



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

January 29, 2016

Michael Yox
Regulatory Affairs Director
Southern Nuclear Operating Company
7835 River Road, Bldg. 140, Vogtle 3&4
Waynesboro, GA 30830

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4 – NRC
INTEGRATED INSPECTION REPORTS 05200025/2015004, and
05200026/2015004

Dear Mr. Yox:

On December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant (VEGP) Units 3 and 4. The enclosed inspection report documents the inspection results, which the inspectors discussed on January 6, 2016, with Mr. Rauckhorst, Vogtle 3&4 Construction Vice President, along with other members of your staff and consortium staff members.

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 made 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). To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

M. Yox

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

Sincerely,

/RA/

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

Docket Nos.: 5200025, 5200026

License Nos: NPF-91, NPF-92

Enclosure: Inspection Report 05200025/2015004
and 05200026/2015004
W/attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to M. Yox from Michael Ernstes dated January 29, 2016

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4 – NRC
INTEGRATED INSPECTION REPORTS 05200025/2015004, and
05200026/2015004

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**U.S. NUCLEAR REGULATORY COMMISSION
Region II**

Docket Numbers: 5200025
5200026

License Numbers: NPF-91
NPF-92

Report Numbers: 05200025/2015004
05200026/2015004

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Unit 3 Combined License
Vogtle Unit 4 Combined License

Location: Waynesboro, GA

Inspection Dates: October 1, 2015 through December 31, 2015

Inspectors: C. Abbott, Vendor Inspector, DCIP
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Approved by: Michael Ernstes, Chief
Construction Projects Branch 4
Division of Construction Projects

Enclosure

SUMMARY OF FINDINGS

Inspection Report (IR) 05200025/2015004, 05200026/2015004; 10/01/2015 through 12/31/2015; Vogtle Electric Generating Plant (VEGP) Unit 3, VEGP Unit 4, 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 both regional and resident inspectors. The Nuclear Regulatory Commission's (NRC's) program for overseeing the construction of commercial nuclear power reactors is described in Inspection Manual Chapter (IMC) 2506, "Construction Reactor Oversight Process General Guidance and Basis Document

A. NRC-Identified and Self Revealed Findings

No findings were identified.

B. Licensee-Identified Violations

No findings were identified.

REPORT DETAILS

Summary of Plant Construction Status

For Unit 3, construction continued on the auxiliary building walls and floors from elevations 82'6" to 100'0". Concrete placements were made for the shield building and inside the containment vessel (CV). Assembly of the In Containment Refueling Water Storage Tank (IRWST)/Pressurizer wall module (CA02), IRWST southwest walls module (CA03), and the CV middle and upper rings was ongoing. Installation of mechanical modules was ongoing. Installation of first shield building panels was completed. For Unit 4, construction continued on the auxiliary building walls and floors from elevations 66'6" to 100'0". Concrete placements were made for the shield building and inside the containment vessel. Assembly of the CV lower and middle rings and of the following modules Steam Generator & Refueling Canal (CA01), Auxiliary Building Area 5 and 6 (CA20), and CVS/Access Tunnel (CA05) was ongoing. Installation of the CV lower ring was started.

1. CONSTRUCTION REACTOR SAFETY

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

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

1A01 (Unit 3) ITAAC Number 2.1.02.08a.i (28) / Family 07A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.02.08a.i (28). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.07-02.01 - General Installation
- 65001.07-02.03 - Post Installation Activities
- 65001.07-02.05 - Problem Identification and Resolution
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.02 - Installation Records Review

The inspectors reviewed quality assurance (QA) data packages associated with the Unit 3 pressurizer safety valves (S/N N900028-00-0009 and N900028-00-0010) to verify the capacity of the valves documented on American Society of Mechanical Engineers (ASME) Code plates meets the acceptance criteria. Specifically, the inspectors reviewed pictures of valve ASME Code plates and verified the sum of the relieving capacity of the two valves exceeded the design specification requirements. The inspectors verified that ASME Code plate information was documented in accordance with ASME Boiler and Pressure Vessel (B&PV) Code requirements and all required information was included on the valve plate. Additionally, the inspectors reviewed ASME NV-1 Valve Data Report Forms containing the relieving capacities certified by the National Board. The inspectors verified the information on the NV-1 Forms matched that of the information on the pictures of the valve plates and was approved by an Authorized Nuclear Inspector (ANI).

b. Findings

No findings were identified.

1A02 (Unit 3) ITAAC Number 2.1.02.08a.ii (29) / Family 07C

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.02.08a.ii (29). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.07-02.04 - Testing and Verification
- 65001.07-02.05 - Problem Identification and Resolution
- 65001.C-02.03 - Construction Test Record Review
- 65001.C-A3.07 - Valves

The inspectors reviewed QA data packages associated with the Unit 3 pressurizer safety valves (S/N N900028-00-0009 and N900028-00-0010) to verify the safety valve set pressure meets the acceptance criteria. Specifically, the inspectors reviewed the set pressure test conducted by the valve vendor to verify that the set pressure was correctly set and tested. The inspectors reviewed the results of the final set pressure test and an operational steam test conducted by the vendor. The set pressure test results were 2503, 2494, and 2500 psig for valve N900028-00-0009 and 2471, 2481, and 2474 psig for valve N900028-00-0010. These values were within the required design and technical specifications of 2460 - 2510 psig. The inspectors reviewed the vendor's test procedure to determine if the procedure contained the valve functional requirements required by Westinghouse valve design specifications. The inspectors verified testing conditions required for the operational steam tests and final pressure setting tests were met and properly documented on QA records. A prorated pressure test was performed to calculate the reseal pressure of the valves. The inspectors reviewed the calculations performed for this prorated test and to verify that correct Westinghouse design parameters were used.

The inspectors verified that the relief valve set pressure identified in the Westinghouse design specification met ASME B&PV Section III Code overpressure protection requirements. From the results of the operational steam test, the inspectors independently calculated the maximum valve overpressure and minimum reseal pressures. The inspectors verified these results met ASME Code requirements. Additionally, the inspectors reviewed ASME NV-1 Valve Data Report Forms for the safety valves. The inspectors verified set pressure information was documented on the NV-1 Forms and was approved by an ANI. The inspectors reviewed pictures of valve ASME Code plates and verified set pressure information was contained on valve Code plate in accordance with ASME B&PV Section III Code requirements.

b. Findings

No findings were identified.

1A03 (Unit 3) ITAAC Number 2.2.01.03a (93) / Family 06B

a. Inspection Scope

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

- 65001.11-02.05 - Nondestructive Examination
- 65001.B-02.05 - Inspection
- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed four radiographic reports and films for five welds to verify proper X-ray technique, geometric unsharpness, signature by a Level II Evaluator, film density, identification with location markers, sensitivity for #11 wire-type image quality indicator, and defects in butt joint groove welds were repaired and re-shot for the S9, S10, and S11 courses of the containment vessel upper ring. Specifically, the inspectors reviewed Chicago Bridge and Iron (CB&I) film interpretations for one girth weld S9/S10, a weld intersection and three vertical welds S9-E16/E17, S10-C45/C46, and S10-C47/C48 to determine whether the method and quality of X-ray radiography for production welds and repairs were performed and accepted in accordance with ASME Section III, Article NE-5000, Examination, and CB&I's written practice using certified film examiners.

During this process, the inspectors identified that the examiner's qualifications were signed by the welding manager in lieu of a Level III qualified examiner. The inspectors reviewed the delegation letter from the ASME Level III qualified examiner allowing the welding manager to administer testing and sign qualification letters.

b. Findings

No findings were identified.

1A04 (Unit 3) ITAAC Number 3.3.00.02a.i.a (760) / Family 01F

a. Inspection Scope

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

- 65001.01 - Inspection of ITAAC-Related Foundations & Buildings
- 65001.01-02.05 - Steel Structures
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.B-02.04 - Production Controls
- 65001.B-02.06 - Records

The inspectors reviewed quality records and performed direct inspection of construction activities associated with containment internal structures of Vogtle Unit 3. Specifically, the inspectors observed in-process welding and the as-built condition for the following

welds associated with a portion of structural module CA02, which forms the North-East wall of the In-Containment Refueling Water Storage Tank from elevation 103' to 135'3":

- SV3-CA02-S4K-CV5718-1;
- SV3-CA02-S4K-CV5719-1;
- SV3-CA02-S4K-CV5719-L1-1;
- SV3-CA02-S4K-CV5719-L1-2; and
- SV3-CA02-S4W-CV5719-L1-11.

