirements; defective items; poor workmanship; incorrect vendor instructions; significant recurring deficiencies at both vendor shops and on site; and generic procurement related deficiencies;
- identification and correction of design deficiencies;
- consideration of extent of condition, generic implications, common cause, and previous occurrences;

- classification and prioritization of the resolution of the problem commensurate with its safety significance;
- identification of corrective actions that are appropriately focused to correct the problem;
- identification of root and contributing causes, as well as actions to preclude recurrence for significant conditions adverse to quality; and
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue;
- provisions for escalating to higher management those corrective actions that are no adequate or not timely; and
- conditions adverse to quality were trended to proactively identify potential adverse trends and potential common cause problems, and the trending results were reported to management.

Routine Review of Items Entered into the Corrective Action Program

On a routine basis, the inspectors screened a sample of issues entered into the licensee and the engineering, procurement, and construction (EPC) consortium's corrective action programs. The inspectors attended several weekly management review committee meetings at the site and held discussions with licensee and EPC consortium personnel responsible for the screening and correction of the issues to determine if:

- the licensee and the EPC consortium were identifying equipment, human performance, and program issues at an appropriate threshold and were entering the issues into their respective corrective action programs;
- the licensee and the EPC consortium appropriately classified the issues and took appropriate short-term corrective actions;
- conditions adverse to quality were controlled in accordance with each company's quality assurance program; and
- potential adverse trends were appropriately identified and corrected by the licensee or their contractors.

The inspectors also observed the Interface of Corrective Action Processes Corrective Action Review Board meeting held on October 27, 2014; and the Corrective Action Review Board meeting held on October 28, 2014.

Selected Issues for Follow-Up Inspection

Based on the inspectors' routine screening of corrective action records, the inspectors selected a sample of issues entered in the corrective action programs to determine if the handling of these issues was consistent with the applicable quality assurance program requirements and 10 CFR Part 50, Appendix B. Specifically, the inspectors reviewed the corrective action records listed in the documents reviewed section of this report. The inspectors reviewed these corrective action documents to determine if:

- conditions adverse to quality were promptly identified and corrected;
- classification and prioritization of the resolution of the problem was commensurate with its safety significance;

- for significant conditions adverse to quality: the cause was determined, corrective actions were taken to prevent recurrence, and the cause and corrective actions taken were documented and reported to appropriate levels of management;
- conditions were appropriately screened;
- the licensee and their contractors properly evaluated and reported the condition in accordance with 10 CFR 50.55(e) and 10 CFR 21;
- the identification and correction of design deficiencies were being adequately addressed;
- extent of condition was being adequately addressed; and
- appropriate corrective actions were developed and implemented.

b. Findings

No findings were identified.

1P05 Quality Assurance Implementation, Appendix 18, Inspection of Criterion XVIII – Audits (IP35007)

a. Inspection Scope

The inspectors reviewed a sample of CB&I internal quality assurance surveillances to determine whether these surveillances were performed in accordance with the CB&I quality assurance program and Nuclear Quality Assurance Directive (QAD) 18.12, "Quality Assurance Surveillances," revision 02.02. The inspectors verified that any conditions adverse to quality, identified during the surveillance, were promptly entered into the CB&I corrective action program. Furthermore, the inspectors verified that the surveillance reports were adequate to furnish evidence of an activity affecting quality, and that the surveillance reports were issued within the time frames established by QAD 18.12. The inspectors reviewed the following surveillance reports:

- S-132175-2014-108, "Procurement," 10/13/2014 through 10/23/2014;
- S-132175-2014-111, "Review Implementation of the Causal Analysis Program," 10/16/2014 through 11/3/2014;
- S-132175-2014-109, "Nonconformance Program / Tagging," 10/28/14;
- S-132175-2014-113, "Nonconformance Program / Tagging," 10/31/14; and
- S-132175-2014-112, "Nonconformance Program / Tagging," 10/30/14.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES (OA)

4OA6 Meetings, Including Exit

.1 Exit Meeting.

On January 6, 2015, the inspectors presented the inspection results to Mark Rauckhorst, Vogtle 3 & 4 Construction Vice President, along with other licensee and consortium staff members. The inspectors stated that no proprietary information would be included in the inspection report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensees and Contractor Personnel

J. Beasley, CB&I QA
G. Couture, WEC Licensing Director
V. Floyd, SNC CAP
D. Fujiyoshi, CB&I Licensing
D. Jones, SNC VP, Technical Compliance
B. Lowery, SNC QA
C. Morrow, SNC Licensing
T. Saunders, SNC Supplier Compliance
P. Shaw, WEC Licensing
J. Simmons, CB&I VP & Deputy Project Director
J. Tull, WEC QA Manager
J. Watkins, WEC Licensing
F. Willis, SNC Licensing Supervisor
M. Yox, SNC Regulatory Affairs Director

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Type	Status	Description
05200025/2014005-01	NCV	Open	Failure to Establish Qualified Welding Procedures In Accordance With AWS D1.1:2000 (Section 1A12 & 1A21)

LIST OF DOCUMENTS REVIEWED

Section 1A01

Closure Head

WEC, ASME Code Data Report Form N-1 for Vogtle Unit 3 Reactor Vessel, Serial Number SV3-RCS-MV-01, and National Board No. 109 with "N" stamped nameplate for the closure (top) head, eight QuickLoc instrument nozzles, 69 latch housings and CRDM nozzles, and vent pipe

Doosan, ASME Code Data Report Form N-2 for Vogtle Unit 3 Reactor Vessel Assembly, Part Serial Number N07049-10102 with Doosan number DN-3199 for nuclear part "NPT" stamped nameplate of the closure head, vent pipe, QIN instrument nozzles, latch housings and nozzles, and rod travel housings

Doosan, six ASME Code Data Report Forms N-2 for Vogtle Plant Unit 3 latch housing S/N 1458 (NPT S/N 4531) welded to nozzle S/N 264 (NPT S/N 4532); latch housing S/N 1444 (NPT S/N 4503) welded to nozzle S/N 250 (NPT S/N 4504); and latch housing S/N 1408 (NPT S/N 4431) welded to nozzle S/N 214 (NPT S/N 4432) with traceability to three CRDM location numbers 6 (H10), 22 (H12), and 58 (H14), respectively

Doosan, QP-VGRV90, Quality Plan AP-1000 Projects Vogtle Unit 3 & 4 Reactor Vessel Closure Headed Welded Assembly (15 pages), Rev. 6, dated 05/03/2013
Doosan, WM-VG34AP1000-201RV, Weld Map of Closure Head Assembly (6 pages), Rev. 0, dated 11/17/2009
Doosan, VG3-RV-VSL-001, Tabulation of Material (8 pages), dated 10/12/2012
Doosan, WJL-VOGTLE#3-01, Weld Joint Location/Weld Filler Material Joint Locations and Associated QP (10 pages)
Japan Steel Works (JSW), CMTR JQA-09-179, dated 10/28/2009 (includes the Nikko Inspection Services CMTR MET-09-134, dated 10/16/2009, for testing services), ASME SA-508, Grade 3, Class 1, Heat-No. 09W22-1-1 for the closure head of the AP1000 Vogtle 3 reactor vessel
JSW, Dwg.-No. N149517-M, Rev. 1, closure head detail of tensile and impact test coupons
JSW, IR-No. 7044-1-16, Record of Ultrasonic Examination, Closure Head, dated 9/11/2009
JSW, IR-No. 7040-1-18, Record of Magnetic Particle Examination, Closure Head, dated 9/26/2009
JSW, IR-No. 7040-1-20-3, Record of Dimensional Inspection & Visual Examination, Closure Head, dated 10/16/2009
Doosan, 100761142-520A, -520B, -520C, and -520D, Inspection Records of Ferrite Number Measurement, for the stainless steel cladding on the closure head flange and internal surfaces, all dated 3/30/2010
Doosan, P100721-022-001, Report of Liquid Penetrant Examination, on the closure head flange and internal surfaces after a PWHT, dated 7/22/2010
Doosan, U100721-024-001, Report of Ultrasonic Examination, for the stainless steel cladding on the closure head flange and internal surfaces after a PWHT, dated 7/23/2010
Doosan, U100820-002-001, Report of Ultrasonic Thickness Measurement, for the stainless steel cladding on the closure head flange and internal surfaces, dated 8/21/2010
Doosan, U100820-070-001, Report of Ultrasonic Thickness Measurement, for the stainless steel cladding on the closure head flange keyway, dated 10/19/2010
Doosan, PWHT-11-064A/B, Heat Treatment Records, Closure Head, dated 8/27/11
Doosan, P120706-007-001, Report of Liquid Penetrant Examination, on the internal surface of the closure head after hydrostatic testing, dated 7/12/2012
Doosan, M120706-004-001, Report of Magnetic Particle Examination, on the outside accessible surface of the closure head after hydrostatic testing, dated 7/12/2012
Soudakay, CMTR 09044, Heat-Nos. 95781 and 95782, SFA-5.9, EQ308L and EQ309L, respectively, 25.4 X 0.5 mm strip, dated 5/17/2009, for cladding of the closure head
Soudakay, CMTR 09046, Heat-Nos. 95781 and 95782, SFA-5.9, EQ308L and EQ309L, respectively, 50.8 X 0.5 mm strip, dated 5/17/2009, for cladding of the closure head
Doosan, CMTR NQC-09-090, Heat-Nos. G740306 and H540200, dated 10/22/2009, with Chosun Welding Co., Ltd., CMTR TR-P0829-2, dated 11/25/2008, SFA-5.4, E308L-16 and E309L-16, respectively, of 4 mm diameter, for cladding of the closure head
Doosan, CMTR NQC-10-036, Heat-No. H01874, dated 3/25/2010, with Chosun Welding Co., Ltd., CMTR TR-P0810-2, dated 7/29/2008, SFA-5.9, ER308L of 2.4 mm diameter, for cladding of the closure head
Doosan, two WPSs A-A-0308-149 (Rev. 1, dated 8/14/2008) and WPS A-A-0308-151 (Rev. 3, dated 8/18/2008), both with supporting PQR QA-A-0308-127 for machine stainless steel strip cladding using SAW
Doosan ASME Section IX welder and welding operator performance qualification records of AJQ, BMW, BTT, BVS, BVV, BWJ, BWK, BWP, and UCS for stainless steel cladding

