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

July 26, 2013

Mr. B. L. Ivey
Vice President, Regulatory Affairs
Southern Nuclear Operating Company
P.O. Box 1295
Bin B022
Birmingham, AL 35201

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4 - NRC INTEGRATED INSPECTION REPORTS 05200025/2013-003 and 05200026/2013-003

Dear Mr. Ivey:

On June 30, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant Units 3 and 4. The enclosed inspection report documents the inspection results which were discussed on July 11, 2013, 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.

No findings were identified during this inspection.

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).

Sincerely,

/RA/

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

Docket Nos.: 05200025, 05200026
License Nos.: NPF-91, NPF-92

Enclosure: Inspection Report 05200025/2013-003
and 05200026/2013-003
w/Attachment: Supplemental Information

cc w/encl: (See pages 2-3)

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Construction Projects Branch 4
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cc w/encl: (See pages 2-3)

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Letter to B. L. Ivey from Michael E. Ernstes dated July 26, 2013

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4 - NRC INTEGRATED INSPECTION REPORTS 05200025/2013-003 and 05200026/2013-003

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U.S. NUCLEAR REGULATORY COMMISSION
Region II

Docket Numbers:	5200025 5200026
License Numbers:	NPF-91 NPF-92
Report Numbers:	05200025/2013003 05200026/2013003
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Vogtle Electric Generating Plant Unit 3 Vogtle Electric Generating Plant Unit 4
Location:	Waynesboro, GA
Inspection Dates:	April 1 through June 30, 2013
Inspectors:	C. Abbott, Resident Inspector, DCP A. Artayet, Senior Construction Inspector, DCI J. Christensen, Construction Inspector, DCI B. Davis, Senior Construction Inspector, DCI T. Fanelli, Construction Inspector, DCI J. Fuller, Senior Resident Inspector, DCP C. Huffman, Resident Inspector, DCP N. Karlovich, Construction Inspector, DCI M. Magyar, Construction Project Inspector, DCP C. Oelstrom, Construction Inspector, DCI W. Roggenbrodt, Electronics Engineer, DE J. Vasquez, Construction Inspector, DCI
Approved by:	M. Ernstes, Chief Construction Projects Branch 4 Division of Construction Projects

Enclosure

SUMMARY OF FINDINGS

Inspection Report (IR) 05200025/2013003, 05200026/2013003; 04/01/2013 through 06/30/2013;Vogtle Unit 3 Combined License, Vogtle Unit 4 Combined License, routine integrated inspection report.

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

A. NRC-Identified and Self Revealed Findings

No findings were identified.

B. Licensee-Identified Violations

A violation of very low safety significance identified by the licensee was reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers are listed in Section 40A7 of this report.

REPORT DETAILS

Summary of Plant Construction Status

1. CONSTRUCTION REACTOR SAFETY

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

1A01 (Unit 3) ITAAC No. 091 / Family: 06F

.1 Resident ITAAC Inspection

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 091 (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 reviewed the following Chicago Bridge and Iron (CB&I) Receiving Inspection Reports (RIRs) to determine whether CB&I had performed an adequate receipt inspection of the Certified Material Test Reports (CMTRs) supplied by the material supplier:

- RIR number U3-170 for piece mark (plate) B3-E2 (Vogtle Unit 3 containment vessel shell);
- RIR number U3-171 for piece mark (plate) B3-E3 (Vogtle Unit 3 containment vessel shell);
- RIR number U3-182 for piece mark (plate) B3-C14 (Vogtle Unit 3 containment vessel shell);
- RIR number U3-183 for piece mark (plate) B3-C15 (Vogtle Unit 3 containment vessel shell); and
- RIR number U3-145 for piece mark (external stiffener) B3-F4 (Fabricated Code Material External Stiffener).

The inspectors performed an independent review of the CMTRs for the plates listed above, to determine whether the materials met the requirements of the following:

- Vogtle Units 3 and 4 Updated Final Safety Analysis Report (UFSAR);
- SA-738 Grade B, "Specification for the Pressure Vessel Plates, Heat-Treated, Carbon-Manganese-Silicon Steel, for Moderate and Lower Temperature Service";

- APP-MV50-Z0-037, "AP1000 Containment Vessel: SA-738 Grade B Plates"; and
- 10 CFR Part 50, Appendix B.

The CMTRs were reviewed to determine if chemical and mechanical properties (including applicable impact testing, grain size and carbon equivalency), heat treatment, degassing process, and required Nondestructive Examination (NDE) met the above requirements. The inspectors also verified that each CMTR referenced 10 CFR Part 21. The inspectors also performed a visual inspection of the plates listed above to verify that they were properly marked and traceable to these records.

The inspectors also reviewed the related N-2 American Society of Mechanical Engineers (ASME) Code Data Report for the external stiffener (piece mark B3-F4), Part number IN-4766 to determine conformance with the ASME code, Section III, Division 1, 2001 edition through 2002 addenda.

b. Findings

No findings were identified.

.2 Regional ITAAC Inspection

a. Inspection Scope

The inspectors observed in-process sectional assembly of the external stiffener to the bottom portion of the S3 CV shell course to determine whether the stiffener web, flange and gusset plate thicknesses, and continuous fillet weld dimensions joining the stiffener web and gussets to the containment vessel pressure boundary were welded in accordance with the CB&I drawing no. 32, Sheet 1 and ASME Section III, Subsection NE.

The inspectors reviewed JFE Steel Corporation CMTR 6164-5 and 6164-6, and CB&I RIR-U4-085 and RIR-U4-080 (both include Material Dimensions and Digital Thickness Measurements documentation) for transferring the Unit 4 B4-A10 and B4-A11 containment vessel (CV) shell plates to Unit 3 with physical re-markings of B3-A10 and B3-A11. The review was performed to determine whether the degassing process, mechanical properties (including impact toughness testing), chemical analysis, carbon equivalency, grain size, heat treatment, and simulated post weld heat treatment (PWHT) were in accordance with the requirements of the Westinghouse Electric Company (WEC) APP-MV50-Z0-037, AP1000 Containment Vessel: SA-738 Grade B plates, material specification and ASME Section II, Part A.

b. Findings

No findings were identified.

1A02 (Unit 3) ITAAC No. 093 / Family: 06B

.1 Resident ITAAC Inspection

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 093 (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 reviewed the completed weld records for the fit-up and welding of the following welds associated with the Vogtle Unit 3 CV middle ring (Ring 2):

- vertical weld B3-E2 to B3-E3 (middle ring, course S5; Traveler Set U3-S5-E2/E3, "Weld S5 Ring Vertical Seam"); and
- vertical weld B3-C14 to B3-C15 (middle ring, course S6; Traveler Set U3-S6-C14/C15, "Weld S6 Ring Vertical Seam").

The inspectors reviewed these records 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;
- the 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, NDE records;
- the 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;
- accepted, rejected, and repaired items were documented in written reports; and
- records of receipt inspections were appropriately referenced.

The inspectors also reviewed Magnetic Particle Testing (MT) Examination Report numbers U3-351 and U3-354, which documented CB&I's inspection of the temporary attachment removal areas for the above welds. The inspectors reviewed this report to determine whether these records were sufficient to furnish evidence of activities affecting quality, and that the examination reports complied with the requirements of CB&I procedure CMS-830-15-PR-45160, "Magnetic Particle Examination, Color Contrast, Dry

Yoke, ASME Section IV, Division 1 – Subsection NE," revision 1; and Article 7, "Magnetic Particle Examination," of ASME Section V, "Nondestructive Examination," 2011 edition through 2002 addenda. The inspectors reviewed the qualification certification records for the QC inspectors who performed these inspections to determine whether the inspectors were qualified in accordance with the CB&I written practice (CB&I NDE Personnel Training Qualification and Certification Program, revision 3) and the American Society for Nondestructive Testing (ASNT) SNT-TC-1A, 1992 Edition. The inspectors reviewed the magnetic particle testing procedure (CMS-830-15-PR-45160) to determine whether it met the requirements of ASME Section V and ASME Section III, Division 1, Subsection NE, "Class MC Components," 2001 edition through 2002 addenda. The inspectors also reviewed the qualification and certification records for the testing equipment, consumables, and measuring and test equipment utilized during the magnetic particle inspection of weld B3-E2 to B3-E3 and weld B3-C14 to B3-C15, to determine whether these items were properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within required limits. Specifically, the inspectors reviewed records for the following items: MT weight plate S/N 9911, light meter S/N 10070200040, MT inspection powder batch number 11MO15, and infrared thermometer S/N 18560013.

The inspectors reviewed the radiographic testing (RT) film for the Vogtle Unit 3 containment vessel welds B3-E2 to B3-E3 and B3-C14 to B3-C15 to determine whether the completed welds met the acceptance standards specified by Subsection NE-5320, "Radiographic Acceptance Standards," of ASME Section III, Article NE-5000, "Examination." Specifically, the inspectors reviewed RT report numbers U3-144 and U3-160 to determine if the weld and RT records met the requirements of CB&I RT procedure CMS-830-15-PR-45154, "Radiographic Examination ASME Section III, Division 1 – Subsection NE," revision 1. The inspectors reviewed the qualification certification records for the QC inspectors who evaluated the RT results to determine whether the inspectors were qualified in accordance with the CB&I written practice (CB&I NDE Personnel Training Qualification and Certification Program, revision 3) and ASNT SNT-TC-1A, 1992 Edition.

The inspectors performed an independent visual inspection of weld B3-E2 to B3-E3 and weld B3-C14 to B3-C15 to determine whether the surface of the final welds met the requirements of Subsection NE-4424, "Surfaces of Welds," of ASME Section III, Article NE-4000. Specifically, the inspectors observed the surface condition of the finished welds, measured the amount of reinforcement, and measured any locations of undercut to determine if the as-welded condition was acceptable per ASME Section III, Article NE-4000, subsection NE-4424 and CB&I visual inspection procedure CMS-830-15-PR-45158, "Visual Inspection of Welds ASME Section III, Division 1 – Subsection NE," Revision 2.

b. Findings

No findings were identified.

.2 Resident ITAAC Inspection

a. Inspection Scope

The inspectors observed the in-process welding of the Vogtle Unit 3 B3-B14 and B3-B13 insert plates from the inside of the CV (Ring 1) to determine if the welding was performed within the ranges allowed by the welding procedure specification (WPS) and the requirements of ASME Section III, Article NE-4000. During the welding, the inspectors also observed CB&I's process for maintaining the required preheat requirements established by section 7.2.2.5 of the CV design specification, and the QC verification of heat input. Insert plate B3-B14 contained the following penetrations: P23 (38" Main Steam Line Out [Loop 1]), P25 (20" Main Feed Water Line in [Loop 1]), and P44 (6" Startup Feed Water [Loop 1]. Insert plate B3-B13 contained the following penetrations: P24 (38" Main Steam Line Out [Loop 2]), P26 (20" Main Feed Water Line in [Loop 2]), and P45 (6" Startup Feed Water [Loop 2]).

The inspectors reviewed the RT film for the completed insert plate welds B3-B14 and B3-B13 to determine whether the completed welds met the acceptance standards specified by Subsection NE-5320, "Radiographic Acceptance Standards," of ASME Section III, Article NE-5000, "Examination." Specifically, the inspectors reviewed RT report numbers RT-U3-181 and RT-U3-180 to determine if the weld and RT records met the requirements of CB&I RT procedure CMS-830-15-PR-45154, "Radiographic Examination ASME Section III, Division 1 – Subsection NE," revision 1.

The inspectors performed an independent visual inspection of insert plate welds B3-B14 and B3-B13 to determine whether the surface of the final welds met the requirements of Subsection NE-4424, "Surfaces of Welds," of ASME Section III, Article NE-4000. Specifically, the inspectors observed the surface condition of the finished welds, measured the amount of reinforcement, and measured any locations of undercut to determine if the as-welded condition was acceptable per ASME Section III, Article NE-4000, subsection NE-4424 and CB&I visual inspection procedure CMS-830-15-PR-45158, "Visual Inspection of Welds ASME Section III, Division 1 – Subsection NE," Revision 2.

b. Findings

No findings were identified.

.3 Regional ITAAC Inspection

a. Inspection Scope

The inspectors reviewed four Ishikawajima-Harima Heavy Industries Co., Ltd. (IHI) NDE records for the full penetration corner welds between the sleeve and insert plate of the P23 mainsteam outlet and P25 feedwater inlet of the B3-B14 penetration block to determine whether fabrication and NDE was performed in accordance with the requirements of the following:

- WEC APP-MV50-Z0-001, Containment Vessel Design Specification;
- 2001 edition including 2002 addenda of the ASME Section III, Subsection NE, Article 5000; and

- Section II, Part A, SA-435, Specification for Straight-Beam Ultrasonic Examination of Steel Plates.

b. Findings

No findings were identified.

1A03 (Unit 3) ITAAC No. 096 / Family: 06F

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 28, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 096 (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 reviewed JFE Steel Corporation CMTR 6164-5 and 6164-6 of the lower ring S1 course shell plates that were transferred from Unit 4 as B4-A10 and B4-A11 to Unit 3 with re-markings of B3-A10 and B3-A11. The review was performed to determine whether impact toughness testing was in accordance with the requirements of WEC APP-MVSO-ZO-037, “API000 Containment Vessel: SA-738 Grade B Plates”; CB&I MS-SA-738B-2888, “Material Specification for SA738 Grade B Steel Plate”; and ASME Section III, Subsection NE, and Section II, Part A for SA-738, Grade B.

The inspectors reviewed eight JFE Steel Corporation CMTRs for the B3-B13 and B3-B14 sleeve to insert plate penetrations for the mainsteam outlet (P24 and P23), main feedwater inlet (P26 and P25), and start-up feedwater loop 2 and 1 (P45 and P44), respectively, to determine whether impact toughness testing was in accordance with the requirements of the WEC and CB&I material specifications, and ASME Section III, Subsection NE, and applicable material specifications of ASME Section II, Part A for SA-738, Grade B, and SA-350, Grade LF2, Class 1.

b. Findings

No findings were identified.