For the welds listed above, the inspectors reviewed in-process welding activities to determine whether welding activities were performed in accordance with the welding procedure specification (WPS), American Welding Society (AWS) D1.6: 1999 Code, AWS D1.1 2000 Code, and 10 CFR Part 50, Appendix B. The inspectors verified that the welding parameters were in accordance with the ranges specified by the WPS. The inspectors verified that the welding was appropriately controlled by and documented on a weld record. The inspectors also reviewed the weld records for each weld listed above to determine whether the correct WPS, base material, filler material, and joint type were selected, and whether the established hold points were appropriately signed off by Quality Control (QC) inspectors.

The inspectors also reviewed the related nondestructive testing reports for welds SV3-CA02-S4K-CV5719-L1-1 and SV3-CA02-S4K-CV5719-L1-2 to verify that these reports met the applicable quality and technical requirements. Specifically, the inspectors reviewed the root pass and final liquid penetrant reports and the final ultrasonic inspection report.

b. Findings

No findings were identified.

1A05 (Unit 3) ITAAC Number 3.3.00.02a.i.b (761) / Family 01F

a. Inspection Scope

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

- 65001.01-02.01 - Procedures
- 65001.01-02.07 - Identification and Resolution of Problems
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.03 - Special Considerations
- 65001.02-02.08 - Construction Interface Concerns
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A-02.04 - Review As-Built Deviations / Nonconformances
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.01 - Design Document Review
- 65001.F-02.04 - General Quality Assurance Review

The inspectors observed on-going construction activities associated with the Unit 3 shield building reinforced concrete (RC)/ steel concrete composite (SC) horizontal connection located approximately between azimuths 173 and 342 degrees and elevations 100'-0" and 103'-6". The inspectors verified field measurements, performed visual observations, reviewed documents, and interviewed licensee personnel to assess the implementation of the QA program specific to the mechanical connection between the shield building RC walls and the SC wall panels along the western perimeter of the shield building. These activities were performed in order to verify:

- installation of structural modules was completed in accordance with applicable specifications, drawings, and approved procedures;
- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program;
- deviations were being addressed in accordance with procedure requirements; and
- nonconforming conditions identified by the licensee were being appropriately resolved.

The inspectors reviewed a sample of design calculations, drawings included in the work packages, and specifications to determine whether:

- design activities were completed in accordance with applicable specifications, drawings, and approved procedures;
- design inputs were correctly identified and documented, and that their selection was reviewed and approved by the responsible engineering group;
- design outputs were translated into drawings;
- design documentation demonstrated adequacy of design by reference to analyses, calculations, bounding condition checks, functional assessments, and/or engineering evaluations;
- the documents adequately defined the final design and arrangement of these SSCs;
- critical attributes associated with the ITAAC were correctly identified and documented for review and approval by responsible engineering personnel; and
- the documents were consistent with the design commitments and requirements of the technical specifications, the UFSAR, and code commitments.

The inspectors reviewed a sample of approved implementing procedures and specifications to determine whether the documents:

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

The inspectors reviewed work packages, design drawings, and Engineering and Design Coordination Reports (E&DCRs) associated with the mechanical connections for the shield building RC/SC horizontal transition modules located approximately between azimuths 173 and 342 degrees and elevations 100'-0" to 103'-6". The inspectors observed the installation of the heavy hex nuts and flat washers to the vertical reinforcement to verify they were installed in accordance with applicable requirements.

The inspectors observed installation activities associated with formwork and steel reinforcement, including vertical reinforcing steel bars, shear reinforcement, bar splices, and formwork, to determine whether:

- the installation activities met applicable quality and technical requirements established by approved procedures, specifications, and drawings included in the work packages;
- reinforcing steel was located properly in the structure, were sized as specified in drawings and calculations, and had proper clearances; and
- reinforcing steel was secured and free of concrete or excessive rust.

The inspectors also observed concrete placement activities associated with this section of the shield building dish from elevation 94'-0" to 103'-6", and RC/SC horizontal connection modules. The inspectors performed direct observations, interviewed licensee personnel, and reviewed associated documentation from the work package for the concrete placement to ensure the following:

- pre-placement planning and training was completed as required to assure good quality construction, provisions for mass concrete were established, and to protect against unplanned construction joints;
- pre-placement inspections were performed by QC prior to concrete placement;
- accepted procedures and specifications were followed throughout the concrete placement;
- the pump truck used to deliver the concrete to the point of placement was of suitable size and condition for the work;
- batch tickets were reviewed for verification of proper mix, transport time, placement location, and amount of temper water being added at the truck delivery point;
- placement drop distances did not exceed specification requirements and did not result in segregation;
- special attention was given to areas of high reinforcing steel congestion and material was consolidated within the RC/SC horizontal connection modules such that excess concrete was observed exiting the vent holes in the horizontal support plates;
- concrete was placed in lifts in accordance with the concrete placement plan;
- inspection during placement was performed as required;
- records were produced and reviewed, and indicated mix, location, time placed, water additions, and temperature of the concrete mix and ambient conditions;
- in process testing for concrete temperature, slump, air content, and unit weight were being determined at the proper location and frequency as required in the design specifications;

- test specimen samples, for concrete strength determination, were sampled at the required location and frequency and are cured in accordance with specified requirements; and
- concrete curing was in accordance with specifications and procedures with regard to the method, materials, duration, temperature, inspections, and records.

The inspectors observed curing activities to determine whether curing was in accordance with specifications and procedures with regard to the method, materials, temperature, and inspections. Additionally, the inspectors reviewed aspects of the concrete placement processes to determine whether process controls were in place, to verify that issues identified were adequately documented and corrected, and to verify that any process related issues did not adversely affect the concrete quality.

b. Findings

No findings were identified.

1A06 (Unit 3) ITAAC Number 3.3.00.02a.i.b (761) / Family 01F

a. Inspection Scope

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

- 65001.01 - Inspection of ITAAC-Related Foundations & Buildings
- 65001.01-02.05 - Steel Structures
- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.02 - Fabrication Records Review

The inspectors observed on-going construction activities associated with the Unit 3 shield building. The inspectors conducted field measurements and reviewed relevant documents to assess the implementation of the portion of the QA program specific to structural module design and fabrication activities. The inspectors reviewed various documents, such as design drawings, work instructions, inspection reports, and material certificates of conformance to verify:

- design and fabrication of structural modules was completed in accordance with applicable specifications, drawings, and approved procedures;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- the licensee confirmed that components inspected conformed to design drawings and that deviations were being addressed in accordance with procedure requirements;

- nonconforming conditions identified by the licensee were being appropriately resolved; and
- if the as-built configuration was in accordance with the final design of the facility and met the associated ITAAC.

The inspectors performed independent measurements on the following samples of steel concrete composite structural sub-modules for the Unit 3 shield building:

- steel concrete composite panels 13L and 13M which are located in the northwest and northeast quadrants, respectively, of the cylindrical shield building wall between elevations 209'-6" and 219'-6".

Specifically, the inspectors measured the following sub-module components: headed stud spacing and dimensions; module plate thickness; and tie-bar spacing and dimensions. The inspectors also observed general module assembly and welds.

The inspectors reviewed various documents, such as sub-module design drawings and specifications, to verify:

- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings;
- design documents associated with ITAAC adequately defined the design and arrangement of the sub-module fabrication;
- applicable construction specifications, installation specifications, shop and field drawings, and construction procedures correctly identified and documented sub-modules for review and approval by responsible engineering personnel;
- fit-up tolerances for length, depth, and straightness of structural members were as specified; and
- critical attributes of as-built Structures, Systems, and Components (SSC) conform to the design.

b. Findings

No findings were identified.

1A07 (Unit 3) ITAAC Number 3.3.00.02a.i.b (761) / Family 01F

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.03 - Observation of Fabrication Activities

The inspectors observed fit-up & tack and in-process machine flux core arc welding (FCAW) of two vertical weld seams CV8648-8-KL-O and CV8648-8-KL-I for the shield building submodules 8L and 8K performed by welding operators WJG5264 and MEW6934, respectively, using full penetration single-V groove butt joints with backing bars. Specifically, the inspectors reviewed weld records to verify that established QC hold points were signed-off for fit-up and tack before initiating the root pass, and the certified welding operators had current qualifications and were able to follow the required welding parameters described in welding procedure WPS2-1.1F20-SB using flux-cored wire AWS Classification E71T-1M. The welding parameters included the wire feed speed, travel speed, voltage, and gas mixtures in accordance with the requirements of the AWS D1.1:2000 code for welding structural steel.

In addition, the inspectors reviewed five Mistras nondestructive examination (NDE) reports and four personnel certifications with annual visual acuity records for phased array ultrasonic testing (UT) to determine whether inspection methods and techniques for straight and angle beam scanning, calibration, frequency, transducer size, wedge angle, and sensitivity for 10% examination of acceptable seam welds were performed in accordance with the requirements of American Institute of Steel Construction (AISC) N690-1994 paragraphs Q1.26.1.1 and Q1.26.2.1, and AWS D1.1:2000-Annex K for statically loaded structures.

b. Findings

No findings were identified.