<u>Latch Housing Assemblies</u>
Patriot Forge Inc., CMTRs K0674-55 and -43, Heat-No. 48828, ASME SA-182 Grade F304LN, dated 5/21/2010 and 5/14/2010, for latch housing S/N 1458 and 1444 of CRDM traceable to

location numbers 6 (H10) and 22 (H12), respectively, Ultrasonic and Liquid Penetrant Examination Reports, and Westmoreland Mechanical Testing and Research Report 0-56201 for ASTM A262-02a (2008) Practice E for corrosion testing, dated 4/1/2010

Patriot Forge Inc., CMTR K0674-7, Heat-No. 48935, ASME SA-182 Grade F304LN, dated 5/14/2010, for latch housing S/N 1408 of CRDM traceable to location number 58 (H14), Ultrasonic and Liquid Penetrant Examination Reports, and Westmoreland Mechanical Testing and Research Report 0-55896 for ASTM A262-02a (2008) Practice E for corrosion testing, dated 3/27/2010

Patriot Forge Inc., CMTR K0736-7, Heat-No. 2169 9 8255, ASME SB-166 UNS N06690, dated 5/14/2010, for latch housing nozzle S/N 264 of CRDM traceable to location number 6 (H10) via WEC identification numbers 10-0518 and MT22700, and Ultrasonic Examination Report

Patriot Forge Inc., CMTR K0736-47, Heat-No. 2169 0 8259, ASME SB-166 UNS N06690, dated 4/21/2010, for latch housing nozzle S/N 250 of CRDM traceable to location number 22 (H12) via WEC identification numbers 10-0409 and MT22663, and Ultrasonic Examination Report

Patriot Forge Inc., CMTR K0736-23, Heat-No. 2169 9 8256, ASME SB-166 UNS N06690, dated 4/21/2010, for latch housing nozzle S/N 214 of CRDM traceable to location number 58 (H14) via WEC identification numbers 10-0408 and MT22662, and Ultrasonic Examination Report

Canopy Seal Welds

Doosan, WPS A-T-0808-472, Rev. 1, dated 4/22/2011, with supporting PQR QA-T-0808-198 for manual and machine welding canopy seal welds using GTAW

Doosan, WPS A-T-0808-473, Rev. 3, dated 4/22/2011, with supporting PQR QA-T-0808-199 for manual welding canopy seal welds using GTAW

Chosun Welding Co., Ltd., CMTR TR-0950, Heat-Nos. H01999 and A192296, SFA-5.9, ER309L and 308L, respectively, both of 1.2 mm diameter, dated 10/28/2008, for canopy seal welds

Chosun Welding Co., Ltd., CMTR TR-P1113, Heat-No. A27339, SFA-5.9, ER308L, 0.9 mm diameter, dated 04/07/2007, for canopy seal welds

Doosan ASME Section IX and III (NB-4360) welding operator qualification records of BSX, BTN, BVE, BVK, and BWF for canopy seal welds

Doosan, P120720-041-001, Report of Liquid Penetrant Examination, on canopy seal welds 104-10-6 for CRDM 6 (H10) latch housing to rod travel housing after hydrostatic testing, dated 7/23/2012

Doosan, P120809-046-001, Report of Liquid Penetrant Examination, on canopy seal welds 104-10-22 for CRDM 22 (H12) latch housing to rod travel housing after hydrostatic testing, dated 8/10/2012

Doosan, P120806-026-001, Report of Liquid Penetrant Examination, on canopy seal welds 104-10-58 for CRDM 58 (H14) latch housing to rod travel housing after hydrostatic testing, dated 8/10/2012

QuickLoc Instrument Nozzles

H.K. Metal Co. Ltd., CMTR HKQ-090630-012, Heat-No. E90130 and Lot-No. AYFY, ASME SA-182, Grade F304L/F304, dated 2/7/2012; Korea NDE Co. Ltd. PT and UT Report Nos. KNDE-KH-HK-PT09-159 and -U09-158; Korea Testing and Research Institute ASTM A262-02 Practice A and E for corrosion testing

Kobe Steel Ltd., CMTR FN-0478, Heat-No. FF7625612721 and FF0600112720, SFA-5.9, ER309L and ER308L, 1.2 mm diameters, dated 10/29/2010, for internal surface weld metal cladding of QIN

Doosan, P110829-044-001, Report of Liquid Penetrant Examination, on the inside cladding areas of closure head to all eight QuickLoc nozzles after postweld heat treatment (PWHT), dated 8/30/2011

Doosan, U111202-025-001, Report of Ultrasonic Examination, on the internal stainless steel cladding of all eight QINs after machining, dated 12/3/2011

Vent Pipe

Volinox Nucleaire, CMTR VN 09006 (31 pages), Heat-No. WQ202, ASME SB-167 UNS06690, dated 10/28/2009, for closure head vent pipe with liquid penetrant examination report

Closure Studs, Nuts, and Washers

Doosan, CMTR CN2011020010, Heat-No. 2B08021 with material identification numbers F09338 010 through 050, ASME SA-540, Grade B24, Class 3, dated 3/10/2011, for closure head stud forging with Jinsung C&I Heat Treatment Report JSQA100918-01 and Hardness Data Record JSH101004-001, and Reports of Magnetic Particle and Ultrasonic Examinations M101224-064-001 and U101225-014-001, respectively

Doosan, CMTR CN2011020021, Heat-No. 2B08021 with material identification numbers F09339 010, 030 through 060, ASME SA-540, Grade B24, Class 3, dated 3/10/2011, for closure head nut forging with Jinsung C&I Heat Treatment Report JSQA101002-01 and Hardness Data Record JSH101004-003, and Reports of Liquid Penetrant, Magnetic Particle and Ultrasonic Examinations P101227-060-001, M101227-107-001 and U101227-096-001, respectively

Doosan, CMTR CN2011020022, Heat-No. 2B08021 with material identification numbers F09339 070, 090 through 110, 130, ASME SA-540, Grade B24, Class 3, dated 3/10/2011, for closure head washer forging with Jinsung C&I Heat Treatment Report JSQA101002-04 and Hardness Data Record JSH101004-003, and Reports of Liquid Penetrant, Magnetic Particle and Ultrasonic Examinations P101227-061-001, M101227-108-001 and U101227-097-001, respectively

Section 1A02

WEC Dwg. D-AA-11110-M01, Closure Head Assembly, Rev. 4
WEC Dwg. D-AA-11103-M01, Vogtle # 3 Closure Head As-Built, Rev. 0
WEC Dwg. D-AA-11103-M02, Vogtle # 3 Closure Head As-Built, Rev. 0
WEC Dwg. D-AA-11103-M03, Vogtle # 3 Closure Head As-Built, Rev. 0
WEC Dwg. APP-MV01-V6-151, QuickLoc Instrument Nozzle, Rev. 5
WEC Dwg. APP-MV01-V6-152, QuickLoc Instrument Nozzle, Rev. 5
WEC Dwg. APP-MV11-V2-090, Latch Housing Assembly CRDM Model L106AP, Rev. 5
WEC Dwg. APP-MV11-V8-002, Control Rod Drive Mechanism Installation L106AP, Rev. 3
Doosan ASME Section IX welder and welding operator performance qualification records of ACO, AJQ, AMJ, AOB, APM, BES, BPZ, BSY, BTN, BVE, BVK, BVS, BVT, BWJ, BWK, BWM, BWP, CDK, EEK, EPE, EYY, and UTO

Vent Pipe and CRDM J-grooves

Doosan, CMTR NQC-11-063, dated 6/13/2011, with Special Metals CMTR 093344002, Heat-No. NX7536TK, Rev. 1, dated 10/15/2010, SFA-5.14, Filler Metal 52M (ERNiCrFe-7A) of 2.4 mm diameter, for buttering CRDM J-grooves on closure head (using Code Case 2142-2)

Doosan, CMTR NQC-11-068, dated 10/18/2011, with Special Metals CMTRs 093335001 and 093335002, Heat-No. NX7536TK, Rev. 0, dated 8/24/2010, SFA-5.14, Filler Metal 52M (ERNiCrFe-7A) of 1.2 mm diameter, for buttering CRDM J-grooves on closure head (using Code Case 2142-2)

Special Metals CMTRs 090371001, Lot-No. 591613, Rev. 0, dated 4/2/2010, SFA-5.11, Filler Metal 152 (ENiCrFe-7) of 3.2 mm diameter, for buttering vent pipe J-groove on closure head

Special Metals CMTRs 090376001, Lot-No. 591613, Rev. 1, dated 4/6/2010, SFA-5.11, Filler Metal 152 (ENiCrFe-7) of 3.2 mm diameter, for buttering CRDM J-grooves and vent pipe on closure head