1A04 (Unit 3) ITAAC No. 139 / Family: 06F

.1 Resident ITAAC Inspection

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 139 (2.2.02.07b.ii):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
7.b) The PCS wets the outside surface of the containment vessel. The inside and the outside of the containment vessel above the operating deck are coated with an inorganic zinc material.	ii) Inspection of the containment vessel exterior coating will be conducted.	ii) A report exists and concludes that the containment vessel exterior surface is coated with an inorganic zinc coating above elevation 135'-3".

The inspectors performed the following inspection activities related to the application of safety-related coatings to the exterior of the Vogtle Unit 3 containment vessel shell plates:

The inspectors reviewed the licensee's design specification (APP-GW-Z0-604, "Applications of Protective Coatings to Systems, Structures, and Components," revision 6) to determine if the coatings to be applied to the Vogtle Unit 3 and Unit 4 containment vessels met the commitments made by the licensee in sections 3.8.2.6, "Materials, Quality Control, and Special Construction Techniques," and 6.1.2.1, "Protective Coatings," of the the Vogtle Units 3 and 4 UFSAR. The inspectors reviewed this design specification to verify that the coatings applied to the internal portions of the containment vessel (from 7 feet above the operating deck) were properly classified as Service Level I coatings as described in the UFSAR, and that the coatings applied to the external portions of the containment vessel (above elevation 135'3") were properly classified at Service Level III coatings. The inspectors reviewed this design specification to verify that the coating type was an inorganic zinc coating and employed an epoxy topcoat from elevation 107'2" to 142'3", as discussed in the UFSAR. The inspectors also verified that these coatings were classified as safety-related coatings, and as such, were required to be procured under 10 CFR Part 50, Appendix B.

The inspectors reviewed Westinghouse document APP-GW-T2R-013, "AP1000 Containment Vessel Coating Test Report Summary," revision 1 in order to verify that the specific coatings approved for use on the Vogtle Units 3 and 4 containment vessel shell were adequate to meet the following design requirements: design basis accident performance, corrosion resistance, thermal conductivity, dry film density, specific heat, and dry emissivity. The inspectors reviewed a sample of test data obtained for the actual coating material used on the Vogtle Units 3 and 4 containment vessel shell plates and compared this test data to the acceptance criteria established by APP-GW-T2R-013 and Table 6.2.1.1-8, "Physical Properties of Passive Heat Sinks" of the Vogtle Units 3 and 4 UFSAR to verify that the coating material was adequate to meet the specified design requirements listed above. Specifically, the inspectors reviewed the test data for

the Carbozinc 11 HSN material, which was included in the aforementioned test report summary.

The inspectors also reviewed a sample of coating records for the following Unit 3 containment vessel shell plates and components, which were coated by the plate manufacturer prior to shipment to the Vogtle Units 3 and 4 construction site: (Note: [1] these components were coated with the same inorganic zinc coating (Carbozinc 11 HSN) on both the inside and outside of the plate), [2] A portion of the S3 course and the entire S4 course are above elevation 135'3")

- Coating Record LR-C1; Plate B3-C1-1 (Lower ring B3-C1, course S3);
- Coating Record LR-C2; Plate B3-C2-1 (Lower ring B3-C2, course S3);
- Coating Record LR-D1; Plate B3-D1-1 (Lower ring B3-D1, course S4);
- Coating Record LR-D5; Plate B3-D5-1 (Lower ring, B3-D5, course S4);
- Coating Record EH-F23; Upper Equipment Hatch (Part number F23);

The inspectors reviewed a sample of inspection records for the above plates and components to verify that the inorganic zinc coating was inspected using a dry film thickness test and Methyl Ethyl Ketone (MEK) rub test as specified by section 6.1.2.1.6, "Quality Assurance Features," of the UFSAR and Westinghouse Design Specification APP-GW-Z0-604. The inspectors reviewed these records to verify that no section of the coating had a dry film thickness of greater than 6 mils, as specified by the design specification. The inspectors noted that the coatings applied by the plate manufacturer had not been subject to the MEK rub test; however, the performance of the test was recently added to the WEC coatings design specification (APP-GW-Z0-604) through issuance of Engineering and Design Coordination Reports (E&DCR) number APP-MV50-GEF-100, "MEK Rub Test Requirement," revision 0. The inspectors discussed the performance of the MEK rub test with CB&I and WEC personnel to verify that the test would be performed in accordance with the aforementioned E&DCR at the Vogtle site. The inspectors also performed a visual inspection of the external coatings applied to Unit 3 and Unit 4 containment vessel bottom head and reviewed nuclear island concrete drawings to determine whether the coatings would extend at least one foot below the interface with concrete as required by APP-GW-Z0-604. The inspectors performed a visual inspection of the coatings applied to the above plates and components to verify that the coatings were not damaged.

The inspectors observed the MEK rub test, which was performed on the Vogtle Unit 3 containment vessel bottom head coating, to determine if the test was performed in accordance with E&DCR APP-MV50-GEF-100 and Williams procedure number WSS-3080-WI-003, "Work Instruction for Performing Methyl Ethyl Ketone Rub Test," revision 2. During this test, the inspectors observed the measurement of the dry film thickness of the coating, which was applied on site by Williams, to determine if the coating met the thickness requirements established by APP-GW-Z0-604.

For plate B3-C1-1, the inspectors reviewed the coating material certificate of conformance and product identity and quality assurance certification records for the Carbozinc 11 HSN Base (Batch # 11DN4947L), the Zinc Filler Type II (Batch # 11AD4001Z), and the Carbozinc HS Activator (Batch #11DD13340Q). The inspectors reviewed these records to determine if the coating materials were in conformance with the following: procured and tested under 10 CFR Part 50, Appendix B, and 10 CFR Part 21; specification APP-GW-Z0-604; the Carbozinc 11 HSN product data sheet; and

applicable American Society for Testing and Materials (ASTM) standards. The inspectors also reviewed the certification records for both the coating inspector and coating applicator to determine conformance with the following ASTM standards: ASTM D4537, "Standard Guide for Establishing Procedures to Qualify and Certify Personnel Performing Coating Work Inspection in Nuclear Facilities," ASTM D5498, "Standard Guide for Developing a Training Program for Personnel Performing Coating work Inspection for Nuclear Facilities", and ASTM D4228, "Standard Practice for Qualification of Coating Applicators for Application of Coatings to Steel Surfaces."

The inspectors performed an independent on-site inspection of the dry film thickness of a sample of coatings applied by the plate supplier to determine if the shop-applied coatings met the minimum (2.0 mils) and maximum (6.0 mils) coating thickness requirements specified by APP-GW-Z0-604 and the coating manufacturer's product data sheet. The inspectors verified the coating thicknesses on the following Unit 3 plates and components:

- Upper Equipment Hatch Insert Plate and Sleeve
- Plate B3-E6
- Plate B3-E10
- Plate B3-E12

In addition to the inspector's independent inspection of coating thicknesses, the inspectors observed CB&I and Williams perform an inspection of a sample of coatings applied by the plate manufacturer to verify that the coating thicknesses were compliant with specification APP-GW-Z0-604.

b. Findings

No findings were identified.

1A05 (Unit 3) ITAAC No. 140 / Family: 06F

.1 Resident ITAAC Inspection

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 140 (2.2.02.07b.iii):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
7.b) The PCS wets the outside surface of the containment vessel. The inside and the outside of the containment vessel above the operating deck are coated with an inorganic zinc material.	iii) Inspection of the containment vessel interior coating will be conducted.	iii) A report exists and concludes that the containment vessel interior surface is coated with an inorganic zinc coating above 7' above the operating deck.

The inspectors performed the following inspection activities related to the application of safety-related coatings to the interior of the Vogtle Unit 3 containment vessel shell plates:

The inspectors reviewed the licensee's design specification (APP-GW-Z0-604, "Applications of Protective Coatings to Systems, Structures, and Components," revision 6) to determine if the coatings to be applied to the Vogtle Units 3 and 4 containment vessels met the commitments made by the licensee in sections 3.8.2.6, "Materials, Quality Control, and Special Construction Techniques," and 6.1.2.1, "Protective Coatings," of the the Vogtle Units 3 and 4 UFSAR. The inspectors reviewed this design specification to verify that the coatings applied to the internal portions of the containment vessel (from 7 feet above the operating deck) were properly classified as Service Level I coatings as described in the UFSAR and that the coatings applied to the external portions of the containment vessel (above elevation 135'3") were properly classified at Service Level III coatings. The inspectors reviewed this design specification to verify that the coating type was an inorganic zinc coating and employed an epoxy topcoat from elevation 107'2" to 142'3", as discussed in the UFSAR. The inspectors also verified that these coatings were classified as safety-related coatings, and as such, were required to be procured under 10 CFR Part 50, Appendix B.

The inspectors reviewed WEC document APP-GW-T2R-013, "AP1000 Containment Vessel Coating Test Report Summary," revision 1 in order to verify that the specific coatings approved for use on the Vogtle Units 3 and 4 containment vessel shell were adequate to meet the following design requirements: design basis accident performance, corrosion resistance, thermal conductivity, dry film density, specific heat, and dry emissivity. The inspectors reviewed a sample of test data obtained for the actual coating material used on the Vogtle Units 3 and 4 containment vessel shell plates and compared this test data to the acceptance criteria established by APP-GW-T2R-013 and Table 6.2.1.1-8, "Physical Properties of Passive Heat Sinks," of the Vogtle 3&4 UFSAR to verify that the coating material was adequate to meet the specified design requirements listed above. Specifically, the inspectors reviewed the test data for the Carbozinc 11 HSN material which was included in the aforementioned test report summary.

The inspectors also reviewed a sample of coating records for the following containment vessel shell plates and components which were coated by the plate manufacturer prior to shipment to the Vogtle Units 3 and 4 construction site: (Note: [1] these components were coated with the same inorganic zinc coating (Carbozinc 11 HSN) on both the inside and outside of the plate), [2] A portion of the S3 course and the entire S4 course are above elevation 135'3")

- Coating Record LR-C1; Plate B3-C1-1 (Lower ring B3-C1, course S3);
- Coating Record LR-C2; Plate B3-C2-1 (Lower ring B3-C2, course S3);
- Coating Record LR-D1; Plate B3-D1-1 (Lower ring B3-D1, course S4);
- Coating Record LR-D5; Plate B3-D5-1 (Lower ring, B3-D5, course S4);

The inspectors performed an independent, onsite inspection of the dry film thickness of a sample of coatings applied by the plate supplier to determine if the shop applied coatings met the minimum (2.0 mils) and maximum (6.0 mils) coating thickness requirements specified by APP-GW-Z0-604 and the coating manufacturer's product data

sheet. The inspectors verified the coating thicknesses on the following Unit 3 plates and components:

- Upper Equipment Hatch Insert Plate and Sleeve
- Plate B3-C1
- Plate B3-C2
- Plate B3-D1
- Plate B3-D2
- Plate B3-E6
- Plate B3-E10
- Plate B3-E12

In addition to the inspector's independent inspection of coating thicknesses they also observed CB&I and Williams perform their inspection of a sample of coatings applied by the plate manufacturer to verify that the coating thicknesses were compliant with specification APP-GW-Z0-604.

b. Findings

No findings were identified.

1A06 (Unit 3) ITAAC No. 550 / Family: 10F

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 10, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 550 (2.5.02.11):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
11. The PMS hardware and software is developed using a planned design process which provides for specific design documentation and reviews during the following life cycle stages: a) Not used b) System definition phase c) Hardware and software development phase, consisting of hardware and software design and implementation d) System integration and test phase e) Installation phase	Inspection will be performed of the process used to design the hardware and software.	A report exists and concludes that the process defines the organizational responsibilities, activities, and configuration management controls for the following: a) Not used. b) Specification of functional requirements. c) Documentation and review of hardware and software. d) Performance of system tests and the documentation of system test results, including a response time test performed under maximum CPU loading to demonstrate that the PMS

		can fulfill its response time criteria. e) Performance of installation tests and inspections.

Inspectors performed a follow up inspection to assess the corrective actions taken in response to violation 05200025/2012009-01 which was issued to SNC for multiple performance failures regarding inadequate ITAAC related digital instrumentation and control (DI&C) development (ML12171A058). SNC responded to the violation in a letter dated July 19, 2012, (ML12205A298), and the NRC acknowledged SNCs response in a letter dated July 30, 2012, (ML12213A046).

The objective of the inspection was to assess whether SNC had implemented adequate corrective actions to address the violation. Document numbers and descriptions reviewed for this inspection are listed in the document section of this report.

The inspectors assessed whether the software hazard analysis (SHA) was conducted, completed, and adequate. The inspectors reviewed the SHA document, APP-PMS-GER-003, to evaluate how the licensee determined software hazards and the mitigation strategies used for them.

The inspectors assessed through sampling whether the reusable software element document (RSED) development followed the prescribed lifecycle process, including the independent verification and validation (V&V) tasks. The inspectors evaluated whether SNC's independent V&V (IV&V) for the Vogtle project adequately assessed whether the requirements in the RSEDs were applicable to the Vogtle Protection and Safety Monitoring System (PMS) project. The inspectors also assessed whether RSEDs with requirements that were non-essential to the Vogtle PMS have been analyzed for hazardous effects.

The inspectors reviewed the software requirements specification (SRS), RSEDs (WNA-DS-01523-GEN, WNA-DS-01837-GEN, WNA-DS-02346-GEN, and WNA-DS-02596-GEN), and the V&V phase summary report, APP-PMS-GER-021, and a sample of V&V task reports with the associated Westinghouse Nuclear Automation Issue Tracking System (RITS) information to verify whether RSED and RSED requirements were incorporated into the PMS software lifecycle.

The inspectors assessed through sampling whether the required V&V tasks were performed by the IV&V organization for the requirements phase evaluation of software requirements, interface requirements analysis, criticality analysis, hazard analysis, and risk analysis. The inspectors reviewed a sample of V&V task reports related to requirements traceability for the SRS.

The inspectors assessed through sampling whether the requirements are complete, unambiguous and ranked, and that any changes made to the SRS were properly controlled. The inspectors used the requirements traceability matrix to trace one requirement from the SRS to the referenced input document. The inspectors also reviewed the requirements associated with PMS_SRS-14832 to verify that it was complete, clear, and accurate.

Based on the results of this inspection, the inspectors determined that corrective actions were not sufficiently complete, therefore the inspectors would not be able to assess the adequacy in the areas of V&V independence, training in licensing basis requirements, the scope of RSED evaluations, and licensing basis gap evaluations; therefore, the violation will remain open.

b. Findings

No findings were identified.