1A08 (Unit 3) ITAAC Number 3.3.00.02a.i.d (763) / Family 01F

a. Inspection Scope

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

- 65001.01 - Inspection of ITAAC-Related Foundations & Buildings
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors reviewed quality records and performed direct inspection of construction activities associated with the radiologically controlled area of the Auxiliary Building for Vogtle Unit 3. Specifically, the inspectors observed construction activities associated with the following wall sections between elevation 82'-6" and 100'-0":

- wall section along column line "I" between column lines 1 and 2;
- wall section along column line "I" between column lines 2 and 3;
- wall section along column line "1" between column lines "I" and J-1; and
- wall section along column line "1" between column lines J-1 and J-2.

For the wall sections listed above, the inspectors reviewed a sample of drawings included in the work packages as well as specifications to determine whether:

- design outputs were translated into drawings;
- the documents adequately defined the final design and arrangement of these SSCs; and
- the documents were consistent with the design commitments and requirements of the technical specifications, the Updated Final Safety Analysis Report (UFSAR), and code commitments.

The inspectors observed installation activities for the wall sections listed above associated with steel reinforcement, including horizontal and vertical reinforcing steel bars, shear reinforcement, and bar splices, to determine whether:

- the installation activities met applicable quality and technical requirements established by approved procedures, specifications, and drawings included in the work packages;
- reinforcing steel were located properly in the structure, and were sized as specified in drawings; and
- reinforcing steel were secured and free of concrete or excessive rust.

On October 2, 2015, the inspectors observed CB&I concrete placement 14 & 15 (wall segments I & 1) at the 82'-6 to 100'-0" elevation. During this inspection, the inspectors observed concrete placement activities to determine whether:

- accepted procedures and specifications were followed throughout the concrete placement;
- the equipment used was suitable and sized for the work;
- placement drop distances did not exceed specification requirements; and
- inspection during placement was performed as required.

The inspectors also observed in-process concrete testing activities to determine whether:

- concrete temperature, slump, air content, and unit weight were determined at the proper locations and frequency as required by procedures, specifications, and American Society for Testing and Materials (ASTM) standards;
- sample collection and testing techniques conformed to the procedures, specifications, and ASTM standards; and
- concrete strength test sample cylinders were made at the required locations and frequency.

b. Findings

No findings were identified.

1A09 (Unit 3) ITAAC Number 3.3.00.02a.i.d (763) / Family 01Fa. Inspection Scope

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

- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls

The inspectors observed the in-process fit-up and tack welding for weld number CV4112-30-C1, a complete joint penetration weld in the spent fuel transfer canal wall above 82'6". The inspectors observed the in-process welding to verify that welding parameters were in conformance with welding procedure specification WPS5-10H.10HT70 and General Welding Standard GWS-5. The inspectors verified that the welding joint conformed to the joint designation specified by construction. The inspectors reviewed the in-process welding record to verify that specified hold points had been established and were adhered to.

The inspectors reviewed certified material test report (CMTR) for ER2209 filler metal heat number 1203C to determine whether the material met the requirements of Welding Filler Material Specification DMD-M-NS-592209GTAW-02 and SFA-5.9, "Specification for Bare Stainless Steel Welding Electrodes and Rods," 1998 edition with addenda through 2000.

The inspectors reviewed the CMTR for the wall plug base material, heat number 859654, to determine whether the material met the requirements of ASTM A240 and SV3-SS-C-00004, Summary Specification for Safety-Related Miscellaneous Structural Steel.

The inspectors also reviewed the qualification records for the welder to determine whether he was qualified in accordance with the CB&I quality assurance and welding program requirements.

b. Findings

No findings were identified.

1A10 (Unit 3) ITAAC Number 3.3.00.02a.i.d (763) / Family 01Fa. Inspection Scope

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

- 65001.01 - Inspection of ITAAC-Related Foundations & Buildings
- 65001.01-02.05 - Steel Structures

- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed on-going construction activities associated with the U3 CA20 structural module which is located in the radiologically controlled area of the auxiliary building. The inspectors reviewed the Nonconformance and Disposition Reports (N&D), E&DCRs, and Inspection Reports (IR) listed in the documents reviewed section to verify:

- problems are identified at an appropriate threshold and entered into the corrective action program;
- nonconforming conditions are appropriately identified, evaluated, and dispositioned;
- repairs, rework, and design changes are completed in accordance with applicable codes, standards, regulations, and quality, technical, and licensing requirements;
- quality assurance controls are properly implemented; and
- the final accepted condition complies with the approved design.

The inspectors observed work in the field associated with the concrete pre-placement activities for the CA20 structural module walls. Specifically, the inspectors were able to observe the installation of steel couplers in the south and east walls of CA20 at the 100' elevation. These couplers will act as a structural connection between the CA20 walls and the floors at the 100' elevation. The inspectors evaluated the work being completed in the field to the requirements within work package SV3-CA20-S52-CV7519, "Installation of Couplers per APP-1230-GEF-171," Rev. 0. The inspectors observed interactions with QC inspectors and were able to determine that the QC inspectors had proper authority at hold points and were completing the required inspections.

b. Findings

No findings were identified.

1A11 (Unit 3) ITAAC Number 3.3.00.02a.ii.a (764) / Family 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.ii.a (764). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors independently measured the thickness of the reactor vessel cavity walls prior to concrete placement. The inspectors measured the distance between the reactor vessel cavity module CA04 and the CA01 module to determine whether the as-built distance met the specified concrete thicknesses in Table 3.3-1, "Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building," of Appendix C, "Inspections, Tests, Analyses, and Acceptance Criteria," of the Vogtle Unit 3 Combined License (COL). Specifically, the inspectors measured two points from 83'-0" to 98'-0" for each of the following walls:

- West Reactor Vessel Cavity Wall;
- North Reactor Vessel Cavity Wall; and
- East Reactor Vessel Cavity Wall.

Each of the six total measurements were within the tolerances specified by Table 3.3-1.

b. Findings

No findings were identified.

1A12 (Unit 3) ITAAC Number 3.3.00.02a.ii.b (765) / Family 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.ii.b (765). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.01-02.06 - Records
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed inspection of construction activities to determine whether the plate separation of shield building sub-modules conforms to the required thicknesses of the building sections. Specifically, the inspectors performed independent measurements of a sample of shield building cylinder sub-modules. The sampled wall sections included:

- steel concrete composite sub-modules 08K and 08L at elevation 159'-6";
- steel concrete composite sub-module 11L and 11M at elevation 189'-6";
- steel concrete composite sub-module 12A and 12M at elevation 199'-6"; and
- steel concrete composite sub-module 13G at elevation 209'-6".

The inspectors reviewed approved design drawings and the Vogtle Unit 3 Combined License, Appendix C, Table 3.3-1, to verify the shape, size, dimensions, and sub-module type conformed to the specifications and design drawings.

b. Findings

No findings were identified.

1A13 (Unit 3) ITAAC Number 3.3.00.02a.ii.d (767) / Family 01Aa. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.ii.d (767). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed independent measurements of a sample of cast in place reinforced concrete walls located in the radiological controlled area of the auxiliary building to determine whether they conformed to the as-built thickness requirements of the Vogtle Unit 3 Combined License, Appendix C, Table 3.3 1. Specifically, the inspectors verified the as-built thickness of the wall along column line J-1 from column line 4 to the shield building between elevations 66'-6" and 82" 6".

b. Findings

No findings were identified.

1A14 (Unit 3) ITAAC Number 3.3.00.02a.ii.d (767) / Family 01Aa. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.ii.d (767). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed independent measurements of a sample of cast in place reinforced concrete walls located in the radiological controlled area of the auxiliary building to determine whether they conformed to the as-built thickness requirements of the Vogtle Unit 3 Combined License, Appendix C, Table 3.3 1. Specifically, the inspectors verified the as-built thickness of the walls along column lines 2 and 4 from column line I to the CA20 module between elevations 82" 6" and 100'-0".

b. Findings

No findings were identified.