Special Metals CMTRs 097971002, Heat-No. NX7859TK, Rev. 4, dated 2/15/2011, SFA-5.14, Filler Metal 52M (ERNiCrFe-7A) of 0.9 mm diameter, for CRDM J-grooves on closure head and QuickLoc groove

Special Metals CMTRs 097971003 and 097971004, Heat-No. NX7859TK, Rev. 4 and 3, dated 2/22/2011, SFA-5.14, Filler Metal 52M (ERNiCrFe-7A) of 0.9 and 1.2 mm diameter, respectively, for CRDM J-grooves on closure head and QuickLoc groove

Doosan WPS A-T-4343-173, Rev. 1, dated 04/05/2010, with supporting PQR QA-T-4343-061 for machine GTAW of closure head J-grooves

Doosan WPS A-T-4343-174, Rev. 1, dated 04/05/2010, with supporting PQR QA-T-4343-061 for manual GTAW of closure head J-grooves

Doosan, P110223-001-001, Report of Liquid Penetrant Examination, on the machined surface of penetration # 2 thru 69 and vent pipe closure head J-grooves, and eight QIN inside cladding and buttering, dated 2/23/2011

Doosan, P110223-002-001, Report of Liquid Penetrant Examination, on the machined surface of closure for penetration # 1 (Joint-No. 303-11) vent pipe J-groove, dated 2/23/2011

Doosan, U110825-014-001, Report of Ultrasonic Examination, from clad inside surface and J-groove buttering area for nozzles 1 thru 69, and QIN inside cladding and Inconel buttering after PWHT, dated 8/30/2011

Doosan, P111020-032-001, Report of Liquid Penetrant Examination, on all internal machined surface of J-groove and vent pipe, dated 10/22/2011

Doosan, P111216-023-001, Report of Liquid Penetrant Examination, on bent area and surface to be J-groove welded on the vent pipe (including machined area), dated 12/20/2011

Doosan, P111220-028-001 and -029-001, Report of Liquid Penetrant Examination, on first layer and half-layer weld areas of vent pipe J-groove welding joint-no. 102-10, respectively, both dated 12/21/2011

Doosan, P120312-025-001, Report of Liquid Penetrant Examination, on final layer weld area of vent pipe J-groove welding joint-no. 102-10, dated 03/13/2012

Doosan, P111228-027-001, -028-001, and -030-001, Report of Liquid Penetrant Examination, on the root pass weld area for closure head to latch housing nozzle of Joint-Nos. 02 thru 13, 14 thru 37, and 01 and 50 thru 69, respectively, dated 12/29/2011

Doosan, P120105-026-001, -028-001, and -030-001, Report of Liquid Penetrant Examination, on the 1st 1/4" weld area of J-groove welding of Joint-Nos. 02 thru 13, 14 thru 37, and 50 thru 69, respectively, dated 1/6/2012

Doosan, P120113-026-001, -027-001, and -029-001, Report of Liquid Penetrant Examination, on the 2nd 1/4" weld area of J-groove welding of Joint-Nos. 02 thru 10, 14 thru 22, and 50 thru 58, respectively, dated 1/14/2012

Doosan, P120120-037-001, -038-001, and -040-001, Report of Liquid Penetrant Examination, on the 3rd 1/4" weld area of J-groove welding of Joint-Nos. 02 thru 10, 14 thru 22, and 50 thru 58, respectively, dated 1/21/2012

Doosan, P120131-044-001, -046-001, and -051-001, Report of Liquid Penetrant Examination, on the 4th 1/4" weld area of J-groove welding of Joint-Nos. 02 thru 13, 14 thru 37, and 50 thru 69, respectively, dated 2/1/2012

Doosan, P120207-006-001 and -008-001, Report of Liquid Penetrant Examination, on the 5th 1/4" weld area of J-groove welding of Joint-Nos. 14 thru 37 and 50 thru 69, respectively, dated 2/8/2012

Doosan, P120209-005-001 and P120213-018-001, Report of Liquid Penetrant Examination, on the 6th and 7th 1/4" weld area of J-groove welding of Joint-Nos. 50 thru 69, respectively, dated 2/11/2012 and 2/14/2012, respectively

Doosan, P120312-031-001, Report of Liquid Penetrant Examination, of J-groove welding for Joint-Nos. 01 thru 69 after postweld heat treatment, dated 3/13/2012

Latch housing to nozzle DSM

WEC – Newington, Weld Map No. WM-2404840-01 Rev. 0, CRDM Latch Housing Assembly M/N APP-MV11-V2-090 (4 pages)

WEC – Newington, Cross Index – Certified Material Test Reports – Welding (2 pages), and Material Certification/Test Report Cover Sheet for WEC Identification No. 2112 with Special Metals, Certificate of Compliance and CMTR 07341800, Heat-No. NX74W8TW, SFA-5.14, Filler Metal 52M (ERNiCrFe-7A) of 0.045" diameter, for latch housing to nozzle DSM weld

WEC – Newington, Detailed WPS I-20-8.43-6, Rev. 2, dated 04/01/09, with supporting PQR GTA-8.43-1G-2, for latch housing to nozzle DSM weld

WEC – Newington, Welder/Welding Operator Performance Qualification Test Records for GTAW welding operators 39 and 96 for latch housing to nozzle DSM weld

WEC – Newington, Final Radiographic Inspection Report No. NDE-014382 (5 pages) with Shooting Sketch, dated 6/25/2011, for assembly S/N 1458 with production order 40046388 for latch housing to nozzle DSM weld with CRDM location number 6 (H10)

WEC – Newington, Final Radiographic Inspection Report No. NDE-013576 (5 pages) with Shooting Sketch, dated 4/30/2011, for assembly S/N 1444 with production order 40046240 for latch housing to nozzle DSM weld with CRDM location number 22 (H12)

WEC – Newington, Final Radiographic Inspection Report No. NDE-014432 (5 pages) with Shooting Sketch, dated 6/28/2011, for assembly S/N 1408 with production order 40045357 for latch housing to nozzle DSM weld with CRDM location number 58 (H14)

WEC – Newington, Hydrostatic Test Report Nos. NDE-014981, NDE-014229, and NDE-015035 for assemblies S/N 1458, 1444, and 1408 for latch housing to nozzle DSM weld with CRDM location numbers 6 (H10), 22 (H12), and 58 (H14), respectively

QuickLoc Instrument Nozzles

Chosun Welding Co., Ltd., CMTR TR-P0951, Lot-No. SA06378, SFA-5.5, E8016-G, 4 and 5 mm diameters, dated 11/25/2009, for weld metal buildup of QINs

Chosun Welding Co., Ltd., CMTR TR-P0951-1, Lot-No. SA06378, SFA-5.5, E8016-G, 4 mm diameter, dated 01/29/2010, for weld metal buildup of QINs

Chosun Welding Co., Ltd., CMTR TR-P1021-3, Lot-No. SA06378, SFA-5.5, E8016-G, 5 mm diameter, dated 4/13/2010, for weld metal buildup of QINs

Kiswel, CMTR T10-DS14, Heat-No. M21673, SFA-5.28, ER80S-D2, 1.2 mm diameter, dated 7/12/2010, for weld metal buildup of QINs

Doosan WPS A-T-0303-145, Rev. 1, dated 03/23/2010, with supporting PQR QA-T-0303-023 for machine hotwire weld metal buildup of the QIN using GTAW

Doosan WPS A-M-0303-156, Rev. 1, dated 11/03/2009, with supporting PQR QA-M-0303-043 for manual weld metal buildup of the QIN using SMAW

Doosan, P110519-020-001, Report of Liquid Penetrant Examination, on all machine surface of QINs including weld edge preparation after machining (inside diameter and outside diameter), dated 5/20/2011

Doosan, M101018-051-001, Report of Magnetic Particle Examination, on five layer weld buildup, including integrated head package (IHP) support lug & lift lug welds, and thermocouple removal areas of closure head after PWHT, dated 10/19/2010

Doosan, P110628-005-001, Report of Liquid Penetrant Examination, on all machine surface of QINs including weld edge preparation after machining, dated 6/29/2011

Doosan, CMTR NQC-11-242, dated 09/23/2011, with Special Metals CMTR 095862001, Heat-No. NX8040TK, Rev. 1, dated 11/11/2010, SFA-5.14, Filler Metal 52M (ERNiCrFe-7A) of 1.2 mm diameter, for J-grooves, and QIN buttering and groove welds (using Code Case 2142-2)