1A07 (Unit 3) ITAAC No. 551 / Family: 10F

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 10, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 551 (2.5.02.12):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
12. The PMS software is designed, tested, installed, and maintained using a process which incorporates a graded approach according to the relative importance of the software to safety and specifies requirements for: a) Software management including documentation requirements, standards, review requirements, and procedures for problem reporting and corrective action. b) Software configuration management including historical records of software and control of software changes. c) Verification and validation including requirements for reviewer independence.	Inspection will be performed of the process used to design, test, install, and maintain the PMS software.	A report exists and concludes that the process establishes a method for classifying the PMS software elements according to their relative importance to safety and specifies requirements for software assigned to each safety classification. The report also concludes that requirements are provided for the following software development functions: a) Software management including documentation requirements, standards, review requirements, and procedures for problem reporting and corrective action. Software management requirements may be documented in the software quality assurance plan, software management plan, software development plan, software safety plan, and software operation and maintenance plan; or these

		requirements may be combined into a single software management plan. b) Software configuration management including historical records of software and control of software changes. Software configuration management requirements are provided in the software configuration management plan. c) Verification and validation including requirements for reviewer independence. Verification and validation requirements are provided in the verification and validation plan.

Inspectors performed a follow up inspection to assess the corrective actions taken in response to violation 05200025/2012009-01, which was issued to SNC for multiple performance failures regarding inadequate ITAAC related DI&C development (ML12171A058). SNC responded to the violation in a letter dated July 19, 2012, (ML12205A298), and the NRC acknowledged SNC's response in a letter dated July 30, 2012, (ML12213A046).

The objective of the inspection was to assess whether SNC had implemented adequate corrective actions to close the violation. Document numbers and descriptions reviewed for this inspection are listed in the document section of this report.

The inspectors assessed the effectiveness of SNC's training oversight process. The inspectors reviewed the procedure for independent V&V qualification and training, WNA-WI-00382-GEN, and the required software development skill training matrices (document numbers not available) for the groups associated with software development, software V&V, and software QA. The inspectors evaluated samples of the training courses for each group. The inspectors sampled the PMS safety system functionality group, AP1000 PMS Safety System Software group, system test group I, independent software V&V groups (both I and II), and the QA organization for software related training. The inspectors interviewed responsible management for the development, verification, QA, and test groups to assess management expectations for personnel training. In addition, the inspectors interviewed a sample of the test group personnel and assessed their qualifications for testing safety-related I&C systems where they would verify the systems qualification.

The inspectors assessed whether SNC's process for reviewing procedures, guidelines, work instructions, and products with respect to licensing and regulatory compliance had identified any gaps within processes and procedures that guide the development program for the SNC project. The inspectors reviewed procedure NA.4.53, which was the procedure created for reviewing the WEC processes against the SNC licensing

commitments. The inspectors reviewed the decomposition of the Software Program Manual (SPM) for Common Q Systems and compared it to the SNC licensing commitments associated with activities described within Institute of Electrical and Electronics Engineers (IEEE) Standard 1074-1995 and Regulatory Guide (RG) 1.173 for software safety analysis (SSA). The inspectors assessed whether either the SPM itself or the project quality plan captured activities related to conducting a SSA during each phase of development for the AP1000 PMS and determined that work instruction WNA-WI-00408-GEN directed the design team to conduct a SSA at the completion of the requirements, design and implementation, but not at integration or test phases of development. The inspectors also reviewed a sample of the results of the decomposition of requirements for IEEE standards 830, 828, 1012 and their referenced implementing program documents.

The inspectors reviewed the SHA and interviewed V&V personnel to verify whether RSED requirements had been reviewed by V&V. The inspectors also reviewed the SPM and software V&V plan to determine if the documents captured the activities related to conducting a SSA, made up of a SHA, software criticality analysis and other associated analyses and reviews during each phase of development.

The inspectors assessed the independence of SNC's V&V activities as documented in various phase output documents, phase summary reports, software program management plan, organization, and by interviewing the V&V engineers. The inspectors reviewed documents, IVV_Task_DRA_APP-PMS-J4-020 Rev 3, for concept documentation and IVV_Task_DRA_APP-PMS-J4-003 Rev2, for system requirements V&V to determine if SNC V&V activities were performed by individuals independent of the design team, and whether the V&V team took credit for design team activities. The inspectors reviewed procedures WEC 3.3.1 and WEC 4.12 for design reviews that were used by the licensee to review the concept documentation.

The inspectors assessed through sampling whether the RSED development followed the prescribed lifecycle process, including the independent V&V tasks. The inspectors evaluated whether SNC's independent V&V for the Vogtle project adequately assessed whether the requirements in the RSEDs were applicable to the Vogtle PMS project. The inspectors also assessed whether RSEDs with requirements that were non-essential to the Vogtle PMS have been analyzed for hazardous effects. The inspectors reviewed the SRS, RSEDs (WNA-DS-01523-GEN, WNA-DS-01837-GEN, WNA-DS-02346-GEN, and WNA-DS-02596-GEN), and the V&V phase summary report, APP-PMS-GER-021, and a sample of V&V task reports with associated RITS to verify whether RSED and RSED requirements were incorporated into the PMS software lifecycle.

The inspectors assessed through sampling whether the required V&V tasks were performed by the independent V&V organization for the requirements phase evaluation of software requirements, interface requirements analysis, criticality analysis, hazard analysis, and risk analysis. The inspectors reviewed a sample of V&V task reports related to requirements traceability for the SRS.

Based on the results of this inspection, the inspectors determined that corrective actions were not sufficiently complete therefore the inspectors were not be able to assess adequacy in the areas of V&V independence, training in licensing basis requirements, the scope of RSED evaluations, and licensing basis gap evaluations; therefore, the violation will remain open.

b. Findings

No findings were identified.

1A08 (Unit 3) ITAAC No. 760 / Family: 01F

.1 Resident ITAAC Inspection

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 observed the in-process installation of safety-related reinforcing steel (rebar) associated with the Vogtle Unit 3 nuclear island containment internal structures basemat to determine whether the rebar was installed in accordance with the applicable specifications, drawings, procedures and codes. During this inspection, the inspectors observed the bottom reinforcement layers A, B, and C which were the installed north-south and the east-west direction rebar as well as the radial and circumferential reinforcement. The inspectors observed this rebar to determine whether the rebar configuration, size, count, and splice length conformed to the applicable code sections of American Concrete Institute (ACI) 349-01, “Code Requirements for Safety Related Concrete Structures,” and the following WEC design drawings:

- SV3-1110-CR-002, “Containment Concrete Reinforcement Bottom Reinf Up to EL 100’-0” Layer A/B/C General Plan View,” Rev. 2;
- SV3-1110-CR-003, “Containment Concrete Reinforcement Bottom Reinf Up to EL 100’-0” Layer A Plan View,” Rev. 2;
- SV3-1110-CR-004, “Containment Concrete Reinforcement Bottom Reinf Up to EL 100’-0” Layer B Plan View,” Rev. 2; and
- SV3-1110-CR-005, “Containment Concrete Reinforcement Bottom Reinf Up to EL 100’-0” Layer C Plan View,” Rev. 2.

The inspectors also reviewed work package SV3-1110-CRW-CV0665, “Installation of Bottom Reinforcement Inside Unit 3 Containment Vessel Bottom Head,” revision 1, to determine whether quality controls were established and adhered to, such as: QC

inspection hold points, notification points, and routine inspections. The inspectors reviewed QC inspection report, C112-002-13-0009, “Pre-placement Nuclear Island Concrete: CVBH INTERIOR,” revision 0, to determine whether CB&I quality organization performed an adequate inspection of construction activities in accordance with applicable drawings and procedures.

b. Findings

No findings were identified.

.2 Regional ITAAC Inspection

a. Inspection Scope

The inspectors performed a field inspection of construction activities associated with ITAAC 760 (3.3.00.02a.i.a) for the Nuclear Island reinforcing steel inside the containment vessel bottom head at the Vogtle Unit 3 site. The field activities applied the guidance in Inspection Procedure (IP) 65001.01, “Inspection of ITAAC-Related Foundation and Buildings,” IP 65001.02, “Inspection of ITAAC Related Installation of Structural Concrete” and IP 65001.F, “Inspection of ITAAC-Related Design and Fabrication Requirements.” The inspectors conducted inspections of the concrete reinforcing steel placement, reviewed documents and applicable design drawings and specifications, and interviewed licensee personnel to verify construction activities were being conducted in accordance with design documents and applicable processes and procedures. Specifically, the inspectors verified:

- structural concrete work, design and installation was completed in accordance with applicable specifications, drawings, approved procedures and qualified personnel;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- licensee records established an adequate basis for the acceptance of ITAAC with design and fabrication attributes;
- records reflected that completed work meets design specifications and acceptance criteria.

The inspectors performed independent measurements and observations on sample areas of the reinforcing steel up to elevation 71’-6” inside the containment vessel bottom head for the proposed Unit 3 Nuclear Island. In addition, the inspectors reviewed various documents within the work packages and design control documents for the reinforcing steel, to verify:

- reinforcing steel was controlled and placed in accordance with the applicable specifications, codes, drawings, and procedures;
- analyses, calculations, bounding condition checks, functional assessments, engineering evaluations and other design reports, were consistent with the safety significance and inspection resources, so that reinforcing steel placement conformed to design drawings, all nonconforming conditions were appropriately resolved; and the licensee had established an effective method for tracking, evaluating, and dispositioning changes or modifications to the design.
- contractors had approved implementing procedures;

- reinforcing steel installation was controlled and performed in accordance with the applicable specifications, codes, drawings, and procedures
- reinforcing steel are located properly in the structure, secured, free of concrete or excessive rust, and have proper clearances
- procedures clearly prescribed acceptable methods of quality control inspection and include appropriate acceptance criteria;
- licensee had confirmed reinforcing steel conforms to design drawings and there are no deviations from design.

In addition, inspectors reviewed applicable design specifications, E&DCRs, non-conformance reports and corrective action reports associated with the rebar installation to determine whether:

- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program;
- nonconforming material was adequately identified and segregated; and
- deviations from requirements were effectively resolved.

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1A09 (Unit 3) ITAAC No. 761 / Family: 01F

.1 Resident ITAAC Inspection

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 observed the in-process installation of safety-related reinforcing steel (rebar) associated with the Vogtle Unit 3 nuclear island concrete reinforcement area below containment vessel, to determine whether rebar installation was installed in

accordance with the applicable specifications, drawings, procedures and codes. During this inspection, the inspectors independently inspected layers 4, and 5 rebar by performing independent measurements, as well as by performing observations to determine whether the rebar configuration, size, and count conformed to the following WEC design drawings:

- SV3-1010-CR-141, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 4 Reinf Plan," Rev. 2;
- SV3-1010-CR-142, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 4 Reinf Details," Rev. 2;
- SV3-1010-CR-151, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 5 Reinf Plan," Rev. 2; and
- SV3-1010-CR-152, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 5 Reinf Details," Rev. 2.

The inspectors reviewed E&DCR APP-1010-GEF-055, "Splice Requirements for Circumferential Bars," revision 0, to determine whether the as-installed circumferential rebar splice lengths conformed to the approved design documents, including this E&DCR. The inspectors also determined whether the calculated splice lengths were in accordance with the applicable code sections of ACI 349-01, "Code Requirements for Safety Related Concrete Structures."

The inspectors reviewed work package, SV3-CR10-CRW-CV0322, "Installation of Reinforcing Steel on CR-10 Module," revision 1, to determine whether quality controls were established and adhered to, such as, QC inspection hold points, notification points, and routine inspections. The inspectors reviewed QC inspection report, C112-002-12-000138, "CR10 Module – Layers 4 & 5," revision 0, to determine whether CB&I quality organization had performed an adequate inspection. The inspectors also reviewed survey data taken on both layers 4 and layers 5 to determine whether rebar were placed at correct locations.

Prior to concrete being placed underneath the containment vessel bottom head, the inspectors inspected the horizontal construction joint associated with the Vogtle Unit 3 nuclear island concrete reinforcement area below the containment vessel, which extended from radii 0' to 38' at elevation 64'-6". The inspectors observed this construction joint to determine whether the surface of the concrete was intentionally roughened in accordance with ACI 349-01, and whether the surface was clean and free of laitance. The inspectors also observed concrete placement activities in the aforementioned area to determine whether:

- concrete drop heights were within specifications;
- concrete was properly placed and consolidated; and
- concrete was placed within the required testing limits and frequency.

b. Findings

No findings were identified.

1A10 (Unit 3) ITAAC No. 763 / Family: 01F

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 24, 2013, 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 performed a field inspection of construction activities associated with ITAAC 763 (3.3.00.02a.i.d) Nuclear Island exterior walls within the radiological controlled area of the auxiliary building, at the Vogtle Unit 3 site. The field activities applied the guidance in IP 65001.01, “Inspection of ITAAC-Related Foundation and Buildings,” IP 65001.02, “Inspection of ITAAC Related Installation of Structural Concrete” and IP 65001.F, “Inspection of ITAAC-Related Design and Fabrication Requirements.” The inspectors conducted inspections of the concrete reinforcing steel placement, reviewed documents and applicable design drawings and specifications, and interviewed licensee personnel to verify construction activities were being conducted in accordance with design documents and applicable processes and procedures. Specifically, the inspectors verified:

- structural concrete work, design and installation was completed in accordance with applicable specifications, drawings, approved procedures and qualified personnel;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- licensee records established an adequate basis for the acceptance of ITAAC with design and fabrication attributes;
- records reflected that completed work meets design specifications and acceptance criteria.