1A15 (Unit 4) ITAAC Number 2.1.02.08a.i (28) / Family 07Aa. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.02.08a.i (28). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.07-02.01 - General Installation

- 65001.07-02.03 - Post Installation Activities
- 65001.07-02.05 - Problem Identification and Resolution
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.02 - Installation Records Review

The inspectors reviewed QA data packages associated with the Unit 4 pressurizer safety valves (S/N N900028-00-0013 and N900028-00-0014) to verify the capacity of the valves documented on ASME Code plates meets the acceptance criteria. Specifically, the inspectors reviewed pictures of valve ASME Code plates and verified the sum of the relieving capacity of the two valves exceeded the design specification requirements. The inspectors verified that ASME Code plate information was documented in accordance with ASME B&PV Code requirements and all required information was included on the valve plate. Additionally, the inspectors reviewed ASME NV-1 Valve Data Report Forms containing the relieving capacities certified by the National Board. The inspectors verified the information on the NV-1 Forms matched that of the information on the pictures of the valve plates and was approved by an ANI.

b. Findings

No findings were identified.

1A16 (Unit 4) ITAAC Number 2.1.02.08a.ii (29) / Family 07C

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.02.08a.ii (29). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.07-02.04 - Testing and Verification
- 65001.07-02.05 - Problem Identification and Resolution
- 65001.C-02.03 - Construction Test Record Review
- 65001.C-A3.07 - Valves

The inspectors reviewed QA data packages associated with the Unit 4 pressurizer safety valves (S/N N900028-00-0013 and N900028-00-0014) to verify the safety valve set pressure meets the acceptance criteria. Specifically, the inspectors reviewed the set pressure test conducted by the valve vendor to verify that the set pressure was correctly set and tested. The inspectors reviewed the results of the final set pressure test and an operational steam test conducted by the vendor. The set pressure test results were 2489, 2497, and 2490 psig for valve N900028-00-0013 and 2498, 2483, and 2466 psig for valve N900028-00-0014. These values were within the required design and technical specifications of 2460 - 2510 psig. The inspectors reviewed the vendor's test procedure to determine if the procedure contained the valve functional requirements required by Westinghouse valve design specifications. The inspectors verified testing conditions required for the operational steam tests and final pressure setting tests were met and properly documented on QA records. A prorated pressure test was performed to calculate the reseal pressure of the valves. The inspectors reviewed the calculations performed for this prorated test and to verify that correct Westinghouse design parameters were used.

The inspectors verified that the relief valve set pressure identified in the Westinghouse design specification met ASME B&PV Section III Code overpressure protection requirements. From the results of the operational steam test, the inspectors independently calculated the maximum valve overpressure and minimum reseal pressures. The inspectors verified these results met ASME Code requirements. Additionally, the inspectors reviewed ASME NV-1 Valve Data Report Forms for the safety valves. The inspectors verified set pressure information was documented on the NV-1 Forms and was approved by an ANI. The inspectors reviewed pictures of valve ASME Code plates and verified set pressure information was contained on valve Code plate in accordance with ASME B&PV Section III Code requirements.

b. Findings

No findings were identified.

1A17 (Unit 4) ITAAC Number 2.2.01.03a (93) / Family 06B

a. Inspection Scope

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

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.11-02.03 - Installation and Welding
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection

The inspectors conducted an inspection on the installation of the containment vessel lower ring and the girth weld between the containment vessel bottom head and the containment vessel lower ring. Specifically, the inspectors observed base metal surface cleanliness, fit-up, induction preheating, tack and root pass welding using a ceramic retainer, and continual cleaning of girth weld number U4-S1/BH3 to determine whether installation activities were in accordance with ASME Section III, Article NE-4000, Fabrication and Installation. In addition, the inspectors reviewed certified welder performance qualification records, a weld filler metal purchase order, and Lincoln Electric CMTR for lot number 1204D to verify that testing variables, conditions, and results were in accordance with ASME Section IX, Article III, Welder Performance Qualifications, and Section II, Part C, Specifications for Welding Rods, Electrodes, and Filler Metals, respectively.

b. Findings

No findings were identified.

1A18 (Unit 4) ITAAC Number 3.3.00.02a.i.a (760) / Family 01Fa. Inspection Scope

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

- 65001.01 - Inspection of ITAAC-Related Foundations & Buildings
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.02 - Laboratory Testing
- 65001.02-02.03 - Special Considerations
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.02-02.08 - Construction Interface Concerns
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F-02.01 - Design Document Review

The inspectors reviewed quality records and performed direct inspection of construction activities associated with the containment internal structures for Vogtle Unit 4. Specifically, the inspectors observed construction activities associated with the concrete inside containment between elevations 71'-6" and 76'-6".

The inspectors reviewed a sample of design calculations, drawings included in the work packages, and specifications to determine whether:

- design activities were completed in accordance with applicable specifications, drawings, and approved procedures;
- design outputs were translated into drawings;
- the documents adequately defined the final design and arrangement of these SSCs;
- critical attributes associated with the ITAAC were correctly identified and documented for review and approval by responsible engineering personnel; and
- the documents were consistent with the design commitments and requirements of the technical specifications, the UFSAR, and code commitments.

The inspectors observed installation activities associated with steel reinforcement, including horizontal and vertical reinforcing steel bars, shear reinforcement, dowel bars extending above 76'-6", and bar splices, to determine whether:

- the installation activities met applicable quality and technical requirements established by approved procedures, specifications, and drawings included in the work packages;
- piping and reinforcing steel were located properly in the structure, were sized as specified in drawings and calculations, and had proper clearances; and
- reinforcing steel was secured and free of concrete or excessive rust.

The inspectors performed independent inspection and measurements to determine whether the steel reinforcement conformed to the design specifications, calculations, and drawings included in the work package.

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

- accepted procedures and specifications were followed throughout the concrete placement;
- the equipment used was suitable and sized for the work;
- each batch ticket was reviewed for verification of proper mix, transport time, placement location, and amount of temper water being added at the truck delivery point;
- placement drop distances did not exceed specification requirements and did not result in segregation;
- vibrators were approved and calibrated;
- vibrators were handled and operated to ensure adequate consolidation and avoid voiding or honeycombing, including vertical operation and penetration through the new concrete into the previously placed layer;
- concrete was placed in lifts in accordance with the concrete placement plan;
- inspection during placement was performed as required; and
- records were produced, reviewed, and indicate mix, location, time placed, water additions, temperature of the concrete mix, and ambient conditions.

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

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

The inspectors observed curing activities to determine whether curing was in accordance with specifications and procedures with regard to the method, materials, duration, and temperature.

The inspectors observed laboratory testing activities, including drilled concrete core cylinder compression breaks, to determine whether:

- testing conformed to the test procedures and ASTM standards;
- materials and concrete being tested were controlled as required;
- the test procedures were available at the work location;
- testing was performed at required intervals and times;
- testing apparatus were calibrated and maintained; and
- personnel running the tests were qualified and knowledgeable.

The inspectors interviewed licensee and contractor personnel to determine whether:

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

The inspectors reviewed a sample of nonconformances to verify:

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

The inspectors reviewed a sample of design changes to verify the following activities were performed in accordance with procedural requirements:

- coordination of structural concrete activities with other disciplines;
- the interchange of design information between designers, constructors, inspectors, and managers regarding structural work, constructability issues, and field changes; and
- timeliness in design changes and drawing revisions.

b. Findings

No findings were identified.

1A19 (Unit 4) ITAAC Number 3.3.00.02a.i.a (760) / Family 01Fa. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.F-02.02 - Fabrication Records Review

The inspectors observed work associated with Containment Internal Structures structural module CA05. This structural module primarily comprises the east and south boundary walls of the chemical and volume control system (CVS) room from elevation 80'-6" to 107'-2". The south wall of this module provides separation between the vertical access and CVS room. The inspectors reviewed drawings and fabrication records to determine whether the as-built submodules met the requirements of the applicable construction documents, codes, standards, regulations, and quality and technical requirements. The inspectors reviewed CMTRs to verify that materials met the requirements of the applicable ASTM specifications. The inspectors also reviewed work instructions and weld travelers to verify that material traceability was maintained from procurement through fabrication and any required tests and inspections had been performed.

The inspectors observed the location, arrangement, and attachment of structural components - angles, channels, shear studs, mechanical couplers - to verify that the sub-modules listed below were fabricated in accordance with the construction documents and applicable quality and technical requirements:

- CA05-07 which is part of the east wall of the CVS room from elevation 80'-6" to 107'-2"
- CA05-08 which is part of the east wall of the CVS room from elevation 80'-6" to 107'-2"

b. Findings

No findings were identified.

1A20 (Unit 4) ITAAC Number 3.3.00.02a.i.a (760) / Family 01Fa. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.01-02.06 - Records
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.02 - Fabrication Records Review

The inspectors observed work associated with Containment Internal Structures structural module CA01. The inspectors conducted field measurements and reviewed documents to assess the implementation of the portion of the QA program specific to design and fabrication activities. The inspectors' objectives were to:

- determine design and fabrication was completed in accordance with applicable specifications, drawings, and approved procedures;
- determine key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- determine the licensee confirmed that components inspected conformed to design drawings and that deviations were being addressed in accordance with procedure requirements;
- determine nonconforming conditions identified by the licensee were being appropriately resolved; and
- observe, review, or assess as-built SSCs to determine if the as-built configuration is in accordance with the final design of the facility and meet the associated ITAAC.