Doosan WPS A-M-0343-164, Rev. 0, dated 11/07/2008, with supporting PQR QA-M-0343-005 for Inconel buttering on QIN using SMAW
Doosan WPS A-T-0343-166, Rev. 0, dated 09/30/2010, with supporting PQR QA-T-0843-012 and -024 for machine hotwire Inconel buttering on QIN using GTAW
Doosan WPS A-T-0343-168, Rev. 0, dated 09/09/2009, with supporting PQR QA-TM-4343-103 for manual Inconel buttering on QIN using GTAW
Doosan WPS A-T-0343-174, Rev. 0, dated 10/01/2010, with supporting PQR QA-T-0843-012 and -024 for manual Inconel buttering on QIN using GTAW
Doosan WPS A-T-0843-135, Rev. 3, dated 12/06/2010, with supporting PQR QA-T-0843-023 for machine GTAW groove butt joint with Inconel for QIN
Doosan WPS A-T-0843-136, Rev. 2, dated 11/12/2010, with supporting PQR QA-T-0843-023 for manual GTAW groove butt joint with Inconel for QIN
Doosan, U110415-008-001, Report of Ultrasonic Examination, Joint-Nos. 101-15A thru H on buttering area of eight QINs, dated 4/18/2011
Doosan, P110603-023-001, Report of Liquid Penetrant Examination, Joint-Nos. 403-11A thru H on ground areas to be buttered of eight QIN Inconel buttering areas, dated 6/8/2011
Doosan, P110829-043-001, Report of Liquid Penetrant Examination, Joint-Nos. 405-11A thru H on the buttering areas of closure head to ground areas to be buttered of eight QIN Inconel buttering areas, dated 6/8/2011
Doosan, P110017-032-001, Report of Liquid Penetrant Examination, Joint-Nos. 405-11A thru H on the machined surface of QIN Inconel buttering for eight QIN, dated 10/18/2011
Doosan, P110202-029-001, Report of Liquid Penetrant Examination, Joint-Nos. 101-10A thru H on the QIN welding and machined area, dated 12/05/2011
Doosan, U111202-026-001, Report of Ultrasonic Examination, Joint-Nos. 101-10A thru H conducted from outside surface of QIN to QIN buildup, dated 12/05/2011
Doosan, R111202-043-001, Report of Radiographic Examination, Joint-Nos. 101-10A thru H groove welds of QIN, dated 12/06/2011
Doosan, U120703-030-001, Report of Ultrasonic Examination, Joint-Nos. 101-10A thru H conducted from outside surface of QIN to safe-end and QuickLoc Nozzle buildup areas after hydrostatic testing, dated 07/05/2012

Section 1A03

Lincoln Electric CMTR for lot 1115G, FCAW wire E91TG-H4, manufactured January 2013, procured under purchase order 792971 Rev. 2
JFE CMTR 5973-3, 5/13/2010
JFE CMTR 5973-7, 5/13/2010
JFE CMTR 5973-6, 5/13/2010
JFE UT Exam Report H22-141R1, 5/13/2010
JFE Job No. 5901003, Drawing No. 026R203, Ultrasonic Examination Procedure, Rev. 4
Seo Koatsu Kogyo, LTD CMTR G20818-031CM, Rev. 3
Seo Koatsu Kogyo, LTD CMTR G20818-032CM, Rev. 3
Seo Koatsu Kogyo, LTD CMTR G20818-040CM, Rev. 3
ASME Certificate MO-QSC-275, 3/29/2013
ASME N-2 Data Reports for Parts: IN-4754, IN-4760, IN-4755, and Part IN-4762, 2/21/2012
JFE CMTR 6011-1, 10/19/2009
IHI Purchase Specification for Plates SA-738 Gr. B, CB&I Services, INC, CB&I Project No. 165766, PO No. 490404, Southern Company Vogtle 3 & 4 CV, Rev 7

Section 1A04

CMTRs
S2 shell plate B3-B4 CMTR 6006-6
P30 insert plate CMTR 6004-2
S2 shell plate B3-B5-1 CMTR 6006-2
Shell plate B3-A12-1 CMTR 5995-4
Insert plate B3-A13-1 (p5/27/28) CMTR 6011-1
CMTR for weld filler metal heat M902228 and 1075G
Shell plate B3-B1 CMTR 6006-4
Insert plate B3-B1-32 CMTR 6007-3
Weld filler metal CMTR RINJQ-225-5-4

Welder Qualification Records
CB&I welder qualification records for welder ID #'s: 725 3016, 142, 582, and 723
IHI welder qualification records for welder ID# 2553

Welding Procedures & Procedure Qualification Records
CB&I welding procedures: E91TG-H4 Rev. 10, E9018M H4 R Rev. 8
CB&I welding procedure qualification records: 12690, 12691, 12723
CB&I welding procedure qualification records: 12690 12691 12723
IHI welding procedure I-11R3G Rev. 4
IHI welding procedure qualification record I-11Q7G

Reports
CB&I radiographic examination report U3-130
CB&I liquid penetrant examination report U3-054
CB&I radiographic examination report U2-103
IHI magnetic particle examination report MT-003-EP-B3-B1-32
IHI radiographic examination report RT-003-WB3-B1-1

Miscellaneous
Weld traveler for P30 insert plate to containment vessel weld B3-B
IHI Weld checklist WC-003-U3-LR-002 (11/16)
IHI weld traveler WL-003-WB3-B1~B14 (2/7)

Section 1A05

Certified Material Test Reports:
CMTR No. 6190-1 for Heat No. 5-1466 / Plate No. F7123 A, 08/05/2011
CMTR No. 6190-2 for Heat No. 5-1466 / Plate No. F6077 A, 07/25/2011
CMTR No. 6190-12 for Heat No. 6-8834 / Plate No. K9230 A, 11/14/2011
CMTR for Lot No. 1115G, 05/23/2013
CMTR for Lot No. 2H005T01, Rev. 2

Nondestructive Examination Reports:
Inspection Results of Ultrasonic Testing Report No. H23-177, 07/25/2011
Inspection Results of Ultrasonic Testing Report No. H23-191, 08/05/2011
Inspection Results of Ultrasonic Testing Report No. H23-257, 11/15/2011

Section 1A06

CB&I Welding procedure E91TG-H4 Rev. 10
CB&I Welding procedure qualification records 12690 & 12723
CB&I PQRs for welder IDs: 582, 723, 764, 725, 296, 295, 578, 491, 294, 369, 216, 689, 715, 5039, 142, 557, 3016, 419, 940 & 159
CB&I CMTRs: E91TG-H4 958E, E9018MH4R NNN020, ENi4 093096
Weld filler metal CMTRs: RINJQ-225-3-1, RINJQ-225-3-4, RINJQ-225-3-2
IHI CMTR G20818-012CM, Rev. 3
IHI CMTR G20818-021CM, Rev. 3
IHI CMTR G23452-043CM, Rev. 3
CB&I MT reports: U3-121, U3-122, U3-078, U3-080, U3-081A, U3-124, U3-129, U3-145, U3-175, U3-187, U3-199, U3-251
IHI MT reports: MT-003-EP-E23-AE-1, MT-003-AP-WE23-AE-N, MT-003-RP-WF13-A-N, MT-003-BG-WF13-A-N, MT-003-BP-WF13-A-N, MT-003-AP-WF13-A-N, MT-003-EP-F13-A-J1~J5, MT-003-EP-WB3-E14~E16, MT-003-EP-WB3-E30~E32-N, MT-003-EP-WB3-E29-N, MT-003-EP-WB3-N-S, MT-003-EP-WB3-E20~E26-N, MT-003-EP-WB3-E27-N, MT-003-EP-WB3-P34,35N-P, MT-003-EP-WB3-P23-N-P, MT-003-EP-3-P11-N, MT-003-EP-WA3-P11-N, MT-003-AP-WB3-E27~E29-N, MT-003-AP-WB3-P21-N, MT-003-AP-WB3-E20~E26-N, MT-003-AP-WB3-E27~E29-N, MT-003-AP-WB3-P34,35N, MT-003-AP-WB3-P23-N, MT-003-AP-WA3-P11-N
CB&I leak test reports: U3-013, U3-007, U3-005, U3-030
CB&I RT reports: U3-034, U3-014, U3-024, U3-037
RT film for weld B4-B12, intervals from 0 to 9
IHI UT reports: UT-003-AP-E23-AE-1, UT-003-AP-WB3-P23-N, UT-003-BP-WA3-P11-N, UT-003-AP-WA3-P11-N
IHI welder qualification records for welder ID's: W-0397, W-0430, W-1536, W-2435,
IHI heat treatment record 003-SRB-013
IHI welding procedure I-11R2G, Rev. 3
IHI PWRs for welder ID's: W-2553, W-4030, W-1536, W-1963, W-2435, W-2535
IHI postweld heat treatment record 003-SRB-018A
IHI weld list WL-003-LHA-001
IHI radiography report RT-003-WF13-A-J1~5 SR
ASME N-2 Data Reports: Part IN-4749, IN-4754, IN-4760, IN-4755, IN-4751, IN-4762, 2/21/2012
IHI weld checklist WC-003-U3-LHA-001 (2/15), WC-003-U3-LR-001 (2/13), WC-003-U3-LR-001 (4/13), WC-003-U3-LR-001 (3/13), WC-003-U3-LR-002 (15/16), WC-003-U3-LR-002 (14/16), WC-003-U3-LR-002 (10/16), WC-WA3-P11-N-001 (2/5)
JFE CMTR 5909-1

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<u>CMTRs</u>
S2 shell plate B3-B4 CMTR 6006-6
P30 insert plate CMTR 6004-2
S2 shell plate B3-B5-1 CMTR 6006-2
shell plate B3-A12-1 CMTR 5995-4
insert plate B3-A13-1 (p5/27/28) CMTR 6011-1
CMTR for weld filler metal heat M902228 and 1075G
shell plate B3-B1 CMTR 6006-4
insert plate B3-B1-32 CMTR 6007-3

Weld filler metal CMTR RINJQ-225-5-4

Welder Qualification Records
CB&I welder qualification records for welder ID #'s: 725 3016, 142, 582, and 723
IHI welder qualification records for welder ID# 2553