The inspectors performed independent measurements and observations of the reinforcing steel for exterior walls along column lines 1 and I, from elevation 66’-6” to

elevation 82'-6", in the radiological controlled area of the auxiliary building for the Unit 3 nuclear island structures. In addition, the inspectors reviewed various documents within the work packages and design control documents for the reinforcing steel, to verify:

- reinforcing steel was controlled and placement performed in accordance with the applicable specifications, codes, drawings, and procedures;
- analyses, calculations, bounding condition checks, functional assessments, engineering evaluations and other design reports, were consistent with the safety significance and inspection resources, so that reinforcing steel placement conformed to design drawings, all nonconforming conditions were appropriately resolved; and the licensee established an effective method for tracking, evaluating, and dispositioning changes or modifications to the design.
- contractors had approved implementing procedures;
- reinforcing steel installation was controlled and performed in accordance with the applicable specifications, codes, drawings, and procedures
- reinforcing steel was located properly in the structure, secured, free of concrete or excessive rust, and had proper clearances
- procedures clearly prescribed acceptable methods of quality control inspection and included appropriate acceptance criteria;
- licensee had confirmed reinforcing steel conformed to design drawings and there were no deviations from design.

In addition, inspectors reviewed applicable design specifications, E&DCRs, non-conformance reports and corrective action reports associated with the rebar installation to determine whether:

- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program;
- nonconforming material was adequately identified and segregated; and
- deviations from requirements were effectively resolved.

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1A11 (Unit 3) ITAAC No. 875

.1 Resident ITAAC Inspection

a. Inspection Scope

During the week of April 22, 2013, the inspectors performed a report review of construction activities associated with ITAAC Number 875 (E.2.5.04.05.05.02):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
Backfill shear wave velocity is greater than or equal to 1,000 fps at the depth of the NI foundation and below.	Field shear wave velocity measurements will be performed when backfill placement is at the elevation of the bottom of the Nuclear Island foundation and at finish grade.	A report exists and documents that the as-built backfill shear wave velocity at the NI foundation depth and below is greater than or equal to 1,000 fps.

The inspectors reviewed the final report for the Vogtle Unit 3 backfill shear wave velocity testing to determine whether the information presented in the test report was in accordance with the required acceptance criteria.

b. Findings

No findings were identified.

1A12 (Unit 4) ITAAC No. 091 / Family: 06F

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 24, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 091 (2.2.01.02a):

The inspectors reviewed the upper equipment hatch (H01) JFE Steel Corporation CMTRs for four insert plate sections to determine whether the degassing process, mechanical properties (including impact toughness testing), chemical analysis, carbon equivalency, grain size, heat treatment, and simulated PWHT were in accordance with the requirements of the WEC CV material specification, and ASME Section II, Part A for SA-738, Grade B. The inspectors also reviewed the IHI ASME Form N-2 code data report (including IHI NDE records) signed by the commissioned Authorized Nuclear Inspector for the upper equipment hatch (H01) cover and penetration sleeve/insert plate to determine whether these nuclear parts were in accordance with the requirements of the 2001 edition including 2002 addenda of the ASME Section III, Subsection NE.

The inspectors reviewed sixteen CMTRs from Seo Koatsue Kogyo, Co. Ltd. For electrical penetration sleeves “E14-E16 and E30-E32”, “E27-E29”, and “E20-E26” welded to the containment vessel bottom ring S1 shell plates B4-A1, B4-A2, and B4-A3, respectively, to determine whether the vacuum degassing process, mechanical

properties (including hardness and impact toughness testing), chemical analysis, carbon equivalency, heat treatment, and simulated PWHT were in accordance with the requirements of the CB&I MS-SA-350 LF2-2773, Material Specification for SA-350 Grade LF2 Class 1 steel forgings, and ASME Section II, Part A, Ferrous Material Specification SA-350, Grade LF2, Class 1, Specification for Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components. The inspectors also reviewed three IHI ASME Form N-2 code data reports signed by the commissioned Authorized Nuclear Inspector for the bottom ring S1 course shell plates B4-A1, B4-A2, and B4-A3 each with various electrical sleeves to determine whether these nuclear parts were in accordance with the requirements of the 2001 edition including 2002 addenda of the ASME Section III, Subsection NE.

b. Findings

No findings were identified.

1A13 (Unit 4) ITAAC No. 093 / Family: 06B

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 24, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 093 (2.2.01.03a):

The inspectors reviewed CB&I's CMS 165766-000-CN-000015, Vogtle Project Lower Ring Plate Rolling Work Instruction, and CMS 165766-830-17-WI-000001, Fitting Instructions for Vertical Shell Seams, to determine whether tolerances for rolling and fitting of the lower ring shell plates were in accordance with the requirements of WEC APP-MV50-Z0-001, Containment Vessel Design Specification and ASME Section III, Subsection NE.

The inspectors observed in-process machine flux-cored arc welding (FCAW) performed by a boilermaker-welder (ID-No. 3016) on the internal side of the double-V groove between containment vessel shell plates B4-A10 and A11 for the S1 bottom course to determine whether welding was performed within the welding parameters allowed by the WPS and in accordance with the requirements of ASME Section III, Article NE-4000. During welding of this vertical butt joint, the inspectors also observed that the CB&I welding operator maintained the required minimum preheat and maximum interpass temperatures by the use of temperature indicator markers, and controlled the heat input by measuring the width and depth of the deposited weld metal to determine whether welding parameters were in accordance with the CB&I Welding Procedure Specification (WPS) E91TG-H4.

The inspectors reviewed the CB&I Master Welder Qualification List and Welder Qualification Log to determine whether the welding operator's continuity of 6 months qualification for machine FCAW in the vertical position was maintained in accordance with the requirement of ASME Section IX, QW-322, "Expiration and Renewal of Qualification."

The inspectors reviewed the X-ray films and RT reports of four completed welds (including T-weld junctions) for the containment vessel bottom head (CVBH) to determine whether the Category A longitudinal welds between plates C17/C18 and C27/C28 for the BH-3 course and plates B6/B7 and B9/B10 for the BH-2 course met the NDE acceptance criteria of NE-5320, "Radiographic Acceptance Standards," for ASME Section III, Article NE-5000, "Examination." Specifically, the inspectors reviewed CB&I NDE-RT Report Nos. U4-045, U4-041, U4-056, and U4-061, respectively, to determine if these four welds and associated RT records met the requirements of CB&I procedure CMS-830-15-PR-45154, "Radiographic Examination ASME Section III, Division 1 – Subsection NE." The inspectors reviewed the CB&I QC Inspector NDE Level II certification records for RT, MT, penetrant testing, visual testing, and solution film testing (SFT) along with his current visual acuity and color differentiation records (administered December 2012) to determine whether this X-ray film examiner was qualified in accordance with the CB&I written practice, NDE Personnel Training Qualification and Certification Program, revision 3, and ASNT SNT-TC-1A, 1992 Edition.

The inspectors reviewed eighteen Seo Koatsu Kogyo Co., Ltd. NDE records for electrical penetration sleeves "E14-E16 and E30-E32", "E27-E29", and "E20-E26" of SA-350 Grade LF2 Class 1 that were welded to the containment vessel bottom ring S1 shell plates B4-A1, B4-A2, and B4-A3, respectively, to determine whether the NDE performed on the sleeves was in accordance with the requirements of the:

- 2001 edition including 2002 addenda of the ASME Section III, Subsection NE, Article 2000;
- ASME Section II, Part A, SA-388, Practice for Ultrasonic Examination of Heavy Steel Forgings; and
- ASME Section V, Articles 5, 6, and 7 for ultrasonic, liquid penetrant, and magnetic particle examinations, respectively.

The inspectors reviewed twenty-four IHI NDE records for the full penetration corner welds between the electrical penetration sleeves "E14-E16 and E30-E32", "E27-E29", and "E20-E26" and the containment vessel bottom ring S1 shell plates B4-A1, B4-A2, and B4-A3, respectively, nine IHI NDE records for the full penetration corner welds between the sleeve and insert plate of the upper equipment hatch (H01) to determine whether fabrication and NDE was performed in accordance with the requirements of the following:

- WEC APP-MV50-Z0-001, Containment Vessel Design Specification;
- 2001 edition including 2002 addenda of the ASME Section III, Subsection NE, Article 5000; and
- Section II, Part A, SA-435, Specification for Straight-Beam Ultrasonic Examination of Steel Plates.

b. Findings

No findings were identified.

1A14 (Unit 4) ITAAC No. 095 / Family: 06C

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 24, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 095 (2.2.01.04a.i):

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.	i) A hydrostatic or pressure test will be performed on the components required by the ASME Code Section III to be tested.	i) A report exists and concludes that the results of the pressure test of the components identified in Table 2.2.1-1 as ASME Code Section III conform with the requirements of the ASME Code Section III.

The inspectors observed in-process vacuum box testing on the internal top surface area of the butt weld (between X-ray marks 45 and 47) for the mainsteam/feedwater B3-B14 insert plate to shell where one of the external stiffener gusset plates rendered the external portion of that weld inaccessible for visual examination during future pressure testing of the containment vessel to determine whether vacuum testing was performed in accordance with ASME Section III, Subsection NE, Article NE-6000 “Testing”, paragraph NE-6225 “Examination of Inaccessible Welds” and Section V, Article 10, Appendix II, Bubble Test – Vacuum Box Technique. Vacuum box testing was witnessed by the Hartford Steam Boiler Authorized Nuclear Inspector.

The inspectors reviewed twenty-two CB&I Report of Leak Test records for SFT using the vacuum box technique for the containment vessel bottom head (CVBH-2 and BH-3 courses) circumferential and longitudinal butt welds that are deemed inaccessible for visual examination (after concrete placement) during future pressure testing of the containment vessel to determine whether testing was performed in accordance with ASME Section III, Subsection NE, Article NE-6000 “Testing”, paragraph NE-6225 “Examination of Inaccessible Welds” and Section V, Article 10, Appendix II, Bubble Test – Vacuum Box Technique.

b. Findings

No findings were identified.

1A15 (Unit 4) ITAAC No. 96 / Family: 06F

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 24, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 096 (2.2.01.04a.ii):

The inspectors reviewed the upper equipment hatch (H01) JFE Steel Corporation CMTRs for four insert plate sections to determine whether impact toughness testing was in accordance with the requirements of the WEC APP-MVSO-ZO-037, AP1000 Containment Vessel: SA-738 Grade B Plates; CB&I Drawing No. 2, Sheet 1, General Notes, Design Pressure and Design Temperature; and ASME Section III, Subsection NE.

The inspectors reviewed sixteen CMTRs from Seo Koatsue Kogyo, Co. Ltd. For electrical penetration sleeves "E14-E16 and E30-E32", "E27-E29", and "E20-E26" welded to the containment vessel bottom ring S1 shell plates B4-A1, B4-A2, and B4-A3, respectively, to determine whether impact testing was in accordance with the requirements of the CB&I Material Specification for SA-350 Grade LF2 Class 1 steel forgings, and ASME Section III, Subsection NE, and Section II, Part A, Ferrous Material Specification SA-350, Grade LF2, Class 1, Specification for Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components.

b. Findings

No findings were identified.

1A16 (Unit 4) ITAAC No. 139 / Family: 06F

.1 Resident ITAAC Inspection

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 139 (2.2.02.07b.ii):

The inspectors performed the following inspection activities related to the application of safety-related coatings to the exterior of the Vogtle Unit 4 containment vessel shell plates:

The inspectors reviewed the licensee's design specification (APP-GW-Z0-604, "Applications of Protective Coatings to Systems, Structures, and Components," revision 6) to determine if the coatings to be applied to the Vogtle Units 3 and 4 containment vessels met the commitments made by the licensee in sections 3.8.2.6, "Materials, Quality Control, and Special Construction Techniques," and 6.1.2.1, "Protective Coatings," of the the Vogtle Units 3 and 4 UFSAR. The inspectors reviewed this design specification to verify that the coatings applied to the internal portions of the containment vessel (from 7 feet above the operating deck) were properly classified as Service Level I coatings as described in the UFSAR, and that the coatings applied to the external portions of the containment vessel (above elevation 135'3") were properly classified at Service Level III coatings. The inspectors also reviewed this design specification to verify that the coating type was an inorganic zinc coating and that this coating, from elevation 107'2" to 142'3", employed an epoxy topcoat, as discussed in the UFSAR. The inspectors also verified that these coatings were classified as safety-related coatings, and as such, were required to be procured under 10 CFR Part 50, Appendix B.

The inspectors reviewed Westinghouse document APP-GW-T2R-013, "AP1000 Containment Vessel Coating Test Report Summary," revision 1 in order to verify that the

specific coatings approved for use on the Vogtle Units 3 and 4 containment vessel shell were adequate to meet the following design requirements: design basis accident performance, corrosion resistance, thermal conductivity, dry film density, specific heat, and dry emissivity. The inspectors reviewed a sample of test data obtained for the actual coating material used on the Vogtle Units 3 and 4 containment vessel shell plates, and compared this test data to the acceptance criteria established by APP-GW-T2R-013 and Table 6.2.1.1-8, "Physical Properties of Passive Heat Sinks," of the Vogtle Units 3 and 4 UFSAR to verify that the coating material was adequate to meet the specified design requirements listed above. Specifically, the inspectors reviewed the test data for the Carbozinc 11 HSN material, which was included in the aforementioned test report summary.

The inspectors performed an independent onsite inspection of the dry film thickness of a sample of coatings applied by the plate supplier to determine whether the shop applied coatings met the minimum (2.0 mils) and maximum (6.0 mils) coating thickness requirements specified by APP-GW-Z0-604 and the coating manufacturer's product data sheet. The inspectors verified the coating thicknesses on the following Unit 4 plates:

- Plate B4-D8
- Plate B4-D5

b. Findings

No findings were identified.

1A17 (Unit 4) ITAAC No. 140 / Family: 01F

.1 Resident ITAAC Inspection

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 140 (2.2.02.07b.iii):

The inspectors performed the following inspection activities related to the application of safety-related coatings to the interior of the Vogtle Unit 4 containment vessel shell plates:

The inspectors reviewed the licensee's design specification (APP-GW-Z0-604, "Applications of Protective Coatings to Systems, Structures, and Components," revision 6) to determine if the coatings to be applied to the Vogtle Units 3 and 4 containment vessels met the commitments made by the licensee in sections 3.8.2.6, "Materials, Quality Control, and Special Construction Techniques," and 6.1.2.1, "Protective Coatings," of the the Vogtle Units 3 and 4 UFSAR. The inspectors reviewed this design specification to verify that the coatings applied to the internal portions of the containment vessel (from 7 feet above the operating deck) were properly classified as Service Level I coatings as described in the UFSAR, and that the coatings applied to the external portions of the containment vessel (above elevation 135'3") were properly classified at Service Level III coatings. The inspectors reviewed this design specification to verify that the coating type was an inorganic zinc coating and that this coating, from elevation 107'2" to 142'3", employed an epoxy topcoat, as discussed in the UFSAR. The

inspectors also verified that these coatings were classified as safety-related coatings, and as such, were required to be procured under 10 CFR Part 50, Appendix B.