The inspectors performed independent measurements on the following structural submodules:

- CA01-11 which is part of the east reactor cavity wall from elevation 83'-0" to 98'-0" and east refueling cavity wall from elevation 98'-0" to 135'-3"
- CA01-17 which is part of the west reactor cavity wall from elevation 83'-0" to 98'-0" and west refueling cavity wall from elevation 98'-0" to 135'-3"

Specifically, the inspectors measured the following sub-module components: headed stud spacing and dimensions, module plate thickness, angle and channel used to construct module trusses, and truss spacing. The inspectors also observed reinforcing steel placement, general module assembly, and stud welds.

The inspectors reviewed various documents, including design drawings and specifications, to verify:

- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings;
- design documents associated with ITAAC adequately defined the design and arrangement of the sub-module fabrication;
- applicable construction specifications, installation specifications, shop and field drawings, and construction procedures correctly identified and documented sub-modules for review and approval by responsible engineering personnel;
- fit-up tolerances for length, depth, and straightness of structural members were as specified; and

- critical attributes of as-built SSC conform to the design.

The inspectors reviewed drawings and fabrication records to determine whether the as-built submodules met the requirements of the applicable construction documents, codes, standards, regulations, and quality and technical requirements. The inspectors reviewed CMTRs to verify that materials met the requirements of the applicable ASTM specifications. The inspectors also reviewed work instructions and weld travelers to verify that material traceability was maintained from procurement through fabrication and any required tests and inspections had been performed.

b. Findings

No findings were identified.

1A21 (Unit 4) ITAAC Number 3.3.00.02a.i.c (762) / Family 01F

a. Inspection Scope

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

- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors observed on-going work activities associated with construction of the interior reinforced concrete walls in the non-radiologically controlled area of the auxiliary building. The inspectors verified that reinforcing steel in the walls listed below was installed in accordance with applicable documents, codes, standards, regulations, and quality and technical requirements. Specifically, the inspectors also verified that the horizontal and vertical bars were the correct size and type and located in accordance with the construction documents. The inspectors also independently measured lap splices to verify that splice lengths were in accordance with requirements.

- wall along column line K between column lines 9.3 and 11 from elevation 66'-6" to 82'-6"
- wall along column line L between column lines 9.3 and 11 from elevation 66'-6" to 82'-6"
- wall along column line M between column lines 9.3 and 11 from elevation 66'-6" to 82'-6"
- wall along column line P between column lines 9.3 and 11 from elevation 66'-6" to 82'-6"

b. Findings

No findings were identified.

1A22 (Unit 4) ITAAC Number 3.3.00.02a.i.d (763) / Family 01Fa. Inspection Scope

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

- 65001.01 - Inspection of ITAAC-Related Foundations & Buildings
- 65001.01-02.05 - Steel Structures
- 65001.01-02.06 - Records
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.B-02.06 - Records
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review

The inspectors observed work associated with the CA20 structural module which is located in the radiologically controlled area of the auxiliary building. The inspectors conducted field measurements and reviewed documents to assess the implementation of the portion of the QA program specific to design and fabrication activities. The inspectors' objectives were to:

- determine design and fabrication was completed in accordance with applicable specifications, drawings, and approved procedures;
- determine key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- determine the licensee confirmed that components inspected conformed to design drawings and that deviations were being addressed in accordance with procedure requirements;
- determine nonconforming conditions identified by the licensee were being appropriately resolved; and
- observe, review, or assess as-built SSCs to determine if the as-built configuration is in accordance with the final design of the facility and meet the associated ITAAC.

The inspectors performed independent measurements on the following structural submodules:

- CA20-13 which is part of the wall along column line J.2 between column lines 3 and 4 from elevation 66'-6" to 135'-3"
- CA20-16 which is part of the wall along column line 3 between column lines J.2 and K.2 from elevation 66'-6" to 135'-3"

Specifically, the inspectors measured the following sub-module components: headed stud spacing and dimensions, module plate thickness, angle and channel used to construct module trusses, and truss spacing. The inspectors also observed reinforcing steel placement, general module assembly, and stud welds.

The inspectors reviewed various documents, including design drawings and specifications, to verify:

- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings;
- design documents associated with ITAAC adequately defined the design and arrangement of the sub-module fabrication.
- applicable construction specifications, installation specifications, shop and field drawings, and construction procedures correctly identified and documented sub-modules for review and approval by responsible engineering personnel.
- fit-up tolerances for length, depth, and straightness of structural members were as specified; and
- critical attributes of as-built SSC conform to the design.

The inspectors reviewed drawings and fabrication records to determine whether the as-built submodules met the requirements of the applicable construction documents, codes, standards, regulations, and quality and technical requirements. The inspectors reviewed CMTRs to verify that materials met the requirements of the applicable ASTM specifications. The inspectors also reviewed work instructions and weld travelers to verify that material traceability was maintained from procurement through fabrication and any required tests and inspections had been performed.

b. Findings

No findings were identified.

1A23 (Unit 4) ITAAC Number 3.3.00.02a.i.d (763) / Family 01F

a. Inspection Scope

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

- 65001.01 - Inspection of ITAAC-Related Foundations & Buildings
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.F-02.03 - Observation of Fabrication Activities

The inspectors observed on-going work activities associated with construction of the exterior reinforced concrete walls in the radiologically controlled area of the auxiliary building. The inspectors verified that reinforcing steel in the wall listed below was installed in accordance with applicable documents, codes, standards, regulations, and quality and technical requirements. Specifically, the inspectors verified that the horizontal and vertical bars were the correct size and type and located in accordance with the construction documents. The inspectors also independently measured lap splices to verify that splice lengths were in accordance with requirements.

- wall along column line N between column lines 2 and 4 from elevation 66'-6" to 82'-6"

b. Findings

No findings were identified.

1A24 (Unit 4) ITAAC Number 3.3.00.02a.i.d (763) / Family 01F

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 – Inspection

The inspectors performed a direct inspection of construction activities associated with the assembly of the CA20 structural module which is located in the radiologically controlled area of the auxiliary building. Specifically, the inspectors reviewed documentation associated with the interior seam welds (FW 11163-L05-1 and FW 11163-L05-3) joining submodules CA20-19 and CA20-20 which form part of the wall along column line K-2 between column lines 2 to 3 and elevations 66'-6" and 135'-3". The inspectors reviewed design drawings, inspection reports, welder procedure specifications, and supporting procedure qualification records (PQR) to determine whether the welding activities were performed in accordance with the approved design, construction specifications, and, as applicable, AWS D1.1-2000 "Structural Welding Code – Steel" or AWS D1.6-1999 "Structural Welding Code – Stainless Steel." The inspectors also reviewed welder performance qualification records and filler material CMTRs to verify that the personnel performing the work and the material being used met the requirements of the construction specifications, AWS D1.1, AWS D1.6, and the WPS, as applicable.

b. Findings

No findings were identified.

1A25 (Unit 4) ITAAC Number 3.3.00.02a.i.d (763) / Family 01F

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection

- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.03 - Observation of Fabrication Activities

The inspectors performed a direct inspection of work activities associated with the CA20 module, which makes up part of areas 5 and 6 of the radiologically controlled auxiliary building. Specifically, the inspectors observed in-process machine gas metal arc welding (GMAW) between duplex stainless steel structural submodules CA20-28 to CA20-29, which make up part of wall L-2 from 2 to 4. The weld was performed by welding operator RAM3966 and the inspectors reviewed weld records for two vertical weld seams CV12909-L29-1 and -2 using a remote control panel and monitor to join duplex stainless steel structural submodules using full penetration single-V grooves with backing bars. The inspectors reviewed weld records to verify that traceability of welding operators and weld filler metal were maintained, established QC hold points were signed-off for the backing bar, fit-up, and root visual test/liquid penetrant Test (VT/PT), and welding operators were able to follow the required welding parameters described in the welding procedure, using solid wire AWS Classification ER2209. The welding parameters included the wire feed speed, travel speed, voltage, heat input, and gas flows and mixtures in accordance with the requirements of the AWS D1.6:1999 code for welding structural stainless steel.

b. Findings

No findings were identified.