Welding Procedures & Procedure Qualification Records
CB&I welding procedures: E91TG-H4 Rev. 10, E9018M H4 R Rev. 8
CB&I welding procedure qualification records: 12690, 12691, 12723
CB&I welding procedure qualification records: 12690 12691 12723
IHI welding procedure I-11R3G REV. 4
IHI welding procedure qualification record I-11Q7G

Reports
CB&I radiographic examination report U3-130
CB&I liquid penetrant examination report U3-054
CB&I radiographic examination report U2-103
IHI magnetic particle examination report MT-003-EP-B3-B1-32
IHI radiographic examination report RT-003-WB3-B1-1

Miscellaneous
Weld traveler for P30 insert plate to containment vessel weld B3-B
IHI Weld checklist WC-003-U3-LR-002 (11/16)
IHI weld traveler WL-003-WB3-B1~B14 (2/7)

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Procedures:
CMS-830-15-PR-45154, “Radiographic Examination ASME Section III, Division 1 – Subsection NE,” Rev. 1

Welding Procedure Specifications / Supporting Procedure Qualification Reports:
WPS E9018M H4 R, Rev. 8
PQR 12676, 11/18/2009
PQR 12677, 11/18/2009
PQR 12749, 04/07/2010
PQR 12750, 04/07/2010
WPS E91TG-H4, Rev. 10
PQR 12690, 12/17/2009
PQR 12691, 01/04/2010
PQR 12723, 03/08/2010
PQR 12757, 05/03/2010

Welder Performance Qualifications:
Welder No. 63013462, WPQ No. FC 2G3GU4G-3/4, 08/06/2011
Welder No. 63013016, WPQ No. FC MACH 3GU, 01/27/2012
Welder No. 63013016, WPQ No. FC MACH 4G, 06/11/2012
Welder No. 63013293, WPQ No. FC 2G3GU4G 3/4, 04/03/2013
Welder No. 63069312, WPQ No. FC 2G3GU4G-3/4, 01/20/2014
Welder No. 63070462, WPQ No. FC 2G3GU4G 3/4, 02/18/2014
Welder No. 1667106, WPQ No. FC MACH 3GU, 05/19/2014

Welder No. 63070462, WPQ No. F4 2G3GU4G-3/4, 06/11/2014
Welder No. 63069221, WPQ No. FC MACH 3GU, 07/29/2014

Certified Material Test Reports:
CMTR for Lot No. 1115G, 05/23/2013
CMTR for Lot No. 2H005T01, Rev. 2
CMTR No. 6190-1 for Heat No. 5-1466 / Plate No. F7123 A, 08/05/2011
CMTR No. 6190-2 for Heat No. 5-1466 / Plate No. F6077 A, 07/25/2011
CMTR No. 6190-12 for Heat No. 6-8834 / Plate No. K9230 A, 11/14/2011

Nondestructive Examination:
Inspection Results of Ultrasonic Testing Report No. H23-177, 07/25/2011
Inspection Results of Ultrasonic Testing Report No. H23-191, 08/05/2011
Inspection Results of Ultrasonic Testing Report No. H23-257, 11/15/2011
Report of Radiographic Examination - Nuclear No. U3-244, 11/18/2014
Report of Radiographic Examination - Nuclear No. U3-248, 11/18/2014
NDE Materials Verification List, 10/06/2014
Sensing and Inspection Technologies, I.D. No. 2515880, Inspected 07/2014
NDS Products, Serial No. 74681, Calibration Date: 10/13/2014
INDUSTREX AA400 Film, Reference No. 144 7324
X-OMAT Hydro Test Kit, Reference No. CAT 196 5847
Image Quality Indication (IQI) Batch No. 833/11 Certification of Compliance, Rev. 0
South Manufacturing Company, Inc. IQI Certification of Compliance, 06/08/2010
Starrett Micrometer 0-1", Serial No. 09179044, Calibration, 07/01/2014
Calibration and "Verification Check" Record for Step Wedge Calibration Film (I.D. 0308167), 06/25/2014

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JFE CMTR 5973-3, 5/13/2010
JFE CMTR 5973-7, 5/13/2010
JFE CMTR 5973-6, 5/13/2010
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CMTR for Lot No. 1115G, 05/23/2013
CMTR for Lot No. 2H005T01, Rev. 2
CMTR No. 6190-1 for Heat No. 5-1466 / Plate No. F7123 A, 08/05/2011
CMTR No. 6190-2 for Heat No. 5-1466 / Plate No. F6077 A, 07/25/2011
CMTR No. 6190-12 for Heat No. 6-8834 / Plate No. K9230 A, 11/14/2011

Procedures:
CMS-830-15-SP-12043, "Welding Material Specification for Low-alloy Steel Covered Electrode (AA9018)," Rev. 3

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CMTR 6134-10
CMTR 6103-02

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Drawings:
APP-CA01-S5-07001, “Containment Building Area 4, Module CA01 Submodule CA01_7, Isometric Views,” Rev. 7
APP-CA01-S5-08001, “Containment Building Area 3, Module CA01 Submodule CA01_8, Isometric Views,” Rev. 7
SV3-CA01-S4K-CV3136, “CA01-07 to CA01-08 Wall Weld Map,” Rev. 1

Weld Records:
Work Package No. SV3-CA01-S4W-CV2085, “CA01-07 Submodule Erection”
Welding Data Sheet for Weld No. SV3-CA01-S4K-CV3136-FW2
Welding Data Sheet for Weld No. SV3-CA01-S4K-CV3136-FW3
Welding Data Sheet for Weld No. SV3-CA01-S4K-CV3136-FW4
Welding Material Requisition No. 69852

Welding Procedure Specifications:
WPS2-1.1T71, Rev. 3 and Rev. 4
WPS2-1.1M72, Rev. 2 and Rev. 4
WPS2-1.1M02, Rev. 2

Procedure Qualification Records:
SP155, Rev. 1
SP156, Rev. 0
SP157, Rev. 0
SP158, Rev. 1 and Rev. 2
SP212, Rev. 0
SP214, Rev. 0
SP227, Rev. 0
SP124, Rev. 0 and Rev. 1
SP125, Rev. 0 and Rev. 1
SP144, Rev. 0 and Rev. 1

M&TE:
DB-0007, Dowel Pin Gap Gage
PL-0007, Bevel Angle Gage
S6-0139, Ruler

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SV3-CA05-GNR-000090, “CA05 Bent Stud #2 – Accessible (QTY 50)," Rev. 0
SV3-CA05-GNR-000091, “CA05 Bent Stud #2 – Non-accessible (QTY 95)," Rev. 0
SV3-CA05-S4K-CV2882, “CA05 Plate Numbers for Temporary Attachments,” Rev. 2

SV3-GW-S9-101, “AP1000 Structural Modules General Notes – VII,” Rev. 0
SV3-GW-S9-104, “AP1000 Structural Modules General Notes – IV,” Rev. 1
APP-CA00-GEF-058, “Stud Spacing – General Note 3.7.5 Requirements,” Rev. 0
APP-CA05-GEF-058, “Addition of Studs to Wall Module CA05,” Rev. 0
APP-1100-SUC-003, “General Design of Shear Studs for Structural Modules for Inside Containment and CA20,” Rev. 5
APP-CA05-01-03-110-0301, “Subassembly 03-110,” Rev. 1

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Drawings:
APP-GW-S9-101, "Structural Modules General Notes - VII," Rev. 0
APP-GW-S9-300, "Structural Modules Standard Weld Details," Rev. 6
APP-CA01-S5-04004, "Module CA01 Submodule CA01-04 Structural Outline Vertical Sections / Views I," Rev. 6
APP-CA01-S5-11007, "Module CA01 Submodule CA01-11 Structural Outline Vertical Sections / Views II," Rev. 1
APP-CA01-S5-19004, "Module CA01 Submodule CA01-19 Vertical Sections / Views I," Rev. 6
APP-CA01-S5-19009, "Module CA01 Submodule CA01-19 Structural Outline Vertical Sections / Views III," Rev. 1

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APP-CA01-GEF-850072, "CA01-19 Stud Clarification," Rev. 0
APP-CA01-GEF-850231, "CA01-19 Stud Pattern Clarification," Rev. 0
APP-CA01-GEF-850118, "CA01-04 Correct Pl Dim MK18 & 19," Rev. 0

Nonconformance & Disposition Report:
APP-CA01-GNR-850270, "SV3-CA01-19 (NCR14-1115) Paperclip Remnants Left in Place," Rev. 0

Construction Specifications:
GWS-2, "AWS D1.1 - Structural Steel General Welding Specification," Revision 2
GWS-5, "AWS D1.6 - Stainless Steel General Welding Specification," Revision 2
APP-VW20-Z0-023, "Welding Specification for ASTM A240 UNS S32101 Duplex Stainless Steel Plate," Revision 3

Work Packages:
SV3-CA01-S4W-CV0400, "CA01 SM01 Installation"
SV3-CA01-S4W-CV2080, "CA01-21 Submodule Erection"

Welding Procedure Specifications:
WPS2-1.1M73, Revision 3
WPS5-10H.10HT70, Revision 4
WPS5-10H.10HM70, Revision 7
WPS5-10H.10HM71, Revision 2

Welding Procedure Qualification Records:
SP107, Revision 1
SP129, Revision 2
SP130, Revision 0
SP132, Revision 0