The inspectors reviewed Westinghouse document APP-GW-T2R-013, "AP1000 Containment Vessel Coating Test Report Summary," revision 1 in order to verify that the specific coatings approved for use on the Vogtle Units 3 and 4 containment vessel shell were adequate to meet the following design requirements: design basis accident performance, corrosion resistance, thermal conductivity, dry film density, specific heat, and dry emissivity. The inspectors reviewed a sample of test data obtained for the actual coating material used on the Vogtle Units 3 and 4 containment vessel shell plates, and compared this test data to the acceptance criteria established by APP-GW-T2R-013 and Table 6.2.1.1-8, "Physical Properties of Passive Heat Sinks," of the Vogtle Units 3 and 4 UFSAR to verify that the coating material was adequate to meet the specified design requirements listed above. Specifically, the inspectors reviewed the test data for the Carbozinc 11 HSN material, which was included in the aforementioned test report summary.

The inspectors performed an independent onsite inspection of the dry film thickness of a sample of coatings applied by the plate supplier to determine if the shop applied coatings met the minimum (2.0 mils) and maximum (6.0 mils) coating thickness requirements specified by APP-GW-Z0-604 and the coating manufacturer's product data sheet. The inspectors verified the coating thicknesses on the following Unit 4 plates:

- Plate B4-D8
- Plate B4-D5

b. Findings

No findings were identified.

1A18 (Unit 4) ITAAC No. 550 / Family: 10F

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 10, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 550 (2.5.02.11):

Refer to Section 1A06.1 for results.

b. Findings

No findings were identified.

1A19 (Unit 4) ITAAC No. 551 / Family: 10F

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of June 10, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 551 (2.5.02.12):

Refer to Section 1A07.1 for results.

b. Findings

No findings were identified.

1A20 (Unit 4) ITAAC No. 875

.1 Regional ITAAC Inspection

a. Inspection Scope

During the week of April 22, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 875 (E.2.5.04.05.05.02):

The inspectors reviewed the final report for the Vogtle Unit 4 backfill shear wave velocity testing to determine whether the information presented in the test report was in accordance with the required acceptance criteria.

b. Findings

No findings were identified.

1P01 Quality Assurance Implementation, Appendix 3, Inspection of Criterion III – Design Control (35007)

a. Inspection Scope

The resident inspectors reviewed E&DCR number APP-MV50-GEF-100, “MEK Rub Requirements,” revision 0, which was associated with the Vogtle Units 3 and 4 coatings applied to the containment vessel shell. The inspectors reviewed this E&DCR to determine whether the design change received the proper level of engineering review and was incorporated into all affected documents. The inspectors verified that the E&DCR was properly incorporated by APP-GW-Z0-604, “Application of Protective Coatings to Systems, Structures, and Components for the AP1000 Reactor Plant,” revision 6.

The inspectors reviewed the licensing impact determination associated with this design change to determine whether the change was properly evaluated against the current licensing basis as described in the Vogtle Units 3 and 4 UFSAR and was performed in accordance with WEC procedure APP-GW-GAP-420, “Engineering and Design Coordination Report,” revision 7. The inspectors also reviewed this design change to determine whether the change was performed in accordance with Supplement 3S-1, “Supplementary Requirements for Design Control,” of ASME NQA-1-1994; 10 CFR Part

50, Appendix B, Criterion 3, “Design Control”; and the licensee’s quality assurance program.

The inspectors noted that this E&DCR did not change any licensing basis requirement, rather it revised the coating design specification to include the commitment to perform the MEK rub test as described in section 6.1.2.1.6, “Quality Assurance Features,” of the Vogtle Units 3 and 4 UFSAR. The inspectors noted that the failure to include this requirement originally, was identified and documented by the licensee in corrective action report number 497153 and Westinghouse IR 12-216-M010. (Refer to licensee-identified violation 05200025/2012004-03, “Criterion III Licensee Identified Violation for coatings on containment shell”)

The inspectors reviewed a sample of E&DCRs and a sample of nonconformance reports with a disposition of “repair” or “use-as-is”, to determine whether the licensee performed an adequate evaluation of the design change impact on the Vogtle Unit 3 and Unit 4 current licensing basis. The inspectors reviewed procedure APP-GW-GAP-147, “AP1000 Current Licensing Basis Review,” revision 7 to determine whether the procedure provided adequate guidance regarding the evaluation of design changes for possible impacts to the current licensing basis. The inspectors also reviewed procedures APP-GW-GAP-420, “Engineering and Design Coordination Report,” revision 7; and APP-GW-GAP-428, “Control of Nonconforming Items for the AP1000 Program,” revision 3. The inspectors noted that these procedures established the processes for E&DCR and nonconformance report processing, respectively. The inspectors verified that these procedures properly referred back to APP-GW-GAP-147 for the performance of the “Licensing Impact Determination” as part of the E&DCR and nonconformance disposition.

The inspectors reviewed the licensing impact determination screening forms for the following design changes (E&DCRs, and nonconformances with a disposition of “repair” or “use-as-is”), to determine if the licensing impact determination was completed in accordance with APP-GW-GAP-147:

- Deviation Notice (DN) SV3-1208-GNR-015, “Newport News Industrial – N&D 000031,” Revision 0;
- DN SV3-CA20-GNR-142, “Shaw Modular Solutions’ N&D APP-CA20-GNR-850008 – Vogtle 3 CA20-10 Fabrication Rebar clearance Nonconformance,” Revision 0;
- DN SV3-CA20-GNR-128,”Shaw Modular Solutions’ NCR 13-248,” Revision 0;
- DN SV3-CA20-GNR-136, “Shaw Modular Solutions’ NCR 2013-427 on CA20,” Revision 0;
- DN SV3-CA20-GNR-137, “Shaw Modular Solutions’ NCR 2013-414 on CA20,” Revision 0;
- DN SV3-CA04-GNR-001, “Shaw Modular Solutions’ NCR 2013-364 on CA04,” Revision 0;
- DN SV3-CA04-GNR-002, “Shaw Modular Solutions’ NCR 2013-373 on CA04,” Revision 0;
- DN SV0-PV03-GNR-007, “Deviation Notice for PV03 Austenitic Stainless Steel Welds Maximum Interpass Temperature,” Revision 0;
- DN SV3-CA20-GNR-143, “Shaw Modular Solutions’ NCR 2013-488,” Revision 0; and

- E&DCR APP-1208-GEF-046, “Shield Building Fabrication Scar Allowance,” Revision 0.

The inspectors reviewed licensing document change request (LDCR) LDCR-2013-031, “Containment Vessel Coatings Conformance to Regulatory Guide 1.54, Revision 2,” Version 1.0; to determine if the licensee’s change to the UFSAR was processed in accordance with the applicable QA program implementing procedures. The inspectors noted that this departure changed the licensing basis for protective coatings for the containment vessel shell and attachments to the containment vessel shell to reflect conformance to revision 2 of regulatory guide 1.54, “Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants.” The inspectors also noted that this change was applicable to Vogtle Units 3 and 4. As part of the LDCR package review, the inspectors reviewed WEC document APP-FSAR-GLN-207, “AP1000 Licensing Applicability Determination and 10 CFR 50.59 / 10 CFR 52 Appendix D Section VII Screening: CAP IR#13-127-C004,” Revision 0 to verify that the licensee had evaluated any potential impacts to Appendix C of the Vogtle Combined License or Tier 2* information contained in the UFSAR. The inspectors also reviewed WEC issue report 13-127-C004, which identified that containment vessel coatings already applied to the containment vessel shell were procured to revision 2 of the regulatory guide rather than revision 1, which was the current licensing basis for Vogtle Units 3 and 4. The inspectors reviewed this issue report to verify that the disposition was in accordance with the WEC corrective action program, and that the corrective actions, which included the processing of the aforementioned departure, were adequate.

b. Findings

No findings were identified.

1P02 Quality Assurance Implementation, Appendix 7, Inspection of Criterion VII – Control of Purchased Material, Equipment, and Services (35007)

a. Inspection Scope

The inspectors reviewed Nuclear Development Quality Assurance Assessment (NDQA) Report Numbers NDQA-2012-S43 and NDQA-2012-S54, which were performed by the licensee to confirm whether WEC and CB&I performed adequate oversight of the Vogtle Unit 3 containment vessel bottom head coatings that were applied by CB&I’s subcontractor, Williams Industrial. The inspectors reviewed this assessment to determine whether the licensee had adequately implemented the quality requirements of 10 CFR Part 50, Appendix B, Criterion VII, “Control of Purchased Material, Equipment, and Services,” and Section 7, “Control of Purchased Material, Equipment, and Services,” of the SNC Nuclear Development Quality Assurance Manual.

The inspectors reviewed the above assessment results to determine whether the licensee had appropriately assessed the effectiveness of the control of quality by CB&I and their subcontractors at intervals consistent with the importance, complexity, and quantity of the product or services. The inspectors also reviewed these reports to determine whether (1) the reports were adequate records of an activities affecting quality, (2) the reports were completed in accordance with the licensee’s quality assurance program implementing procedures, and (3) any issues identified by the

licensee were appropriately identified (documented) and corrected in accordance with the project quality requirements.

b. Findings

No findings were identified.

1P03 Quality Assurance Implementation, Appendix 12, Inspection of Criterion XII – Control of Measuring and Test Equipment (35007)

a. Inspection Scope

The inspectors performed direct observations, interviewed personnel, and reviewed documents to determine if the licensee had effectively implemented its QA program implementing documents for the control of measuring and test equipment (M&TE).

The inspectors reviewed the CB&I tracking systems for M&TE to verify that a log out/log in system was in place to control the use of M&TE and the issuance of M&TE was controlled by authorized personnel. The inspectors reviewed the active M&TE history card/usage log for the following M&TE: V-U-0017, V-U-0096, and V-U-0112.

The inspectors selected a sample of active M&TE to determine if they were identified, tagged to indicate current calibration status, and stored in accordance with applicable implementing documents. The inspectors reviewed calibration documentation of the selected M&TE to determine if they were calibrated in accordance with the specified calibration interval, accuracy was within specified limits, and documentation of the test or inspection results were traceable to the M&TE. The inspectors verified the following M&TE as part of these inspection activities:

- Coating Thickness Gage Number 109829, Calibration certificate number 0010723130;
- Temperature / Humidity Recorder Number V-U-0112, Calibration Checklist Number V-U-0112-1;
- Temperature / Humidity Recorder Number V-U-0096, Calibration Checklist Number V-U-0096-1;
- Temperature / Humidity Recorder Number V-U-0040, Calibration Checklist Number V-U-0040-2;
- Temperature / Humidity Recorder Number V-U-0017, Calibration Checklist Number V-U-0017-2;

The inspectors reviewed the temperature and humidity data recorded by the following M&TE, which was used to monitor the environmental conditions of the Level B storage of the Unit 3 Reactor Pressure Vessel (RPV) Closure Head:

- Temperature / Humidity Recorder Number V-U-0112, Calibration Checklist Number V-U-0112-1;
- Temperature / Humidity Recorder Number V-U-0096, Calibration Checklist Number V-U-0096-1;
- Temperature / Humidity Recorder Number V-U-0040, Calibration Checklist Number V-U-0040-2;

- Temperature / Humidity Recorder Number V-U-0017, Calibration Checklist Number V-U-0017-2;

The inspectors reviewed the data recorded by the above M&TE to determine whether the RPV Closure Head had been stored within the required temperature and humidity requirements established by Section 6.1.2.b, "Levels of Storage [for Level B items]," of subpart 2.2, "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants," of ASME NQA-1-1994. Specifically, the inspectors verified that the minimum temperature did not fall below 40 degrees F and did not exceed 140 degrees F.

The inspectors selected a sample of M&TE that had recently been taken out of service because of a nonconforming condition. Specifically, the inspectors reviewed a sample of CB&I out of tolerance reports, to determine whether an adequate evaluation of the validity of previous inspections and tests, since the most recent acceptable calibration, was performed and documented. The inspectors reviewed the following out of tolerance reports:

- V-OT-13-0033, temperature / humidity Recorder
- V-OT-12-0092, humidity data logger
- V-OT-12-0032, batch plant admixture flow meter

b. Findings

No findings were identified.

1P04 Quality Assurance Implementation, Appendix 13, Inspection of Criterion XIII – Handling, Storage and Shipping (35007)

a. Inspection Scope

Inspection of QA Program Implementation

The inspectors performed direct observations, interviewed personnel, and reviewed documents to determine if the licensee had effectively implemented its QA program for the storage, handling, and shipping of safety-related structures, systems, and components.

The inspectors performed a visual inspection of the following items that had been received on site, toured the warehouse facilities to verify that these items were properly stored in accordance with applicable implementing documents, and examined documentation that supported the implementation of storage requirements of items:

- Unit 3 RPV; and
- Unit 3 RPV Closure Head.

The inspectors reviewed the storage and cleanliness classifications established for the above components to determine whether they were consistent with the requirements established by section 2.2, "Classification of Items," of ASME NQA-1-1994, Subpart 2.2, "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants." The inspectors performed a walk down of

the storage areas for the above components to verify that the storage areas complied with the applicable QA program implementing documents. Specifically, the inspectors observed the storage areas to verify that they complied with the requirements established by Section 6, "Storage," and Section 6.2, "Storage Areas," of ASME NQA-1-1994, Subpart 2.2.

The inspectors observed the licensee's handling of the Unit 3 RPV to verify that it was handled in a manner that met the following requirements: APP-MV01-Z0-101, "Design Specification for AP1000 Reactor Vessel for System: Reactor Coolant System," revision 10; APP-GW-VHP-002, "Packing and Crating Instructions for Westinghouse Equipment for Domestic and Export Shipments," revision 0; 10 CFR Part 50, Appendix B; and ASME NQA-1-1994.