1A26 (Unit 4) ITAAC Number 3.3.00.02a.ii.d (767) / Family 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.ii.d (767). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.01-02.06 - Records
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed direct inspection of construction activities associated with the radiologically controlled area of the Auxiliary Building for Vogtle Unit 4. Specifically, the inspectors observed construction activities associated with the following wall sections between elevation 82'-6" and 100'-0":

- wall section along column line 1 between column lines K-2 and N
- wall section along column line N between column lines 1 and 2

The inspectors reviewed the dimensions specified in the Vogtle Unit 4 COL, Appendix C, Table 3.3-1 for samples listed above. The inspectors assessed the method and controls used by the licensee to verify that the as-built dimensions conformed to the licensing basis to determine whether the methodology used was appropriate and would produce

sufficient records to document that completed work met the design specifications and acceptance criteria. The inspectors performed independent inspections and measurements to determine whether the as-built concrete thickness of completed wall sections were in accordance with the final design, the ITAAC, and UFSAR. Additionally, the inspectors reviewed measuring and surveying records associated with the wall sections inspected to determine whether:

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

b. Findings

No findings were identified.

IMC 2504, Construction Inspection Program – Inspection of Construction and Operational Programs

1P01 Construction Quality Assurance Criterion 10

a. Inspection Scope

The NRC inspectors reviewed procedure IMQP QP 165766-01, "Integrated Engineering, Manufacturing, and Construction Quality Surveillance Matrix," to verify that the licensee's QA implementing documents for conducting inspections of the reactor vessel were consistent with the NRC approved Quality Assurance Program Description (QAPD). Additionally, the NRC inspectors reviewed IMQP QP 165766-01 to verify that it included provisions for:

- examinations and measurements for each work operation, where necessary;
- methods used to perform inspections;
- frequency of inspections and sampling requirements;
- hold and witness points;
- inspection documentation requirements; and
- inspection personnel to be other than those who perform or directly supervise the work being inspected.

The NRC inspectors observed a Westinghouse Electric Company (WEC) construction quality oversight inspection and oversight of activities related to the Unit 4 reactor vessel to verify:

- effective implementation of the licensee's QA implementing program;
- conformance with acceptance criteria;
- inspections were performed by qualified individuals other than those who performed or directly supervised the work being inspected; and
- mandatory hold points were witnessed by the inspector.

The NRC inspectors evaluated Traveler Set, "U4-BH-NI-Column Stubs", "Partial Removal of Bottom Head Column Stubs at Nuclear Island," and documentation associated with the Unit 4 reactor vessel construction aid support removal activities to verify:

- inspections were performed at the required frequency described in IMQP QP 165766-01;
- mandatory hold points were complied with and witnessed by the QC inspector, Authorized Nuclear Inspector, and WEC oversight;
- the WEC inspector had the current implementing document and appropriate tools to conduct the inspection; and
- that the results were documented, detailed, and complete.

b. Findings

No findings were identified.

1P02 Construction Quality Assurance Criterion 13

a. Inspection Scope

The inspectors completed a walkdown of the storage warehouse facilities and laydown yards to determine whether the requirements of CB&I Standard Nuclear Quality Assurance Program adequately implemented the requirements of ASME NQA-1-1994 and 10 CFR Part 50, Appendix B, Criterion XIII for storage. The inspectors examined various elements of the storage of items including, but not limited to, the following:

- containers and items were adequately marked to provide for proper identification;
- non-conforming items discovered during receiving inspection were properly identified, stored and segregated with controlled access;
- designated storage area was drained, well paved, clean and free of loose debris;
- preventative maintenance activities for equipment in storage were identified and performed;
- the storage area was removed from the actual construction area and traffic to avoid damage from outside sources;
- hazardous chemicals, paints, solvents, and other like materials were stored in a well-ventilated area and not close to important nuclear facility items;
- appropriate cribbing or equivalent was used;
- operators of special handling and lifting equipment were qualified for use of equipment; and
- temperature and humidity levels were maintained within prescribed limits to comply with manufacturer's recommendations for equipment.

The inspectors verified that the storage locations met the requirements of the intended storage level classification. Additionally, the inspectors independently verified that measures were established to ensure access to the enclosed storage areas were controlled via lock and a log was maintained to confirm that only designated personnel gained entry.

b. Findings

No findings were identified.

1P03 Construction Quality Assurance Criterion 15

a. Inspection Scope

The inspectors reviewed a sample of N&D reports to determine whether the conditions were adequately reviewed and accepted, rejected, repaired, or reworked in accordance with the QA program implementing documents for the control of nonconforming material, parts, and components. The inspectors compared these N&D reports to Section 15, "Nonconforming Materials, Parts, or Components," of the CB&I quality assurance program (CMS-720-03-PL-00020-A) and CB&I procedure Quality Standard (QS) 15.01, "Nonconformance & Disposition Report."

The inspectors toured several of the on-site Level A, 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 a sample of nonconforming items that the licensee either rejected, repaired, reworked, or accepted through evaluation. Additionally, the inspectors reviewed the N&D reports to determine whether:

- the nonconforming item was properly identified;
- the procedures for initiating, processing, and closing nonconformances were adhered to;
- reportability screening and evaluations under 10 CFR Part 21 and 10 CFR 50.55(e) were performed;
- the disposition, such as use-as-is, reject, repair, or rework of nonconforming items were properly identified and documented;
- adequate technical justification for the acceptability of a nonconforming item, dispositioned 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.

1P04 Construction Quality Assurance Criterion 16

a. Inspection Scope

Daily Corrective Action Program Review

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

- classification, prioritization, and evaluation for reportability (i.e., 10 CFR 50.55(e)) of conditions adverse to quality;
- complete and accurate identification of the problem in a timely manner commensurate with its significance and ease of discovery;
- screening of items entered into the CAP to determine the proper level of evaluation;
- identification and correction of procurement documents errors, deviations from procurement document requirements, defective items, poor workmanship, incorrect vendor instructions, significant recurring deficiencies at both vendor shops and on site, and generic procurement related deficiencies;
- identification and correction of design deficiencies;
- consideration of extent of condition, generic implications, common cause, and previous occurrences;
- classification and prioritization of the resolution of the problem commensurate with its safety significance;
- identification of corrective actions that are appropriately focused to correct the problem;
- identification of root and contributing causes, as well as actions to preclude recurrence for significant conditions adverse to quality;
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue;
- provisions for escalating to higher management those corrective actions that are no adequate or not timely; and
- conditions adverse to quality were trended to proactively identify potential adverse trends and potential common cause problems, and the trending results were reported to management.

Routine Review of Items Entered into the Corrective Action Program

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

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

Additionally, the inspectors observed the licensee's corrective action review board meetings held on October 6 and December 8, 2015.

Selected Issues for Follow-Up Inspection

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

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

b. Findings

No findings were identified.

1P05 Construction Quality Assurance Criterion 3

a. Inspection Scope

The inspectors reviewed a sample of E&DCRs to determine whether these changes were performed in accordance with procedure APP-GW-GAP-420, "Engineering and Design Coordination Report." The inspectors evaluated these design changes for conformance to 10 CFR Part 50, Appendix B, Criterion III, "Design Control," and Supplement 3S-1, "Supplementary Requirements for Design Control," of ASME NQA-1-1994. The inspectors also reviewed the licensing impact determination screening associated with each of these design changes to determine whether each change was

properly evaluated against the current licensing basis as described in the Vogtle Unit 3 and Unit 4 UFSAR and was performed in accordance with procedure APP-GW-GAP-147, "AP1000 Current Licensing Basis Review." Furthermore, the inspectors reviewed these E&DCRs to determine whether each change received the proper level of engineering review and was incorporated into all affected documents.

b. Findings

No findings were identified.

1P06 Construction Quality Assurance Criterion 8

a. Inspection Scope

The inspectors reviewed the UFSAR and the SNC Nuclear Development Quality Assurance Manual to verify that a selected sample of quality related items received at the storage warehouse were properly identified and controlled in accordance with the applicable implementing procedures. Additionally, the associated records were examined to ensure that the procured, received, and inspected items were properly tracked and verified. The inspectors also examined the identification and traceability methods for nonconforming items to determine if the items were properly tagged, segregated, and that the associated documentation reflected the actual status of the items. Through a walkdown of the offsite storage warehouse facility, various stored items were examined to independently verify the use of physical markings, including equipment tags and corresponding hold tags referencing the appropriate contingent quality release. Equipment preservation check records were reviewed to ensure that items needing preventive maintenance while in storage were properly identified and captured on surveillance schedules.

b. Findings

No findings were identified.

1P07 Construction Quality Assurance Criterion 9

a. Inspection Scope

The inspectors reviewed implementation of the special processes QA program requirements through the direct inspection of ITAAC-related welding and nondestructive testing activities throughout the quarter. Additionally, the inspectors conducted an inspection of liquid penetrant testing activities associated with Seismic Category I embedments.