SP136, Revision 0
SP394, Revision 0
D-2010-10, Revision 0

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Design Drawings (CA03-08 and CA03-09):
SV3-CA03-S5-08001, “Containment Building Module CA03 Submodule CA03_08 Isometric Views,” Revision 0;
SV3-CA03-S5-08002, “Containment Building Module CA03 Submodule CA03_08 Breakdown,” Revision 0;
SV3-CA03-S5-08003, “Containment Building Module CA03 Submodule CA03_08 Structural Outline Vertical Sections/Views,” Revision 0;
SV3-CA03-S5-08004, “Containment Building Module CA03 Submodule CA03_08 Structural Outline Horizontal Sections/Views,” Revision 0;
SV3-CA03-S5-08005, “Containment Building Module CA03 Submodule CA03 Submodule CA03_08 Structural Outline Specific Details,” Revision 0;
SV3-CA03-S5-08006, “Containment Building Module CA03 Submodule CA03_08 Structural Outline Specific Details II,” Revision 0;
SV3-CA03-S5-08007, “Containment Building Module CA03 Submodule CA03_08 Break-Down II,” Revision 0;
SV3-CA03-S5B-08001, “Containment Building Module CA03 Submodule CA03_08 Bill of Materials,” Revision 0
SV3-CA03-S5-09001, “Containment Building Module CA03 Submodule CA03_09 Isometric Views,” Revision 0;
SV3-CA03-S5-09002, “Containment Building Module CA03 Submodule CA03_09 Break-Down,” Revision 0;
SV3-CA03-S5-09003, “Containment Building Module CA03 Submodule CA03_09 Structural Outline Vertical Sections/Views,” Revision 0;
SV3-CA03-S5-09004, “Containment Building Module CA03 Submodule CA03_09 Structural Outline Horizontal Sections/Views,” Revision 0;
SV3-CA03-S5-09005, “Containment Building Module CA03 Submodule CA03 Submodule CA03_09 Structural Outline Specific Details,” Revision 0;
SV3-CA03-S5-09006, “Containment Building Module CA03 Submodule CA03_09 Structural Outline Specific Details II,” Revision 0;
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Calculations:
APP-CA03-SSC-001, “AP1000: CA03 Module Wall Welding Details Calculations,” Revision 1;
APP-1100-S2C-008, “AP1000 CA03 Structural Modules (IRWST) Steel Wall Qualification,” Revision 4;
APP-1100-S2C-014, “AP1000 CA03 Structural Module (IRWST) External Connections Qualification,” Revision 1;

SMCI Welding Records:
CA03-MODULE 09-T01
CA03-MODULE 09-T02
CA03-MODULE 09-T03

CA03-MODULE 09-Panel Angle Welding
CA03-MODULE 09-Studs and Couplers

Nonconformance Reports (CA03-08 and CA03-09):
APP-CA03-GNR-850073, “SMCI FLA-2014-086 UT Welds Accepted Without Proper Qualification,” Revision 0;
APP-CA03-GNR-850070, “SMCI, FLA-2014-054, CA03 Module 9, SV3, Nonconformance Use As Is,” Revision 0
APP-CA03-GNR-850071, “SMCI FLA-2014-083, Welding Post Qual Performed in Lieu of Pre Qual,” Revision 0;
APP-CA03-GNR-850072, “SMCI FLA-2014-075, Post Rather than Pre Qualified WPS,” Revision 0;

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CMTR for Heat 1030A

Welding Records:
In-process work package number SV3-CA03-S4W-CV2253, "CA03 Submodule Wall Assembly (07, 08, 09, 10, 11),"

Procedures:
CB&I procedure WQ-1, "Qualification of Welders and Welding Operators," Revision3
WPS5-10H.10HM70, Revision 8
WPS5-10H.10HT70, Revision 4
WPS5-8.10HT70, Revision 10
PQR 8-8-331, Rev. 0
PQR 8-8-335, Rev. 0
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PQR SP298, Rev. 1
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SV3-VW20-Z0-023, "Welding Specification for ASTM A240 UNS S32101 Duplex Stainless Steel Plate," Revision 3
CB&I procedure QAD-2.15, Qualification and Certification of Inspection and Test Personnel," Revision 3.A

CB&I Inspection Procedures:
F-S561-004, “Structural Weld Inspection-Modules, AWS D1.1/D1.6 and Fabrication, Submodule Assembly, and Module In Plant Installation Tolerances,” Revision 11.1.

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Concrete General Notes – SV3-0000-C9-001, Rev. 4
Auxiliary Building Area 2 Concrete Reinforcement Wall I Elevation – APP-1200-CR-911, Rev. 15
Auxiliary Building Area 2 Concrete Reinforcement Wall I Sections & Details EL 82’-6” – APP-1220-CR-911, Rev. 5

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Specifications:
SV4-CC01-Z0-026, Safety Related Mixing and Delivering Concrete, Rev. 5
SV4-CC01-Z0-027, Safety Related Concrete Testing Services, Rev. 4
SV4-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel, Rev. 5

Nonconformance & Disposition (N&D) Reports and Engineering & Design Coordination (E&DCR) Reports:
E&DCR SV0-CR-01-GEF-000367, Floor Slabs DVLP & SPLC Length
E&DCR APP-1222-GEF-050, Clarification of Floor Reinforcement, Areas 1 and 2, EL 82'-6"
E&DCR SV0-CR01-GEF-000399, Aux Bldg Floors Splice Details
E&DCR SV0-CR01-GEF-000217, Aux Bldg Floors Addl. Steel
E&DCR SV0-CR01-GEF-000275, 90-Deg. Std, Hook Through CJ
N&D SV3-CR01-GNR-000161, Formsavers Locations RM12111 Between Q-Wall and P-Wall EL 82'-6"

Drawings:
SV3-0000-C9-001, AP1000 Concrete General Notes, Rev. 4
APP-1221-CR-102, Auxiliary Building Area 1 Concrete Reinforcement Floor EL 82'-6" Plan, Rev. 1
APP-1210-CR-914, Auxiliary Building Area 1 Concrete Reinforcement Walls P & Q Sections & Details EL 66'-6", Rev. 5
APP-1221-CC-102, Auxiliary Building Concrete Outline Area 1 Floor EL 82'-6", Rev. 8

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Drawings:
SV3-CA20-S4K-CV3125, "CA20 Module Outfitting Overlay Plate Weld Map Floor El. 82'-6," Rev. 0
APP-CA20-S4-381, "Auxiliary Building Areas 5 & 6 CA20 Module Outfitting: Embed Plates Non Standard Type Carbon Steel," Rev. 3
APP-CE01-CE-003, "Standard Embedment Plates Overlay Plate (OLP) Type," Rev. 3
SV3-CA20-S4-355, "Auxiliary Building Areas 5 and 6 CA20 Module Outfitting: Embed plates wall J1 East Face," Rev. 0
SV3-CA20-S4-358, "Auxiliary Building Areas 5 and 6 CA20 Module Outfitting: Embed plates wall J2 West Face," Rev. 0
SV3-CA20-S4K-CV0972, "Weld Map – CA20 Wall J1 East Face Overlay Plate Installation," Rev. 5
SV3-CA20-S4K-CV2361, "Weld Map – CA20 Wall J2 West Face Overlay Plate Installation," Rev. 3
SV3-CA20-S4-382, "Auxiliary Building Areas 5 and 6 CA20 Module Outfitting: Embed plates Non Standard Type (Carbon Steel) Sheet 2," Rev. 0

E&DCRs:
APP-CA00-GEF-105, "CA00 Overlay Plate Weld Details," Rev. 0
APP-CE01-GEF-036, "Overlay Plate (OLP) Weld Detail," Rev. 0

Procedures:
WPS2-1.1S01, Rev. 1
WPS2-1.1M01, Rev. 0

WPS2-1.1F01, Rev. 0
Inspection Plan No. F-S561-004, "Structural Weld Inspection-Modules, AWS D1.1/D1.6 and "Fabrication," "Submodule Assembly," and "Module in Plant" Installation Tolerances, Rev. 11

Weld/Material Records:
Record of Welder Performance Qualification Test No. 2CS-03, 07/15/2014
Weld Data Sheet for Weld No. S4K-CV3125-E546
Weld Data Sheet for Weld No. CV0972-E63
Weld Data Sheet for Weld No. CV0972-E64
Weld Data Sheet for Weld No. CV0972-E65
Weld Data Sheet for Weld No. CV0972-E66
Weld Data Sheet for Weld No. S4K-CV0972-E66-BDU1
Weld Data Sheet for Weld No. CV2361-E257
Weld Data Sheet for Weld No. CV2361-E258
Weld Data Sheet for Weld No. CV2361-E259
Weld Data Sheet for Weld No. CV2361-E260
Welding Material Requisition No. 61895, 09/24/2014
Welding Material Requisition No. 61831, 09/26/2014
Welding Material Requisition No. 70669, 10/17/2014
Welding Material Requisition No. 64769, 10/17/2014
Welding Material Requisition No. 66098, 11/06/2014
Welding Material Requisition No. 63111, 11/11/2014
Welding Material Requisition No. 63118, 11/12/2014
Quality Assurance Inspection Report – Type "A" No. Q445-008-14-0076, 03/05/2014
Quality Assurance Inspection Report – Type "A" No. Q445-008-14-0077, 03/05/2014
Type "B" Inspection Report No. 132175-D100.CA007-405-004-019, 02/11/2014
Material Receiving Report No. J132175-MRR-14-02580, Rev. 0
Material Receiving Report No. J132175-MRR-14-02581, Rev. 0
Certificate of Compliance & Certified Material Test Report for Heat No. 1164R, 03/05/2014
Certificate of Compliance & Certified Material Test Report for Heat No. 1164T, 04/21/2014