Regarding the storage, handling, and shipping of the RPV and RPV closure head, the inspectors verified the following storage and shipping conditions, which were prescribed by APP-MV01-Z0-101:

- the reactor vessel was shipped in a horizontal position;
- all vessel openings were sealed to prevent the entrance of moisture, and that an adequate quantity of desiccant bags were placed inside the vessel;
- the closure head was enclosed in a shipping container;
- the closure head shipping container contained an adequate quantity of desiccant bags;
- the RPV and RPV closure head were monitored with accelerometers during shipping from the supplier; and
- that the packaging and storage classification levels were suitable to protect the components from damage due to environmental conditions in accordance with ASME NQA-1-1994;

The inspectors reviewed SNC surveillance report number NDQA-2013-S01, "Reactor Vessel Storage [at Savannah, GA]," dated 1/18/2013 to determine whether the licensee had performed adequate oversight of the temporary storage of the reactor vessel at the Savannah, GA port. The inspectors reviewed this surveillance report to determine whether the licensee appropriately verified that the storage of the RPV was in conformance with the quality requirements established by 10 CFR Part 50, Appendix B and ASME NQA-1-1994.

The inspectors reviewed a sample of SNC construction surveillance reports related to the storage and handling of the RPV and RPV closure head to determine whether the licensee had established adequate measures to ensure that their contractors were properly implementing the quality and technical requirements associated with the shipping, storage, and handling of safety-related components. Specifically, the inspectors reviewed the following SNC construction surveillance reports:

- Report number 10442, "Preventative Maintenance for the Reactor Head while in transit," dated 1/8/2013;
- Report number 10486, "Preventative Maintenance for Reactor Head in storage [Vogtle Unit 3 site]," dated 1/16/2013;
- Report number 10514, "RS&H [Receiving, Shipping, and Handling] for the Reactor Head [Vogtle Unit 3 site]," dated 1/23/2013;

- Report number 10513, “Preventative Maintenance for Reactor Head in Storage [Vogtle Unit 3 site],” dated 1/23/2013;
- Report number 10561, “RS&H [Receiving, Shipping, and Handling] for the Reactor Head [Vogtle Unit 3 site],” dated 2/1/2013;
- Report number 10576, “Preventative Maintenance for Reactor Head in Storage [Vogtle Unit 3 site],” dated 2/5/2013;
- Report number 10577, “RS&H [Receiving, Shipping, and Handling] for the Reactor Head [Vogtle Unit 3 site],” dated 2/5/2013; and
- Report number 10758, “Preventative Maintenance for Reactor Head in Storage [Vogtle Unit 3 site],” dated 3/6/2013.

The inspectors reviewed the following equipment preservation check records for the RPV closure head to determine whether adequate preventative maintenance was performed to ensure that the RPV closure head nitrogen purge system was functioning properly:

- Preventative Maintenance (PM) activities for week ending 201311 (reactor vessel head nitrogen system, equipment identification SV3-RXS-N2), dated 3-13-2013;
- Preventative Maintenance (PM) activities for week ending 201314 (reactor vessel head nitrogen system, equipment identification SV3-RXS-N2), dated 4-1-2013;
- Preventative Maintenance (PM) activities for week ending 201316 (reactor vessel head nitrogen system, equipment identification SV3-RXS-N2), dated 4-15-2013;
- Preventative Maintenance (PM) activities for week ending 201318 (reactor vessel head nitrogen system, equipment identification SV3-RXS-N2), dated 4-29-2013;
- Preventative Maintenance (PM) activities for week ending 201320 (reactor vessel head nitrogen system, equipment identification SV3-RXS-N2), dated 5-14-2013; and
- Preventative Maintenance (PM) activities for week ending 201322 (reactor vessel head nitrogen system, equipment identification SV3-RXS-N2), dated 5-30-2013.

Inspection of QA Implementing Documents

The inspectors reviewed the applicable quality assurance program implementing documents for the storage, handling, and shipment of safety-related items to determine whether these procedures met the QA program requirements established by SNC and CB&I QA program manuals; 10 CFR Part 50, Appendix B; and ASME NQA-1-1994. Specifically, the inspectors reviewed the following documents related to the storage, handling, and shipping of safety-related structures, systems, and components:

- APP-GW-Z0-602, “AP1000 Cleaning and Cleanliness Requirements of Equipment For Use in Nuclear Supply and Associated Systems, revision 3;
- APP-GW-VHP-002, “Packing and Crating Instructions for Westinghouse Equipment for Domestic and Export Shipments,” revision 0;
- APP-MV01-GEM-002, “AP1000 Reactor Vessel Long Term Storage Manual,” revision 0;
- APP-GW-VHR-007, “Vogtle and VC Summer Reactor Vessel and Reactor Vessel Head Accelerometer Comprehensive Plan and Work Instructions,” revision 0;
- Section 10.0, “Preparation for Shipment,” of APP-MV01-Z0-101, “Design Specification for AP1000 Reactor Vessel for System: Reactor Coolant System,” revision 10;

- Nuclear Construction and Startup Procedure (NCSP) 3-16-1, “Preventative Maintenance Program,” dated 8/23/2012; and
- APP-GW-GAP-113 (DAPIP 8-1), “Consortium AP1000 Receiving Interface,” Revision 2.

The inspectors reviewed the above procedures to determine conformance with the following:

- 10 CFR Part 50, Appendix B, Criterion 13, “Handling, Storage, and Shipping”;
- Basic Requirement 13, “Handling, Storage, and Shipping,” of ASME
- NQA-1-1994;
- Subpart 2.1, “Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components for Nuclear Power Plants; and
- ASME NQA-1-1994, Subpart 2.2, “Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants.”

The inspectors reviewed the above documents to also determine whether they included the following provisions:

- controls for the designation of graded storage levels and the establishment of appropriate environmental conditions;
- controls for access, identification of items, coverings, and preservatives;
- conducting periodic inspections of the storage area to ensure that controlled conditions would be maintained in special environments;
- maintenance and care of items in storage, including shelf life;
- assigning responsibilities associated with the implementation of handling and storage controls;
- establishment of routine and special handling measures;
- control of rigging, lifting, hoisting equipment, and transporting equipment;
- cleanliness and environmental controls, specific moisture content levels, and temperature levels; and
- cleaning, including the use of distilled water or solvents, as appropriate.

b. Findings

No findings were identified.

1P05 Quality Assurance Implementation, Appendix 15, Inspection of Criterion XV – Nonconforming Materials, Parts, or Components (35007)

a. Inspection Scope

Inspection of QA Program Implementation

The inspectors reviewed a sample of nonconformance and disposition (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 (SWSQAP 1-74A, revision B) and

CB&I procedure QS 15.1, “Nonconformance & Disposition Report,” revision 2. The inspectors reviewed N&D reports associated with both Units 3 and 4.

The inspectors toured several of the onsite Level B, C, and D storage areas to confirm that the licensee had established areas for segregating and controlling nonconforming items. The inspectors selected a sample of nonconforming items in storage to determine if the items were segregated or marked to preclude inadvertent use, further processing, delivery, or installation.

The inspectors selected the following evaluations of nonconforming items that the licensee either rejected, repaired, reworked, or accepted through evaluation:

- SV3-CA20-GNR-000026;
- SV3-MV50-GNR-000003;
- SV3-CC01-GNR-000035;
- SV3-CC01-GNR-000033;
- SV3-CR01-GNR-000045;
- SV3-CR01-GNR-000046;
- SV3-CR01-GNR-000047;
- SV3-CC01-GNR-000036; and
- SV3-CC01-GNR-000037.

During the review of the above 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. The inspectors verified that:

- reportability screening and evaluations under 10 CFR Part 21 and 10 CFR 50.55 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 repair, or use-as-is was appropriately documented;
- nonconformances to design requirements dispositioned 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.

1P06 Quality Assurance Implementation, Appendix 16, Inspection of Criterion XVI – Corrective Action (35007)

a. Inspection Scope

Daily Corrective Action Program Review

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. Attributes reviewed included:

- classification, prioritization, and evaluation for reportability (i.e., 10 CFR 50.55) of conditions adverse to quality;
- complete and accurate identification of the problem in a timely manner commensurate with its significance and ease of discovery;
- 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 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.

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 whether:

- 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 a sample of the licensee's corrective action review board meetings.

Selected Issues for Follow-Up Inspection

Based on the 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.

4. OTHER INSPECTION RESULTS

4OA5 Other Activities

.1 Unresolved Item (URI) 5200025/2013002-001 (Closed)

a. Inspection Scope

The inspectors previously opened this URI because the licensee could not demonstrate whether the headed shear reinforcement system placed within the basemat, and specified for walls within the auxiliary building, met the spacing and anchorage requirements of ACI 349-01, and if affected structures could perform their design safety functions.

The inspectors reviewed the licensee's causal evaluation and proposed corrective actions for design control issues associated with headed shear reinforcement anchorage and spacing for the Unit 3 auxiliary building basemat and walls.

b. Findings

A licensee-identified violation of very low safety significance of 10 CFR 50, Appendix B Criterion III, "Design Control," was identified. URI 05200025/2013002-001 is closed.

4OA6 Meetings, Including Exit

.1 Exit Meeting Summary

On July 11, 2013, the inspectors presented the inspection results to Mr. 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.

4OA7 Licensee-Identified Violations.

.1 Licensee Identified Violation (LIV) 05200025/2013003-01 (Opened/Closed)

a. Introduction

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as a Non-Cited Violation.

b. Description

10 CFR 50, Appendix B Criterion III, "Design Control," states, in part, that measures shall be established to assure that applicable regulatory requirements are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, the anchorage of the headed shear reinforcement in the basemat and walls of the NI, as detailed in the final design documents, did not comply with the provisions of ACI 349-01, as required by the UFSAR.

This violation was material to ITAACs 762 (3.3.00.02a.i.c) and 763 (3.3.00.02a.i.d), because the anchorage of the headed shear reinforcement in the basemat and walls of the NI did not conform to the approved design. This violation is associated with an inspection finding that is characterized by the Significance Determination Process as having very low risk significance (i.e., green) and is being treated as a Noncited Violation, consistent with Section 2.3.2 of the Enforcement Policy. This violation is in the licensee's corrective action program as Condition Reports 517636, 521738, 532772, 554151, and 554151. The finding is green because the licensee demonstrated that the design function of the applicable structure was not impaired by the deficiency.

In order to comply with NRC regulation and thus close the issue of this LIV being material to the ITAACs listed above the licensee submitted a License Amendment Request (LAR13-009, ML 13080A329) to the NRC. This LAR requested that the license be amended for the use of ACI 318-11 for design of shear reinforcement and to allow for shear reinforcement systems that differ from those specified in the UFSAR. The LAR was approved by the NRC (ML 13081A372). With the approval of the LAR, this issue is no longer material to ITAACs 762 and 763

The inspectors then determined that the licensee adequately implemented corrective actions to resolve the issue of the anchorage of the headed shear reinforcement in the basemat and walls of the NI based on the review of the supporting documents, LAR approval, and discussions with licensee personnel. This LIV is closed.

KEY POINTS OF CONTACT

Licensees and Contractor Personnel

S. Bradley – WEC Licensing Engineer
V. Burchette – CB&I Process Control Coordinator
J. Cournoyer – Williams Specialty Services, L.L.C.
G. Couture – WEC Licensing
C. Defnall – SNC Supplier Compliance
J. Goans – WEC Quality Assurance Engineer
S. Hand – CB&I Quality Assurance Manager
B. Hirmanpour – SNC Quality
N. Jackiw – SNC Licensing
D. Jarosh – WEC Verification & Validation Manager
D. Jones – SNC VP Technical Compliance
M. Jones – SNC Engineering
G. Koucheravy – WEC Site Operations
K. Kroll – WEC Licensing
D. Lipscomb – WEC CV Project Manager
J. Logue – SNC ITAAC Project Engineer
C. Morrow – SNC Licensing
S. Mullen – WEC System Engineering Manager
T' O'Brien – SNC Supplier Compliance
W. Odess-Gillett – WEC Licensing
P. Porco – WEC Test Manager
L. Pumsey – CB&I Site Superintendent
H. Richards – SNC Materials Program Supervisor
D. Salisbury – CB&I Quality Control Supervisor
M. Shaggo – WEC Licensing and Engineering Director
M. Tanner- SNC Nuclear Island Compliance Supervisor
J. Tull – WEC Quality Assurance
M. Uzman – WEC Verification & Validation
M. Yox – SNC Licensing

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05200025/2013002-001	URI	Anchorage and spacing of the headed shear reinforcement (Section 4OA5.1)

Opened/Closed

05200025/2013003-01	LIV	Headed Shear Reinforcement Anchorage in Auxiliary Building Basemat and Walls (Section 4OA7.1)

Discussed

05200025/2012009-01, 05200026/2012009-01	VIO	Inadequate Design Control of Software Development (Sections 1A06.1, 1A07.1, 1A18.1, 1A19.1)

DOCUMENTS REVIEWED

Section 1A01.1:

RIR number U3-170 for piece mark (plate) B3-E2 (Vogtle Unit 3 containment vessel shell);
RIR number U3-171 for piece mark (plate) B3-E3 (Vogtle Unit 3 containment vessel shell);
RIR number U3-182 for piece mark (plate) B3-C14 (Vogtle Unit 3 containment vessel shell);
RIR number U3-183 for piece mark (plate) B3-C15 (Vogtle Unit 3 containment vessel shell);
RIR number U3-145 for piece mark (external stiffener) B3-F4 (Fabricated Code Material External Stiffener);
N-2 ASME Code Data Report for the external stiffener (piece mark B3-F4);
APP-MV50-Z0-03, "AP1000 Containment Vessel: SA-738 Grade B Plates"

Section 1A01.2:

CB&I, Drawing No. 31, External Stiffener Field Assembly, Sheet 1, Revision 9
CB&I, Receiving Inspector Report – Nuclear No. RIR-U4-085 from Unit 4 B4-A10 shell plate to Unit 3 as B3-A10
CB&I, Receiving Inspector Report – Nuclear No. RIR-U4-080 from Unit 4 B4-A11 shell plate to Unit 3 as B3-A11
CMTR 6164-5, Heat-No. 4-0311, Lot-No. E1280A, JFE Steel Corporation, Part-No. B4-A10-1 (now B3-A10-1 for Unit 3) shell plate, dated 06/10/2011
CMTR 6164-6, Heat-No. 4-0311, Lot-No. DX097A, JFE Steel Corporation, Part-No. B4-A11-1 (now B3-A11-1 for Unit 3) shell plate, dated 06/10/2011