The inspectors observed a sample of liquid penetrant examinations performed on stainless steel embed plates and magnetic particle examinations of carbon steel embed plates that were associated with N&D report number SV0-CE01-GNR-000027, "Weldable Coupler Embeds from Cives Lacking N690 NDE." The inspectors observed these examinations to verify that the test was performed in accordance with MISTRAS procedure number 100-PT-304, "Liquid Penetrant Examination in Accordance with AWS Structural Welding Code," Revision 6. The inspectors also verified that this work was

conducted according to work package number SV0-CE01-CEW-CV7471, "NDE of Cives Embeds with Weldable Couplers," Revision 0.

Specifically, the inspector observed the PT examination of coupler numbers CW-2, CW-22, CW-25, and CW-42. The inspectors verified that the PT and MT procedures conformed with the AWS D1.1 and D1.6 codes and related ASTM specifications. The inspectors reviewed the qualification records for the test personnel, and certifications for consumables (e.g., PT cleaner, developer, and penetrant material).

The inspectors reviewed the contractor's written practice to determine whether it established qualification requirements consistent with The American Society for Nondestructive Testing (ASNT) SNT-TC-1A, 1992 edition. The inspectors verified that the Level II inspection personnel were properly qualified according to the contractor's written practice procedure.

b. Findings

No findings were identified.

4. OTHER INSPECTION RESULTS

4OA5 Other Activities

1. Inspection Follow-up

a. Inspection Scope

Closed NCV 05200025/2015002-01 and 05200026/2015002-01, Weld Allowable Stress Calculation Not in Compliance with Current Licensing Basis

The impact to the acceptance criteria of ITAAC numbers 760, 761, 762, and 763 for Vogtle Units 3 and 4, as described in NRC inspection reports 05200025/2015002 and 05200026/2015002, was resolved through the NRC's approval of license amendment request 40 (ML15287A054) and license amendment 37 (ML15215A370). Therefore, the NRC considers NCVs 05200025/2015002-01 and 05200026/2015002-01 closed.

b. Findings

No findings were identified.

2. Inspection Follow-up

a. Inspection Scope

(Closed) NCV 05200025/2014005-01, Failure to Establish Qualified Welding Procedures In Accordance With AWS D1.1:2000

The inspectors reviewed the post-qualification of welding procedure specification WPS8-1.1T71, associated with the welding of mechanical couplers to CA20 overlay plates, to verify the licensee was able to disposition the associated welds previously fabricated using that WPS "use-as-is." Specifically, the inspectors reviewed the seven supporting

PQRs to verify (1) the specific ranges of parameters indicated on the original WPS were adequately qualified by the essential variables recorded on the new PQRs, (2) the test specimens received acceptable results for visual inspection, tensile testing, and macroetch testing, and (3) the WPS and PQRs met the requirements of AWS D1.1:2000, AWS D1.4:1998, and Westinghouse Specification APP-CR01-Z0-010, Specification for Supply and Installation of Mechanical Splices for Reinforcing Steel, revision 8.

Therefore, because the condition no longer impacts the ITAAC acceptance criteria, NCV 05200025/2014005-01 is closed.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

1. Exit Meeting.

On January 6, 2016, the inspectors presented the inspection results to Mark Rauckhorst, Vogtle 3&4 Construction Vice President, along with other licensee and consortium staff members. The inspectors stated that no proprietary information would be included in the inspection report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensees and Contractor Personnel

P. Albuquerque, SNC ITAAC Manager
A. Buckley, CB&I Licensing Engineer
K. Clough, SNC Engineering
L. Collins, SNC Engineering
W. Crisler, Consortium QA Director
E. Dumas, CB&I QC manager
D. Fujiyoshi, CB&I Licensing
S. Hand, CB&I Services QA Manager
R. Henderson, SNC Licensing
J. Olson, SNC QA Manager
A. Pugh, VEGP 3&4 Licensing Manager
E. Rasmussen, SNC Supplier Compliance Supervisor
P. Shaw, WEC Licensing Engineer
A. Simpson, CB&I QC
J. Watkins, WEC Licensing Manager
F. Willis, SNC Licensing Supervisor
M. Yox, SNC Regulatory Affairs Director

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Item Number</u>	<u>Type</u>	<u>Status</u>	<u>Description</u>
05200025/2015002-01 05200026/2015002-01	NCV	Closed	Weld Allowable Stress Calculation Not in Compliance with Current Licensing Basis. (Section 4OA5.1)
05200025/2014005-01	NCV	Closed	Failure to Establish Qualified Welding Procedures In Accordance With AWS D1.1:2000. (Section 4OA5.2)

LIST OF DOCUMENTS REVIEWED

[2503 Documents]

Section 1A01

SV3-PV62-VQQ-001, "PV 62 Pressurizer Safety Valve QA Data Package," Rev. 1, Dated 12/11/2012

Westinghouse Design Specification APP-PV62-Z0-001, "Pressurizer Safety Valve, ASME B&PV Code, Section III, Class 1," Rev. 7, Dated 9/26/2012

APP-PV62-Z0R-001, "Pressurizer Safety Valves (PSV), ASME Code Section III, Class I Valve Datasheet Report," Rev. 4

Condition Reports

694717

762475

Section 1A02

SV3-PV62-VQQ-001, "PV 62 Pressurizer Safety Valve QA Data Package," Rev. 1, Dated 12/11/2012

Westinghouse Design Specification APP-PV62-Z0-001, "Pressurizer Safety Valve, ASME B&PV Code, Section III, Class 1," Rev. 7, Dated 9/26/2012

APP-PV62-Z0R-001, "Pressurizer Safety Valves (PSV), ASME Code Section III, Class I Valve Datasheet Report," Rev. 4

Anderson Greenwood Crosby Engineering Procedure T-161093, "Production Test Procedure – 6" P 8" HB-BP-86 Pressurizer Safety Valves," Rev. 6, Dated 9/22/2008

Condition Reports

694717

762475

Section 1A03

CB&I CMS-830-15-PR-46076, NDE Personnel Training Qualification and Certification Program Implementation (written practice), Revision 6, dated June 11, 2015

CB&I Delegation Letter of Authorized NDT Level III, dated February 17, 2012

CB&I NDE Certification of Qualification to ASME Section III for Level II NDE-RT personnel ID-No. 2837218, dated May 5, 2015

CB&I Dwg. 11, sheet 1, Shell Stretch-out S9 thru S11, Rev. 5, dated March 23, 2013

CB&I Radiography Report U3-268 dated May 16, 2015 (2 welds; one girth and one weld intersection)

CB&I Radiography Report U3-254 dated March 28, 2015

CB&I Radiography Report U3-241 dated October 18, 2014

CB&I Radiography Report U3-232 dated August 30, 2014

Section 1A04Welding Procedure Specifications

WPS2-1.1M73, Rev. 9
 WPS2-1.1S02, Rev. 1
 WPS2-1.1T71, Rev. 7
 WPS5-1.10HM01, Rev. 3
 WPS5-1.10HT03, Rev. 13
 WPS5-10H.10HT70, Rev. 5
 WPS5-8.10HT70, Rev. 11

Welding Records:

SV3-CA02-S4K-CV5718-1
 SV3-CA02-S4K-CV5719-1
 SV3-CA02-S4K-CV5719-L1-1
 SV3-CA02-S4K-CV5719-L1-2
 SV3-CA02-S4W-CV5719-L1-11

Miscellaneous

Welder Performance Qualification Test Numbers 5SS-08 and 5SS-02
 UT Inspection Report: V-15-UT-312-1332
 PT Inspection Reports: V-15-PT-304-1965 and V-15-PT-304-1904

Section 1A05Work Package

SV3-1020-CCW-CV2699, "Unit 3 Nuclear Island Elevation 94'-0" to 100'-0" and 103'-2"
 Placement 13M – Horizontal RC/SC Connection"

Section 1A06Drawings

APP-1208-SC-701, SHIELD BUILDING STEEL WALL PANELS EL. 100'-0" to EL 248'-61/2"
 TYPE 2 PANEL GROUP 70, REV 2
 APP-1208-SC-702, SHIELD BUILDING STEEL WALL PANELS EL. 100'-0" to EL 248'-61/2"
 TYPE 1 PANEL GROUP 70 DETAILS 1, REV 0

Documentation Packages

SV3-1208-SC-13L, Documentation Package for AP1000 Shield Building Structural Modules,
 Group 70, NNI JO 7340-F, Revision 0
 SV3-1208-SC-13M, Documentation Package for AP1000 Shield Building Structural Modules,
 Group 70, NNI JO 7340-F, Revision 0