N&Ds:
SV3-CA20-GNR-000398, "CA20 Overlay Plate E66 Gap," Rev. 0

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Concrete General Notes – SV3-0000-C9-001, Rev. 4
Auxiliary Building Areas 3 & 4 Concrete Reinforcement Wall I Elevation – APP-1200-CR-932, Rev. 21
Auxiliary Building Areas 3&4 Concrete Reinforcement Wall I Sections & Details EL 82'-6" – APP-1220-CR-932, Rev. 7

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WPS8-1.1T71, Rev. 3
PQR 1-1-233, Rev. 01
PQR 1-1-213, Rev. 02
PQR 1-1-214, Rev. 01
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Structural Modules General Notes - VII – APP-GW-S9-101, Rev. 0
Structural Modules Standard Weld Details - APP-GW-S9-300, Rev. 6
Module CA01 Submodule CA01-04 Structural Outline Vertical Sections / Views I - APP-CA01-S5-04004, Rev. 6
Module CA01 Submodule CA01-11 Structural Outline Vertical Sections / Views II - APP-CA01-S5-11007, Rev. 1
Module CA01 Submodule CA01-19 Vertical Sections / Views I - APP-CA01-S5-19004, Rev. 6
Module CA01 Submodule CA01-19 Structural Outline Vertical Sections / Views III - APP-CA01-S5-19009, Rev. 1
Engineering & Design Coordination Report (E&DCR) CA01-19 Stud Clarification – APP-CA01-GEF-850072, Rev. 0
E&DCR CA01-19 Stud Pattern Clarification – APP-CA01-GEF-850231, Rev. 0
N&D Report SV3-CA01-19 (NCR14-1115) Paperclip Remnants Left in Place – APP-CA01-GNR-850270, Rev. 0
E&DCR CA01-04 Correct Pl Dim MK18 & 19 – APP-CA01-GEF-850118, Rev. 0

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CMTRs
ArcelorMittal Plate LLC test certificate for melt #C3815
IHI CMTR G24303-038CM, Rev. 0
IHI CMTR 6083-1
Sleeve CMTRs G24303-042CM, G24303-032CM
Insert plate CMTRs 6170-2, 6165-4, 6165-7, 6170-1, 6183-5, 6151-4, 6151-6, 6154-1, 6184-9, 6184-10, 6165-4, 6165-7, 6170-1, 6183-5, 6163-1, 6135-2, 6068-1, 6135-1, and 6184-5
Penetration sleeve CMTRs: 6151-1 and 6151-2
CMTRs for weld filler metal heat numbers: m902228 & 1115G
Weld filler metal CMTRs RINJQ-225-5-10, RINJQ-225-5-4, RINJQ-225-5-11, and RINJQ-225-5-6, and RINJQ-225-5-1

Data Reports
ASME N-2 data report associated with Unit 4 P-07 penetration assembly
ASME N-2 data report associated with Unit 4 P-23 penetration assembly
ASME N-2 data report associated with Unit 4 P-32 penetration assembly
ASME N-2 data report associated with Unit 4 H-04 penetration assembly
ASME N-2 data report associated with Unit 4 H-01 penetration assembly

Welder Qualification Records
IHI welder performance qualification record for welder ID#: 2001, 2006, 2535, 3016, 2595, 2705, 1977, 1831, 1881, 1822, 2556, 2703, 1963, 1782, 1925, 2431, 0430, 2567, 2559, and 2553
CB&I welder qualification records for welder ID #'s: 764, 3016, 7096, 296, 491, 549, 293, 458, 159, 5039, 0462, 723, and 649

Welding Procedures & Procedure Qualification Records
IHI welding procedure IT-1121G Rev. 0
IHI welding procedure I-11R2G Rev. 3
IHI welding procedure IT-1116G, Rev. 0
IHI welding procedure qualification record I-11Q6G, I-11W9G, T-11T7G, T-11R3G
CB&I welding procedure E91TG-H4 Rev. 10
CB&I welding procedure E9018M H4R Rev. 8
CB&I welding procedure qualification records: 12690, 12676, 12691, 12723

Reports
IHI magnetic particle examination reports: MT-003-EP-WB4-P32-N-S, MT-003-EP-WB4-P32-N-P, MT-003-AP-WB4-P32-N, MT-003-EP-WF24-A-N-S, MT-003-EP-WF24-A-N-P, MT-003-AP-WF24-A-N, MT-003-EP-WB4-A12-A, MT-003-BPT-WB4-A12-A/B, MT-003-EP-WB4-B6-A, MT- 003-AWT-WB4-B6-A, MT-003-EP-WB4-P40--N-S, MT-003-EP-WB4-P40-N-P, MT-003-RP-WB4-P40-N, MT-003-BG-WB4-P40-N, MT-003-BR-WB4-P40-N, MT-003-BP-WB4-P40-N, MT-003-AP-WB4-P40-N, MT-003-EP-WE24-AE-N-S, MT-003-P23-N-P, MT-003-RP-WB4-P23-N, MT-003=BG-WB4-P23-N, MT-003-BR-WB4-P23-N, MT-003-BP-WB4-P23-N, MT-003-AP-WB4-P23-N, MT-003-ACS-WB4-P23-L, MT-003-EP-4-P23-S
IHI ultrasonic examination reports: UT-003-BP-F24-AA-1A/2A, UT-003-AP-F24-AA-1A/2A, UT-003-BP-E24-AE-1
IHI radiographic examination reports: RT-003-WB4-A12-A and RT-003-WB4-B6-A
IHI heat treatment records 003-SRB-036, 003-SRB-044, 003-SRB-049, 003-SRB-053, and 003-SRB-050
IHI visual exam report VT-003-B4-A5, VT-003-UAL-104-6550
CB&I magnetic particle examination reportsU4-265, U4-314, U4-313, U4-260, U4-264, and U4-305
CB&I radiographic examination reports: U4-110, U4-119

Miscellaneous
IHI weld checklist MCL-003-U4-LR-001
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IHI weld checklist WC-003-U4-UEH-001
IHI weld checklist WC-003-U4-LR-002
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CB&I weld traveler for P32 penetration sleeve to containment vessel weld
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PQR 12691, 01/04/2010
PQR 12723, 03/08/2010
PQR 12757, 05/03/2010
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Welder or Welding Operator Performance Qualification for Welder 3016, 12/17/2012
Master Welder Qualification List, Contract No. 165766, 10/20/2014
Daily Welding Material Distribution Log for Equipment Tag No. 42 and 25, Contract No. 165766, 10/20/2014
Calibration and "Verification Check" Record for Clamp Meter No. 121000448
Certificate of Compliance for Tempilstik Temperature Indicators, Lot No. 12247 and 12434, 07/24/2013
Certificate of Accuracy for Tempilstik Temperature Indicators, Lot No. 12247 and 12434, 07/24/2013

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ASME N-2 data report associated with Unit 4 P-23 penetration assembly
ASME N-2 data report associated with Unit 4 P-32 penetration assembly
ASME N-2 data report associated with Unit 4 H-04 penetration assembly
ASME N-2 data report associated with Unit 4 H-01 penetration assembly

Welder Qualification Records
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CB&I welder qualification records for welder ID #'s: 764, 3016, 7096, 296, 491, 549, 293, 458, 159, 5039, 0462, 723, and 649

Welding Procedures & Procedure Qualification Records
IHI welding procedure IT-1121G Rev. 0
IHI welding procedure I-11R2G Rev. 3
IHI welding procedure IT-1116G, Rev. 0
IHI welding procedure qualification record I-11Q6G, I-11W9G, T-11T7G, T-11R3G
CB&I welding procedure E91TG-H4 Rev. 10
CB&I welding procedure E9018M H4R Rev. 8
CB&I welding procedure qualification records: 12690, 12676, 12691, 12723

Reports
IHI magnetic particle examination reports: MT-003-EP-WB4-P32-N-S, MT-003-EP-WB4-P32-N-P, MT-003-AP-WB4-P32-N, MT-003-EP-WF24-A-N-S, MT-003-EP-WF24-A-N-P, MT-003-AP-WF24-A-N, MT-003-EP-WB4-A12-A, MT-003-BPT-WB4-A12-A/B, MT-003-EP-WB4-B6-A, MT- 003-AWT-WB4-B6-A, MT-003-EP-WB4-P40--N-S, MT-003-EP-WB4-P40-N-P, MT-003-RP-WB4-P40-N, MT-003-BG-WB4-P40-N, MT-003-BR-WB4-P40-N, MT-003-BP-WB4-P40-N, MT-003-AP-WB4-P40-N, MT-003-EP-WE24-AE-N-S, MT-003-P23-N-P, MT-003-RP-WB4-P23-N, MT-003=BG-WB4-P23-N, MT-003-BR-WB4-P23-N, MT-003-BP-WB4-P23-N, MT-003-AP-WB4-P23-N, MT-003-ACS-WB4-P23-L, MT-003-EP-4-P23-S
IHI ultrasonic examination reports: UT-003-BP-F24-AA-1A/2A, UT-003-AP-F24-AA-1A/2A, UT-003-BP-E24-AE-1
IHI radiographic examination reports: RT-003-WB4-A12-A and RT-003-WB4-B6-A
IHI heat treatment records 003-SRB-036, 003-SRB-044, 003-SRB-049, 003-SRB-053, and 003-SRB-050
IHI visual exam report VT-003-B4-A5, VT-003-UAL-104-6550
CB&I magnetic particle examination reportsU4-265, U4-314, U4-313, U4-260, U4-264, and U4-305
CB&I radiographic examination reports: U4-110, U4-119