Section 1A02.1:

Traveler Set U3-S5-E2/E, "Weld S5 Ring Vertical Seam";
Traveler Set U3-S6-C14/C1, "Weld S6 Ring Vertical Seam";
Magnetic Particle (MT) Examination Report numbers U3-351 and U3-354;
CMS-830-15-PR-4516, "Magnetic Particle Examination, Color Contrast, Dry Yoke, ASME Section IV, Division–1 – Subsection "E," revision 1;
CB&I RT procedure CMS-830-15-PR-45154, "Radiographic Examination ASME Section III, Division 1 – Subsection NE," Rev. 1;
CMS-830-15-PR-4515, "Visual Inspection of Welds ASME Section III, Division–1 – Subsection E," Revision 2;
CB&I written practice (CB&I NDE Personnel Training Qualification and Certification Program, revision 3);
Calibration / Certification Records for: MT weight plate S/N 9911, light meter S/N 10070200040, MT inspection powder batch number 11MO15, and infrared thermometer S/N 18560013;
RT film for Vogtle Unit 3 containment vessel welds B3-E2 to B3-E3 and B3-C14 to B3-C15;
RT Report Numbers U3-144 and U3-160;

Section 1A02.2:

Radiographic (RT) Film for Vogtle Unit 3 insert plate welds to containment vessel shell (B3-B13 and B3-B14);
RT Reports RT-U3-181 and RT-U3-180;
CB&I visual inspection procedure CMS-830-15-PR-4515", "Visual Inspection of Welds ASME Section III, Division–1 – Subsection E," Revision 2;

CB&I RT procedure CMS-830-15-PR-45154, “Radiographic Examination ASME Section III, Division 1 – Subsection NE,” Rev. 1;

Section 1A02.3:

WEC, APP-MV50-Z0-001, Containment Vessel Design Specification, Revision 8, dated 3/2/2012
IHI, Ultrasonic Examination Record, UT-003-BP-WB3-P23-N, CV Lower Ring Mainsteam Penetration Block B3-B14, Before PWHT (from internal surface of sleeve), dated 5/17/2011
IHI, Ultrasonic Examination Record, UT-003-AP-WB3-P23-N, CV Lower Ring Mainsteam Penetration Block B3-B14, After PWHT (from internal surface of sleeve), dated 6/7/2011
IHI, Ultrasonic Examination Record, UT-003-BP-WB3-P25-N, CV Lower Ring Feedwater Penetration Block B3-B14, Before PWHT (from internal surface of sleeve), dated 5/17/2011
IHI, Ultrasonic Examination Record, UT-003-AP-WB3-P25-N, CV Lower Ring Feedwater Penetration Block B3-B14, After PWHT (from internal surface of sleeve), dated 6/7/2011

Section 1A03.1:

CB&I MS-SA-738B-2888, Material Specification for SA738 Grade B Steel Plate
CMTR 6004-1, Heat-No. 5-2247, Lot-No. F1343A, JFE Steel Corporation, Part# B3-B13-1, Insert Plate (P24/P26/P45), SA-738 Grade B, dated 08/25/2010
CMTR 5909-1, Heat-No. 4-8087, Lot-No. HE194A, JFE Steel Corporation, Part# 3-P24-S, Penetration Sleeve P24, SA-738 Grade B, dated 10/19/2009
CMTR 5910-1, Heat-No. 4-8087, Lot-No. HE194B, JFE Steel Corporation, Part# 3-P26-S, Penetration Sleeve P26, SA-738 Grade B, dated 10/19/2009
CMTR G20818-042CM, Heat-No. JOL4527, Lot-No. AF48001, Seo Koatsu Kogyo, Co. Ltd., Part# 3-P45-S, Penetration Sleeve P45, SA-350 Grade LF2 Class 1, dated 12/16/2010
CMTR 6004-3, Heat-No. 5-3669, Lot-No. GJ153A, JFE Steel Corporation, Part# B3-B14-1, Insert Plate (P23/P25/P44), SA-738 Grade B, dated 10/12/2010
CMTR 5909-1, Heat-No. 4-8087, Lot-No. HE194A, JFE Steel Corporation, Part# 3-P23-S, Penetration Sleeve P23, SA-738 Grade B, dated 10/19/2009
CMTR 5910-1, Heat-No. 4-8087, Lot-No. HE194B, JFE Steel Corporation, Part# 3-P25-S, Penetration Sleeve P25, SA-738 Grade B, dated 10/19/2009
CMTR G20818-041CM, Heat-No. JOL4527, Lot-No. AF47901, Seo Koatsu Kogyo, Co. Ltd., Part# 3-P44-S, Penetration Sleeve P44, SA-350 Grade LF2 Class 1, dated 8/10/2011

Section 1A04.1:

APP-GW-Z0-60, “Applications of Protective Coatings to Systems, Structures, and Components,” revision 6;
APP-GW-T2R-01, “AP1000 Containment Vessel Coating Test Report Summary,” revision 1;
Carbozinc 11 HSN product data sheet;
ASTM D453, “Standard Guide for Establishing Procedures to Qualify and Certify Personnel Performing Coating Work Inspection in Nuclear Facilities”;
ASTM D549, “Standard Guide for Developing a Training Program for Personnel Performing Coating work Inspection for Nuclear Facilities”;
ASTM D422, “Standard Practice for Qualification of Coating Applicators for Application of Coatings to Steel Surfaces”;
Coating Record LR-C1; Plate B3-C1-1 (Lower ring B3-C1, course S3);
Coating Record LR-C2; Plate B3-C2-1 (Lower ring B3-C2, course S3);
Coating Record LR-D1; Plate B3-D1-1 (Lower ring B3-D1, course S4);

Coating Record LR-D5; Plate B3-D5-1 (Lower ring, B3-D5, course S4);
Coating Record EH-F23; Upper Equipment Hatch (Part number F23);
Certificate of conformance and product identity and quality assurance certification records for the Carbozinc 11 HSN Base (Batch # 11DN4947L), the Zinc Filler Type II (Batch # 11AD4001Z), and the Carbozinc HS Activator (Batch #11DD13340Q);
Certificate CPCI-I-3088, Certificate of Painting/Coating Inspector Personnel;
Coating Applicator Qualification Record 5901003 026R136 revision 9;
APP-MV50-GEF-10, "MEK Rub Test Requirement," revision 0;
WSS-3080-WI-00, "Work Instruction for Performing Methyl Ethyl Ketone Rub Test," revision 2;
SV3-1020-CC-90, "Nuclear Island Lower Annulus Concrete Outline - Sections (sheet "),"
revision 0;
SV3-1020-CC-90, "Nuclear Island Lower Annulus Concrete Outline – Sections (sheet "),"
revision 0;
SV3-1020-CC-90, "Nuclear Island Lower Annulus Concrete Outline – Sections (sheet "),"
revision 0;
SV3-1020-CC-90, "Nuclear Island Lower Annulus Concrete Outline – Sections (sheet "),"
revision 0;
SV3-1020-CC-90, "Nuclear Island Lower Annulus Concrete Outline – Sections (sheet "),"
revision 0;
SV3-1000-CC-90, "Nuclear Island Lower Annulus Concrete Outlet–e – Wall Details (sheet "),"
revision 0

Section 1A05.1:

APP-GW-Z0-60, "Applications of Protective Coatings to Systems, Structures, and Components,"
revision 6;
APP-GW-T2R-01, "AP1000 Containment Vessel Coating Test Report Summary," revision 1;
Carbozinc 11 HSN product data sheet;
ASTM D453, "Standard Guide for Establishing Procedures to Qualify and Certify Personnel Performing Coating Work Inspection in Nuclear Facilities";
ASTM D549, "Standard Guide for Developing a Training Program for Personnel Performing Coating work Inspection for Nuclear Facilities";
ASTM D422, "Standard Practice for Qualification of Coating Applicators for Application of Coatings to Steel Surfaces";
Coating Record LR-C1; Plate B3-C1-1 (Lower ring B3-C1, course S3);
Coating Record LR-C2; Plate B3-C2-1 (Lower ring B3-C2, course S3);
Coating Record LR-D1; Plate B3-D1-1 (Lower ring B3-D1, course S4);
Coating Record LR-D5; Plate B3-D5-1 (Lower ring, B3-D5, course S4);
APP-MV50-GEF-10", "MEK Rub Test Requirement," revision 0;

Section 1A06.1:

Task Reports
IVV_Task_RSED_RTA_WNA-DS-02506-GEN, IV&V Task Report for Requirements Traceability Analysis of WNA-DS-02506-Gen, Rev.1
IVV_Task_RSED_RTA__WNA-DS-02346-GEN, IV&V Task Report for Requirements Traceability Analysis of WNA-DS-02346, Rev. 1
IVV_Task_RSED_RTA_WNA-DS-01516-GEN_Rev4, IV&V Task Report for RSED RTA for WNA-DS-01516-GEN, Rev. 2
IVV_Task _RSED_RTA_WNA-DS-01523-Gen, IV&V Task Report for Requirements Traceability Analysis, of WNA-DS-01523-GEN, Rev. 1,

IVV_Task_RSED_RTA_WNA-DS-01837-Gen, IV&V Task Report for Requirements Traceability Analysis of WNA-DS-01837-GEN, Rev. 0
IVV_Task_SHA_APP-PMS-GER-003_R0_Requirements, IV&V Task Report for Software Hazard Analysis- Requirements Evaluation, Rev. 1

Procedures
WNA-WI-00363-GEN, Rev. 1, Instructions for updating RSED Modules for IV&V Requirements Traceability Analysis

RSEDS
WNA-DS_02346-GEN, Standard Reusable Software Element Document for Unit Conversion Custom PC Element, Rev. 5
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WNA-DS-01837-GEN, Standard Reusable Software Element for Level 2 Update Type Circuit, Rev. 2

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APP-PMS-J0R-001, AP1000 Protection and Safety Monitoring System Requirements Traceability Matrix, Rev. 2
APP-PMS-J4-102, AP1000 Protection and Safety Monitoring System Software Requirements Specification, Rev. 7
APP-PMS-GER-021, AP1000 Protection and Safety Monitoring System IV&V Phase Summary Report, Rev. 2
WNA-PV-00054-WAPP, AP1000 Protection and Safety Monitoring System Software Verification and Validation Plan, Rev. 1
APP-PMS-GER-003, Software Hazard Analysis Report of AP1000 Protection and Safety Monitoring System, Rev. 0
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IVV_Task_RSED_RTA_WNA-DS-02506-GEN, IV&V Task Report for Requirements Traceability Analysis of WNA-DS-02506-Gen, Rev.1
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WNA-WI-00363-GEN, Rev. 1, Instructions for updating RSED Modules for IV&V Requirements Traceability Analysis
NABU-DP-00015-GEN, Common Q Software Configuration Management Guidelines, Rev. 4
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WNA-IG-00342-GEN, IV&V Phase Summary Report Implementation Guide, Rev. 1
WNA-PD-00214-GEN, Requirements Management Plan Standard Template, Rev.1
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SV3-1110-CR-002, “Containment Concrete Reinforcement Bottom Reinf Up to EL 100’-0” Layer A/B/C General Plan View,” Rev. 2;
SV3-1110-CR-003, “Containment Concrete Reinforcement Bottom Reinf Up to EL 100’-0” Layer A Plan View,” Rev. 2;
SV3-1110-CR-004, “Containment Concrete Reinforcement Bottom Reinf Up to EL 100’-0” Layer B Plan View,” Rev. 2;
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SV3-1110-CRW-CV0665, “Installation of Bottom Reinforcement Inside Unit 3 Containment Vessel Bottom Head,” Rev. 1; and
C112-002-13-0009, “Pre-placement Nuclear Island Concrete: CVBH INTERIOR,” Rev. 0.

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APP-1200-CR-954, Rev. 13, Auxiliary Building Areas 5 and 6 Concrete Reinforcement Wall I Elevation
APP-1200-CR-954, Rev. 14, Auxiliary Building Areas 5 and 6 Concrete Reinforcement Wall N Elevation
APP-1110-CR-505, Rev. 5, Containment Concrete Reinforcement upto El. 71'-6" Horizontal Bars Plan
APP-1110-GEF-021, Rev. 0, Rev.1, E&DCR for Correction to Horizontal Construction Joints around KQ11 Sump and Shield Pit Door