Material Certificates of Conformance

ASTM A572-07 GR 50 3/4" Plate Heat No. 2505485
 ASTM A572-07 GR 50 3/4" Plate Heat No. 2505487
 ASTM A572-07 GR 50 3/4" Plate Heat No. 2506392
 ASTM A572-07 GR 50 3/4" Plate Heat No. 2506394
 ASTM A496-07 3/4" Tie Bar Heat No. 20246720
 ASTM A108-07 GR 1015 3/4" Headed Stud Heat No. 20210050

Section 1A07

CB&I/Stone & Webster, Inc. Weld Record CV8648-8-KL-O (outside) for Work Order SV3-1208-SCW-CV4917, Rev. 0, dated 2/24/15

CB&I/Stone & Webster, Inc. Weld Record CV8648-8-KL-I (inside) for Work Order SV3-1208-SCW-CV4917, Rev. 0, dated 2/24/15

CB&I Welder Qualification Report - AWS D1.1 for symbol WJG5264 and FCAW, dated December 15, 2015

CB&I Welder Qualification Report - AWS D1.1 for symbol MEW6934 and FCAW, dated December 15, 2015

Mistras Phased Array Ultrasonic Examination Report V-15-UT-312-735, dated 5/11/2015 for weld-no. CV8647-7-JK-I for components 07J to 07K

Mistras Phased Array Ultrasonic Examination Report V-15-UT-312-736, dated 5/11/2015 for weld-no. CV8647-7-JK-O for components 07J to 07K

Mistras Phased Array Ultrasonic Examination Report V-15-UT-312-980, dated 7/9/2015 for weld-no. CV8650-10-HJ-O for components 10H to 10J

Mistras Phased Array Ultrasonic Examination Report V-15-UT-312-1292, dated 10/14/2015 for weld-no. CV8651-11-LM-O for components 11L to 11M

Mistras Phased Array Ultrasonic Examination Report V-15-UT-312-1293, dated 10/14/2015 for weld-no. CV8651-11-LM-I for components 11L to 11M

Mistras Certification Records for UT Level II (phased array), UT/MT/PT/VT Level II, and annual visual acuity and color contrast that are current for Technician ID 507808

Mistras Certification Records for UT Level II (phased array), UT/MT/PT Level II, and annual visual acuity and color contrast that are current for Technician ID 508693

Mistras Certification Records for UT Level II (phased array), PT Level II, UT/MT Level III, and annual visual acuity and color contrast that are current for Technician ID 509827

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S561-004-14-0494, "Structural Weld Inspection-Modules, AWS D1.1/D1.6 And 'Fabrication', 'Sub Assembly', And 'Module In Plant' Install Toler," 12/04/14

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S561-004-14-0473, "Structural Weld Inspection-Modules, AWS D1.1/D1.6 And 'Fabrication', 'Sub Assembly', And 'Module In Plant' Install Toler," 11/14/14

S561-004-14-0493, "Structural Weld Inspection-Modules, AWS D1.1/D1.6 And 'Fabrication', 'Sub Assembly', And 'Module In Plant' Install Toler," 12/04/14

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10063587

10071848

10118216

SNC Corrective Action Reports

257070

259084

259202

SNC Technical Evaluations

913349

920377

WEC Corrective Action, Prevention and Learnings

100301740

100306327

Section 1P05

APP-GW-GAP-147, "AP1000 Current Licensing Basis Review," Rev. 2

APP-GW-GAP-420, "Engineering and Design Coordination Report," Rev. 8

E&DCR SV0-CC01-GEF-000293, "C.J. Fuel Transfer Canal," Rev. 0

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MS 01.11, Storage and Handling of Measuring and Test Equipment, Rev. 1.0

QS 08.12, Material Identification and Control, Rev. 01.01

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NCSP 02-09-3, Construction Material Management, Rev. 3

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QS 17.01, Quality Assurance Records, Rev. 03.01

QS 07.01, Receiving Process, Rev. 1

APP-GW-GAP-113, Consortium AP1000 Receiving Interface, Rev. 4

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N&D SV0-CE01-GNR-000027, "Weldable Coupler Embeds from Cives Lacking N690 NDE," Revision 0;

100-PT-304, "Liquid Penetrant Examination in Accordance with AWS Structural Welding Code," Revision 6;

100-MT-302, "Magnetic Particle Examination in Accordance with AWS Structural Welding Code," Revision 3;

100-QC-005.2, "Qualification and Certification of Non-Destructive Test Personnel," Revision 4;

100-QC-005.2, "Addendum G, Qualification and Certification of Nondestructive Test Personnel in Accordance with ASNT SNT-TC-1A, 1992 and Shaw Power Group, Nuclear Division Requirements," Revision 3;

Calibration Records for Fluke infrared thermometer Serial Number E4092022048

Certificate of Certification for Spotcheck Developer SKD-S2, Batch Number 14L03K;

Certificate of Certification for Spotcheck SKC-S, Batch Number 15D02K;

Certificate of Certification for Spotcheck Penetrant SKL-SP2, Batch Number 14E014;

Visual Acuity Records for technicians 512327, 512277, and 509880;

4. OTHER INSPECTION RESULTS

[4OA5 Documents]

4OA5.2

APP-CR01-Z0-010, Specification for Supply and Installation of Mechanical Splices for Reinforcing Steel, Rev. 8

Reconciliation Summary Document for N&D SV0-CA00-GNR-000003 by Welding Engineering, 03/03/2015

SV0-CA00-GNR-000003, J Prep Lenton Coupler WPS unqualified, Rev. 0

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WPS8-1.1T71, Rev. 6

Procedure Qualification Records

1-1-213, Rev. 02

1-1-214, Rev. 01

SP299, Rev. 0

PQ100, Rev. 0

PQ101, Rev. 0

PQ102, Rev. 0

PQ103, Rev. 0

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
28	2.1.02.08a.i	8.a) The pressurizer safety valves provide overpressure protection in accordance with Section III of the ASME Boiler and Pressure Vessel Code.	i) Inspections will be conducted to confirm that the value of the vendor code plate rating is greater than or equal to system relief requirements.	i) The sum of the rated capacities recorded on the valve ASME Code plates of the safety valves exceeds 1,500,000 lb/hr.
29	2.1.02.08a.ii	8.a) The pressurizer safety valves provide overpressure protection in accordance with Section III of the ASME Boiler and Pressure Vessel Code.	ii) Testing and analysis in accordance with ASME Code Section III will be performed to determine set pressure.	ii) A report exists and concludes that the safety valves set pressure is 2485 psig \pm 25 psi.
93	2.2.01.03a	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.
760	3.3.00.02a.i.a	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.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
761	3.3.00.02a.i.b	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.
762	3.3.00.02a.i.c	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.c) A report exists which reconciles deviations during construction and concludes that the as-built structures in the non-radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
763	3.3.00.02a.i.d	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.
764	3.3.00.02a.ii.a	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as-built concrete thickness will be performed.	ii.a) A report exists that concludes that the containment internal structures as-built concrete thicknesses conform to the building sections defined in Table 3.3-1.
765	3.3.00.02a.ii.b	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as-built concrete thickness will be performed.	ii.b) A report exists that concludes that the as-built concrete thicknesses of the shield building sections conform to the building sections defined in Table 3.3-1.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
767	3.3.00.02a.ii.d	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as-built concrete thickness will be performed.	ii.d) A report exists that concludes that the as-built concrete thicknesses of the radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access & Management System
ANI	Authorized Nuclear Inspector
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CAR	Corrective Action Report
CB&I	Chicago Bridge and Iron
CFR	Code of Federal Regulations
CMTR	Certified Material Test Report
COL	Combined License
CSI	Construction Site Instruction
CV	Containment Vessel
CVBH	Containment Vessel Bottom Head
CVS	Chemical and Volume Control System
E&DCR	Engineering and Design Coordination Report
EPC	Engineering, Procurement, and Construction
FCAW	Flux Core Arc Welding
GMAW	Gas Metal Arc Welding
IP	Inspection Procedures
IR	Inspection Report
IRWST	In Containment Refueling Water Storage Tank
ITAAC	Inspections, Tests, Analysis, and Acceptance Criteria
N&D	Nonconformance and Disposition Report
NCV	Non-Cited Violation NDE Nondestructive Examination
NDE	Nondestructive Examination
NI	Nuclear Island
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PQR	Procedure Qualification Record
QAPD	Quality Assurance Program Description
QA	Quality Assurance
QC	Quality Control
QS	Quality Standard
RC	Reinforced Concrete
SC	Steel Concrete Composite
SNC	Southern Nuclear Operating Company
SSC	Structures, Systems, and Components
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Testing
VEGP	Vogtle Electric Generating Plant
WEC	Westinghouse Electric Company
WPS	Welding Procedure Specifications