Miscellaneous
IHI weld checklist MCL-003-U4-LR-001
IHI weld checklist WC-003-U4-LR-001
IHI weld checklist WC-003-U4-UEH-001
IHI weld checklist WC-003-U4-LR-002
IHI weld checklist WC-003-U4-UAL-002-H04
IHI weld list WL-004-WE24-AE
IHI weld list WL-003-B4-A1
CB&I weld traveler U4-S4-D7/D8
CB&I weld traveler U4-S4-D8/D9
CB&I weld traveler for P32 penetration sleeve to containment vessel weld
Chatham Steel Corp. COC PO 782456 REL. 5
CB&I approved suppliers list
CB&I weld traveler for attachment plates C85 and C100
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Penetration sleeve CMTRs: 6151-1 and 6151-2

CMTRs for weld filler metal heat number 1115G
Weld filler metal CMTRs RINJQ-225-5-10, RINJQ-225-5-4, RINJQ-225-5-11, and RINJQ-225-5-6, and RINJQ-225-5-1

Welder Qualification Records
IHI welder performance qualification record for welder ID#: 2001, 2006, 2535, 3016, 2595, 2705, 1977, 1831, 1881, 1822, 2556, 2703, 1963, 1782, 1925, 2431, 0430, 2567, 2559, and 2553
CB&I welder qualification records for welder ID #'s: 764, 7096, 3016,

Welding Procedures & Procedure Qualification Records
IHI welding procedure IT-1121G Rev. 0
IHI welding procedure I-11R2G Rev. 3
IHI welding procedure IT-1116G, Rev. 0
IHI welding procedure qualification record I-11Q6G, I-11W9G, T-11T7G, T-11R3G
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SV4-CR10-CRW-CV1154, Erection of Structural Steel for the CR10 Module on Pad 139
SV4-1200-CCW-CV1862, Pedestal Under CVBH Up To Elevation 71'-6"

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SV4-CC01-Z0-027, Safety Related Concrete Testing Services, Rev. 4
SV4-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel, Rev. 5
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N&D SV4-CR01-GNR-000038, Additional Rebar Around Annulus Tunnel Floor Drain
N&D SV4-CC01-GNR-000015, UF4 Nuclear Island Base Mat, High Slump

Inspection Reports (IR) and Test Records:
IR C113-14-0018, Quality Assurance IR – SV4 Pedestal Placement
IR C113-14-0019, Quality Assurance IR – SV4 Pedestal Pour
IR C113-14-0020, Quality Assurance IR – Vibrator Head Lost in Concrete
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AMEC Concrete Field and Lab Test Data; Set ID: 2014SCC0204; 10/23/2014
AMEC Concrete Field and Lab Test Data; Set ID: 2014VEGP5025; 10/24/2014
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CB&I Concrete/Grout Delivery Ticket # 64653, Pour # 1647, 10/02/2014
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NCSP 03-42, “Reinforcing Steel Installation,” Rev. 1-A
NCSP 03-44, “Mechanical Splicing of Reinforcing Steel,” Rev. 0-B

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SV4-CC01-Z0-026, “Design Specification for Safety Related Mixing and Delivering Concrete, Westinghouse Safety Class C "Nuclear Safety Related",” Rev. 5
SV4-CC01-Z0-027, “Design Specification for Safety Related Concrete Testing Services, Westinghouse Safety Classification C "Nuclear Safety Related",” Rev. 4
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SV4-1210-CCK-CV4785, “Wall Placement No.2 Wall Thickness Verification,” Rev. 0
SV4-1210-CCK-CV4786, “Wall Placement No.8 Wall Thickness Verification,” Rev. 0
SV4-1210-CCK-CV4788, “Wall Placement No.7 Wall Thickness Verification,” Rev. 0

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NCSP 3-24, “Field Surveying,” Rev. 2
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Survey Data:
SV4-1210-CCK-CV4784, “Wall Placement No.6 Wall Thickness Verification,” Rev. 0
SV4-1210-CCK-CV4785, “Wall Placement No.2 Wall Thickness Verification,” Rev. 0
SV4-1210-CCK-CV4786, “Wall Placement No.8 Wall Thickness Verification,” Rev. 0
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SV4-1100-CR-502, “Containment Concrete Reinforcement: Reinforcement up to El 71’-6” KQ-11 Plan & Sects at El 73’-8½”,” Rev. 2
SV4-1100-CR-509, “Containment Concrete Reinforcement: Reinforcement up to El 71’-6” Sections,” Rev. 2
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SV4-KQ11-V1-302, “Module 1110-KQ-11 WLS Sump Pump Structural Interfaces,” Rev. 1

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ITAAC Summary Report for Vogtle Unit 4 ITAAC 3.3.00.09 (Unit 4 Concrete Thickness from Containment Sump to Top Surface of Containment Shell), Rev. 3
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NCSP 2-16, “Construction Documents, Records Management and Control,” Rev. 2
NCSP 3-24, “Field Surveying,” Rev. 2
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SV4-CC01-Z0-026, “Design Specification for Safety Related Mixing and Delivering Concrete, Westinghouse Safety Class C "Nuclear Safety Related",” Rev. 5

Surveying Information:
CSI 3-24 Form 8.4, “NGS Baseline – Aiken CBL 1mm + 1.5ppm,” 9/17/2014
Leica Geosystems Calibration Certificate No. 1302396-12092014, 9/15/2014
SV4-KQ11-KQK-ME4984, “KQ11 Containment Sump (MT-02) as build & ITAAC’s 2.3.10.01, 3.3.00.02F & 3.3.00.09,” Rev. 4

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APP-CA20-GEF-505, "CA20-14 E91 OLP Clarification," Revision 0
APP-GW-GAP-420, "Engineering and Design Coordination Report," Revision 8
SV0-0000-GEF-000161, "Shield Building Welding to ASME IX," Revision 0
SV0-GE-GEF-000072, "KB10 & KB13 as Construction Drain," Revision 0

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QSI 12.01, “Control of Measuring and Testing Equipment,” Rev. 004
NCSP 3-10, “Measuring and Test Equipment (M&TE) Control,” Rev. 3

M&TE documentation and calibration records:
Calibration and “Verification Check” Record for Clamp Meter No. 121000448
Certificate of Compliance for Tempilstik Temperature Indicators, Lot No. 12247 and 12434, 07/24/2013
Certificate of Accuracy for Tempilstik Temperature Indicators, Lot No. 12247 and 12434, 07/24/2013
CSI 3-24 Form 8.4, “NGS Baseline – Aiken CBL 1mm + 1.5ppm,” 9/17/2014

Leica Geosystems Calibration Certificate No. 1302396-12092014, 9/15/2014

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APP-CA03-GNR-850071, “SMCI FLA-2014-083, Welding Post Qual Performed in Lieu of Pre Qual,” Revision 0
APP-CA03-GNR-850072, “SMCI FLA-2014-075, Post Rather than Pre Qualified WPS,” Revision 0
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SV3-CA03-GNR-000005, "CA03-08 and CA03-09 Root Gap Correction," Revision 0
SV3-CA20-GNR-000330, "CA20 OLP Material E102 - E111," Revision 0
SV3-CC01-GNR-000133, "High Air U3 Turbine First Bay," Revision 0
SV3-CR01-GNR-000142, "Tunnel Dowels Installed Out of Tolerance," Revision 0
SV3-CR01-GNR-000143, "U3 Aux. Bldg N Wall," Revision 0
SV3-CR01-GNR-000145, "Secondary Wall 24A Rebar Interference," Revision 0
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S-132175-2014-111, "Review Implementation of the Causal Analysis Program," 10/16/2014 through 11/3/2014;
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S-132175-2014-112, "Nonconformance Program / Tagging," 10/30/14;

LIST OF ACRONYMS

AISC	American Institute of Steel Construction
ANI	Authorized Nuclear Inspector
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CAP	Corrective Action Program
CB&I	Chicago Bridge and Iron
CMTR	Certified Material Test Report
CRDM	Control Rod Drive Mechanisms
CV	Containment Vessel
CVBH	Containment Vessel Bottom Head
DSM	Dissimilar Metal
E&DCR	Engineering and Design Coordination Report
EPC	Engineering, Procurement, and Construction
FCAW	Flux-Cored Arc Welding
GMAW	Gas Metal Arc Welding
GTAW	Gas Tungsten Arc Welding
IHI	Ishikawajima-Harima Heavy Industries Co., Ltd.
IMC	Inspection Manual Chapter
ITAAC	Inspections, Tests, Analyses, and Acceptance Criteria
MT	Magnetic Particle Examination
N&D	Nonconformance and Disposition
NCR	Nonconformance Report
NCV	Non-cited Violation
NDE	Non-destructive Examination
NRC	Nuclear Regulatory Commission
PQR	Procedure Qualification Records
PT	Liquid Penetrant Examination
QA	Quality Assurance
QAD	Quality Assurance Directive
QC	Quality Control
QIN	QuickLoc Instrument Nozzles
Rev	Revision
RT	Radiographic Testing
RV	Reactor Vessel
SAW	Submerged Arc Welding
SMAW	Shielded Metal Arc Welding
SSC	System, Structure, or Component
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Examination
VEGP	Vogtle Electric Generating Plant
WEC	Westinghouse Electric Company
WPQ	performance qualification records
WPS	Welding Procedure Specifications