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SV3-1010-CR-14, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 4 Reinf Plan," Rev. 2;
SV3-1010-CR-142, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 4 Reinf Details," Rev. 2;
SV3-1010-CR-15, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 5 Reinf Plan," Rev. 2;
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APP-1200-CR-954, Rev. 14, Auxiliary Building Areas 5 and 6 Concrete Reinforcement Wall N Elevation
APP-1110-CR-505, Rev. 5, Containment Concrete Reinforcement upto El. 71'-6" Horizontal Bars Plan
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IHI, ASME Data Report Form N-2 for Upper Equipment Hatch Cover and Penetration Sleeve/Insert Plate (S/N IN-4899 & 4900, respectively)
IHI, ASME Data Report Form N-2 for B4-A1 shell plate with six electrical penetrations E14-E16 and E30-E32 (S/N IN-4948)
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CMTR 6151-6, Heat-No. 6-1392, Lot-No. MT206A, JFE Steel Corporation, Part# F24-A-J2 insert plate for equipment hatch (H01), 05/27/2011
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CMTR G20818-016CM, Heat-No. AF453, Seo Koatsu Kogyo Co. LTD, Penetration Sleeve (E16) on Shell Plate (S1-B4-A1), 10/18/2011
CMTR G23452-044CM, Heat-No. AF435, Seo Koatsu Kogyo Co. LTD, Penetration Sleeve (E30) on Shell Plate (S1-B4-A1), 10/18/2011
CMTR G23452-045CM, Heat-No. AF436, Seo Koatsu Kogyo Co. LTD, Penetration Sleeve (E31) on Shell Plate (S1-B4-A1), 10/18/2011
CMTR G23452-046CM, Heat-No. AF437, Seo Koatsu Kogyo Co. LTD, Penetration Sleeve (E32) on Shell Plate (S1-B4-A1), 10/18/2011
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CB&I Welding Procedure Specification (WPS) E91TG-H4
CB&I, Welder Qualification Log, dated 5/14/13, showing continuity of operator-3016 qualification by using the last day welded with machine FCAW on 3/5/13
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CMS-830-15-PR-45154, “Radiographic Examination ASME Section III, Division 1 – Subsection NE,” Rev.1
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Seo Koatsu Kogyo Co., Ltd., Magnetic Particle Examination, G20818-011M, Piece No. AF451 (Electrical Penetration Sleeve E14) on Shell Plate (S1-B4-A1), dated 10/4/2010
Seo Koatsu Kogyo Co., Ltd., Liquid Penetrant Examination Report, G20818-011P, Piece No. AF451 (Electrical Penetration Sleeve E14) on Shell Plate (S1-B4-A1), dated 10/4/2010
Seo Koatsu Kogyo Co., Ltd., Ultrasonic Examination Report, G20818-012U, Piece No. AF452 (Electrical Penetration Sleeve E15) on Shell Plate (S1-B4-A1), dated 9/22/2010
Seo Koatsu Kogyo Co., Ltd., Magnetic Particle Examination, G20818-012M, Piece No. AF452 (Electrical Penetration Sleeve E15) on Shell Plate (S1-B4-A1), dated 9/30/2010
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Seo Koatsu Kogyo Co., Ltd., Magnetic Particle Examination, G20818-013M, Piece No. AF453 (Electrical Penetration Sleeve E16) on Shell Plate (S1-B4-A1), dated 10/14/2010
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Seo Koatsu Kogyo Co., Ltd., Ultrasonic Examination Report, G23452-044U, Piece No. AF435 (Electrical Penetration Sleeve E30) on Shell Plate (S1-B4-A1), dated 9/2/2010
Seo Koatsu Kogyo Co., Ltd., Magnetic Particle Examination, G23452-044M, Piece No. AF435 (Electrical Penetration Sleeve E30) on Shell Plate (S1-B4-A1), dated 10/30/2010
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IHI, Magnetic Particle Examination Record, MT-003-RP-WB4-E14 thru E16 and E30 thru E32-N, Assembly S1 B4-A1, CV Lower Ring, Root Pass, dated 2/14/2012
IHI, Magnetic Particle Examination Record, MT-003-BG-WB4-E14 thru E16 and E30 thru E32-N, Assembly S1 B4-A1, CV Lower Ring, Back Groove, dated 2/16/2012
IHI, Magnetic Particle Examination Record, MT-003-BR-WB4-E14 thru E16 and E30 thru E32-N, Assembly S1 B4-A1, CV Lower Ring, Back Groove Root Pass, dated 2/16/2012
IHI, Magnetic Particle Examination Record, MT-003-BP-WB4-E14 thru E16 and E30 thru E32-N, Assembly S1 B4-A1, CV Lower Ring, Before PWHT, dated 2/21/2012 and 2/23/2012
IHI, Magnetic Particle Examination Record, MT-003-AP-WB4-E14 thru E16 and E30 thru E32-N, Assembly S1 B4-A1, CV Lower Ring, After PWHT, dated 2/27/2012 and 2/29/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-4-E14 thru E16 and E30 thru E32-S, Assembly S1 B4-A1 (Field Weld), CV Lower Ring Sleeve, Weld Edge Preparation, dated 2/7/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-4-E14 thru E16 and E30 thru E32-S-2, Assembly S1 B4-A1 (Field Weld), CV Lower Ring Sleeve, Weld Edge Preparation, dated 2/27/2012 and 2/29/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-WB4-E27 thru E29-N, Assembly S1 B4-A2, CV Lower Ring Sleeve, Weld Edge Preparation, dated 2/2/2012
IHI, Magnetic Particle Examination Record, MT-003-RP-WB4-E27 thru E29-N, Assembly S1 B4-A2, CV Lower Ring, Root Pass, dated 2/6/2012
IHI, Magnetic Particle Examination Record, MT-003-BG-WB4-E27 thru E29-N, Assembly S1 B4-A2, CV Lower Ring, Back Groove, dated 2/8/2012
IHI, Magnetic Particle Examination Record, MT-003-BR-WB4-E27 thru E29-N, Assembly S1 B4-A2, CV Lower Ring, Back Groove Root Pass, dated 2/8/2012
IHI, Magnetic Particle Examination Record, MT-003-BP-WB4-E27 thru E29-N, Assembly S1 B4-A2, CV Lower Ring, Before PWHT, dated 2/13/2012
IHI, Magnetic Particle Examination Record, MT-003-AP-WB4-E27 thru E29-N, Assembly S1 B4-A2, CV Lower Ring, After PWHT, dated 2/23/2012 and 2/27/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-WB4-E27 thru E29-S, Assembly S1 B4-A2 (Field Weld), CV Lower Ring Sleeve, Weld Edge Preparation, dated 2/2/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-WB4-E27 thru E29-S-2, Assembly S1 B4-A2 (Field Weld), CV Lower Ring Sleeve, Weld Edge Preparation, dated 2/23/2012 and 2/27/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-WB4-E20 thru E26-N, Assembly S1 B4-A3, CV Lower Ring Sleeve, Weld Edge Preparation, dated 2/7/2012
IHI, Magnetic Particle Examination Record, MT-003-RP-WB4-E20 thru E26-N, Assembly S1 B4-A3, CV Lower Ring, Root Pass, dated 2/14/2012
IHI, Magnetic Particle Examination Record, MT-003-BG-WB4-E20 thru E26-N, Assembly S1 B4-A3, CV Lower Ring, Back Groove, dated 2/16/2012
IHI, Magnetic Particle Examination Record, MT-003-BR-WB4-E20 thru E26-N, Assembly S1 B4-A3, CV Lower Ring, Back Groove Root Pass, dated 2/16/2012
IHI, Magnetic Particle Examination Record, MT-003-BP-WB4-E20 thru E26-N, Assembly S1 B4-A3, CV Lower Ring, Before PWHT, dated 2/21/2012 and 2/23/2012

IHI, Magnetic Particle Examination Record, MT-003-AP-WB4-E20 thru E26-N, Assembly S1 B4-A3, CV Lower Ring, After PWHT, dated 2/29/2012 and 3/7/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-WB4-E20 thru E26-S, Assembly S1 B4-A3 (Field Weld), CV Lower Ring Sleeve, Weld Edge Preparation, dated 2/7/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-WB4-E20 thru E26-S-2, Assembly S1 B4-A3 (Field Weld), CV Lower Ring Sleeve, Weld Edge Preparation, dated 2/29/2012 and 3/7/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-WF24-A-N-S, Upper Equipment Hatch Sleeve, Weld Edge Preparation, dated 2/14/2012
IHI, Magnetic Particle Examination Record, MT-003-EP-WF24-A-N-P, Upper Equipment Hatch Insert Plate, Weld Edge Preparation, dated 1/25/2012
IHI, Magnetic Particle Examination Record, MT-003-RP-WF24-A-N, Upper Equipment Hatch Insert, Root Pass, dated 3/14/2012
IHI, Magnetic Particle Examination Record, MT-003-BG-WF24-A-N, Upper Equipment Hatch Insert, Back Groove, dated 3/16/2012
IHI, Magnetic Particle Examination Record, MT-003-BR-WF24-A-N, Upper Equipment Hatch Insert, Back Groove Root Pass, dated 3/16/2012
IHI, Magnetic Particle Examination Record, MT-003-BP-WF24-A-N, Upper Equipment Hatch Insert, Before PWHT, dated 3/26/2012
IHI, Magnetic Particle Examination Record, MT-003-AP-WF24-A-N, Upper Equipment Hatch Insert Plate, After PWHT, dated 4/16-18/2012
IHI, Ultrasonic Examination Record, UT-003-BP-F24-AA-1A,2A, Upper Equipment Hatch Insert Plate, Before PWHT (from internal surface of sleeve), dated 4/5/2012
IHI, Ultrasonic Examination Record, UT-003-AP-F24-AA-1A,2A, Upper Equipment Hatch Insert Plate, After PWHT (from internal surface of sleeve), dated 4/18/2012

Section 1A14.1:

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APP-GW-T2R-01, “AP1000 Containment Vessel Coating Test Report Summary,” revision 1;
Carbozinc 11 HSN product data sheet;
ASTM D453, “Standard Guide for Establishing Procedures to Qualify and Certify Personnel Performing Coating Work Inspection in Nuclear Facilities”;
ASTM D549, “Standard Guide for Developing a Training Program for Personnel Performing Coating work Inspection for Nuclear Facilities”;
ASTM D422, “Standard Practice for Qualification of Coating Applicators for Application of Coatings to Steel Surfaces”;

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ASTM D549, “Standard Guide for Developing a Training Program for Personnel Performing Coating work Inspection for Nuclear Facilities”;
ASTM D422, “Standard Practice for Qualification of Coating Applicators for Application of Coatings to Steel Surfaces”;

Section 1A18.1:

Task Reports
IVV_Task_RSED_RTA_WNA-DS-02506-GEN, IV&V Task Report for Requirements Traceability Analysis of WNA-DS-02506-Gen, Rev.1
IVV_Task_RSED_RTA__WNA-DS-02346-GEN, IV&V Task Report for Requirements Traceability Analysis of WNA-DS-02346, Rev. 1
IVV_Task_RSED_RTA_WNA-DS-01516-GEN_Rev4, IV&V Task Report for RSED RTA for WNA-DS-01516-GEN, Rev. 2
IVV_Task _RSED_RTA_WNA-DS-01523-Gen, IV&V Task Report for Requirements Traceability Analysis, of WNA-DS-01523-GEN, Rev. 1,
IVV_Task_RSED_RTA_WNA-DS-01837-Gen, IV&V Task Report for Requirements Traceability Analysis of WNA-DS-01837-GEN, Rev. 0
IVV_Task_SHA_APP-PMS-GER-003_R0_Requirements, IV&V Task Report for Software Hazard Analysis- Requirements Evaluation, Rev. 1

Procedures
WNA-WI-00363-GEN, Rev. 1, Instructions for updating RSED Modules for IV&V Requirements Traceability Analysis

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WNA-DS-02506-GEN, Standard Reusable Software Element Document for the Chemical and Volume Control System Motor Operated Valve Type Circuit, Rev. 1.
WNA-DS-01837-GEN, Standard Reusable Software Element for Level 2 Update Type Circuit, Rev. 2

Miscellaneous
WNA-WI-00333-GEN, Software Hazard Analysis Work Instructions, Rev. 2
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RITS 22133, WNA DS-05123-GEN Issues found in IV&V RTA
RITS 22177, WNA-DS-02346-GEN, Issues found in IV&V RTA
RITS 22197, WNA-DS-02506-GEN, Issues found in IV&V RTA
IVV_Evaluation_APP_PMS_GER-003_REV0_Tables-2b_RSE_BPL.xslx
APP-PMS-J1-001, AP1000 Protection Safety Monitoring System Functional Requirements, Rev. 6,
RITS 22130 Attachment

Attachment to RITS 24741
Attachment to RITS 24748
APP-PMS-J4-20, AP1000 Design Specification for the Protection Safety Monitoring System, Rev. 6
APP-PMS-J0R-001, AP1000 Protection and Safety Monitoring System Requirements Traceability Matrix, Rev. 2
APP-PMS-J4-102, AP1000 Protection and Safety Monitoring System Software Requirements Specification, Rev. 7
APP-PMS-GER-021, AP1000 Protection and Safety Monitoring System IV&V Phase Summary Report, Rev. 2
WNA-PV-00054-WAPP, AP1000 Protection and Safety Monitoring System Software Verification and Validation Plan, Rev. 1
APP-PMS-GER-003, Software Hazard Analysis Report of AP1000 Protection and Safety Monitoring System, Rev. 0
APP-PMS-GER-003_Tables associated with APP-PMS-GER-003, Rev. 0

Section 1A19.1:

Task Reports
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Section 1P03:

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Equipment preservation check recorded – Preventative Maintenance (PM) activities for week ending 201314 (reactor vessel head nitrogen system, equipment identification SV3-RXS-N2), dated 4-1-2013;
Equipment preservation check recorded – Preventative Maintenance (PM) activities for week ending 201316 (reactor vessel head nitrogen system, equipment identification SV3-RXS-N2), dated 4-15-2013;
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Section 1P05:

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SV3-CC01-GNR-000035;
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SV3-CR01-GNR-000045;
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Section 1P06:

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ND-AD-00“, “Corrective Action Program,” revision 17

ACRONYMS USED

ACI	American Concrete Institute
ASME	American Society of Mechanical Engineers
ASNT	American Society for Nondestructive Testing
ASTM	American Society for Testing and Materials
CB&I	Chicago Bridge and Iron
CMTR	Certified Material Test Report
CV	Containment Vessel
CVBH	Containment Vessel Bottom Head
DN	Deviation Notice
DI&C	Digital Instrumentation and Control
E&DCR	Engineering and Design Coordination Reports
EPC	Engineering, Procurement, and Construction
FCAW	Flux-cored Arc Welding
IEEE	Institute of Electrical and Electronics Engineers
IHI	Ishikawajima-Harima Heavy Industries Co., Ltd.
IP	Inspection Procedure
IR	Inspection Report
ITAAC	Inspections, Tests, Analysis, and Acceptance Criteria
LDCR	Licensing Document Change Request
LIV	Licensee Identified Violation
M&TE	Measuring and Test Equipment
MEK	Methyl Ethyl Ketone
MT	Magnetic Particle Testing
N&D	Nonconformance and Disposition
NDE	Nondestructive Examination
NDQA	Nuclear Development Quality Assurance Assessment
NRC	Nuclear Regulatory Commission
PMS	Protection and Safety Monitoring System
PWHT	Post Weld Heat Treatment
QA	Quality Assurance
QC	Quality Control
RESD	Reusable Software Element Document
RG	Regulatory Guide
RIR	Receiving Inspection Report
RPV	Reactor Pressure Vessel
RT	Radiographic Testing
SFT	Solution Film Testing
SHA	Software Hazard Analysis
SPM	Software Program Manual
SRS	Software Requirements Specification
SSA	Software Safety Analysis
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WEC	Westinghouse Electric Company
WPS	Welding Procedure Specification
V&V	Verification and Validation