UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

February 11, 2020

Mr. Michael Yox
Regulatory Affairs Director
Southern Nuclear Operating Company
7825 River Road, Bldg. 302, Vogtle 3&4
Waynesboro, GA 30830

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 3 AND 4 - NRC INTEGRATED INSPECTION REPORTS 05200025/2019004, 05200026/2019004

Dear Mr. Yox:

On December 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Vogtle Electric Generating Plant, Units 3 and 4. The enclosed inspection report documents the inspection results, which the inspectors discussed on January 16, 2020, with Mr. M. Page and Mr. P. Martino, Vogtle 3&4 Plant Managers, and other licensee and contractor staff members.

The inspection examined a sample of construction activities conducted under your Combined License (COL) as it relates to safety and compliance with the Commission's rules and regulations and with the conditions of these documents. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The inspection team also examined a sample of corrective action program (CAP) activities and concluded that the implementation of the CAP and overall performance related to identifying, evaluating, and resolving problems at Vogtle Electric Generating Plant Units 3 and 4 was adequate. Licensee and contractor identified problems were put into the CAP at an appropriate threshold. Problems were prioritized and evaluated proportional to the safety significance of the problems. Corrective actions were reviewed effectively and in a timely manner proportionate with their importance to safety and dealt with the identified causes of problems. Lessons learned from industry construction experience were effectively reviewed and applied when appropriate. Audits and self-assessments were generally used to find problems and appropriate actions. Based on the assessment of safety culture results, interviews done during the inspection, and a review of the employee concerns program, employees appeared to show freedom to raise nuclear safety concerns without fear of reprisal.

NRC inspectors documented two findings of very low safety significance (Green). Both of these findings involved violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement; and the NRC resident inspector at the VEGP Units 3 and 4.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC resident inspector at the VEGP Units 3 and 4.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with 10 CFR 2.390, “Public Inspections, Exemptions, Requests for Withholding.”

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

Sincerely,

/RA/

Nicole Coovert
Branch Chief
Construction Inspection Branch 1

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

Enclosure: NRC Inspection Report (IR) 05200025/2019004, 05200026/2019004
w/attachment: Supplemental Information

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 3 AND 4 - NRC INTEGRATED INSPECTION REPORTS 05200025/2019004, 05200026/2019004 Dated: February 11, 2020

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U.S. NUCLEAR REGULATORY COMMISSION
Region II

Docket Numbers:	5200025 5200026
License Numbers:	NPF-91 NPF-92
Report Numbers:	05200025/2019004 05200026/2019004
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Vogtle Unit 3 Combined License Vogtle Unit 4 Combined License
Location:	Waynesboro, GA
Inspection Dates:	October 1, 2019 through December 31, 2019
Inspectors:	A. Artayet, Senior Construction Inspector, DCO L. Castelli, Senior Construction Inspector, DCO G. Crespo, Senior Construction Inspector, DCO M. Donithan, Operations Engineer, DRS J. Eargle, Senior Resident Inspector (Testing), DCO B. Griman, Project Engineer (RIDP), DRP D. Harmon, Construction Inspector, DCO P. Heher, Resident Inspector, DCO N. Karlovich, Resident Inspector, DCO B. Kemker, Senior Resident Inspector, DCO J. Kent, Construction Inspector, DCO G. Khouri, Senior Construction Inspector, DCO D. Lanyi, Senior Operations Engineer, DRS J. Lizardi-Barreto, Construction Inspector, DCO M. Magyar, Construction Inspector, DRS K. McCurry, Construction Inspector, DFFI R. Patterson, Senior Reactor Inspector, DRS A. Ponko, Senior Construction Inspector, DCO S. Smith, Technical Assistant, DCO S. Temple, Resident Inspector, DCO D. Terry-Ward, Construction Inspector, DCO J. Vasquez, Construction Inspector, DCO
Accompanying Personnel:	Joseph Ashcraft
Approved by:	Nicole Coovert, Branch Chief Construction Inspection Branch 1

SUMMARY OF FINDINGS

Inspection Report (IR) 05200025/2019004, 05200026/2019004; 10/01/2019 through 12/31/2019; Vogtle Unit 3 Combined License, Vogtle Unit 4 Combined License, integrated inspection report.

Integrated Report

This report covers a three-month period of inspection by regional and resident inspectors, and announced Inspections, Tests, Analysis, and Acceptance Criteria (ITAAC) inspections and the annual team corrective action program inspection. Two findings of very low safety significance (Green), each with an associated non-cited violation (NCV) of NRC requirements, were identified. The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) which is determined using IMC 2519, Construction Significance Determination Process. Cross-cutting aspects are determined using IMC 0613, Appendix F, Construction Cross-Cutting Areas and Aspects. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy. The NRC's program for overseeing the safe construction of commercial nuclear power reactors is described in Inspection Manual Chapter (IMC) 2506, Construction Reactor Oversight Process General Guidance and Basis Document.

Problem Identification and Resolution

The inspection team sample selection concluded that the implementation of the Corrective Action Program (CAP) and overall performance related to identifying, evaluating, and resolving problems at Vogtle Electric Generating Plant Units 3 and 4 was conducted in accordance with licensee procedures and quality assurance requirements. Licensee and contractor identified problems were put into the CAP at an appropriate threshold. Problems were prioritized and evaluated proportional to the safety significance of the problems. Corrective actions were reviewed effectively and in a timely manner proportionate with their importance to safety and dealt with the identified causes of problems. Lessons learned from industry construction experience were effectively reviewed and applied when appropriate. Audits and self-assessments were generally used to find problems and appropriate actions. Based on the assessment of safety culture results, interviews done during the inspection, and a review of the employee concerns program, employees appeared to show freedom to raise nuclear safety concerns without fear of reprisal.

A. NRC-Identified and Self Revealed Findings

(Green) The inspectors identified an ITAAC finding of very low safety significance (Green) with an associated NCV of 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion IV, "Procurement Document Control," for the licensee's failure to specify an accurate conversion factor for calculating the dry film density of coatings used in containment. Specifically, the licensee used a conversion factor that was rounded in a non-conservative manner, which resulted in the dry film density not meeting the ITAAC. The licensee entered this issue into its corrective action program as CR 50034350 and CR 50034649. The licensee performed immediate corrective actions to demonstrate with reasonable assurance the nonconforming coatings with a dry film density of 99.83 pounds per cubic feet (lbs/ft^3) would not transport to the containment sump screens and the design function of the PXS would not be impaired.

The performance deficiency was of more than minor safety significance, and thus a finding, because it was material to the acceptance criteria of an ITAAC. The inspectors determined this finding was not associated with a security program; it was not associated with an IMC 2504 operational or construction program; and it was not associated with a repetitive, NRC-identified omission of a program critical attribute. The inspectors determined this finding was of very low safety significance (Green) because the licensee was able to demonstrate with reasonable assurance that the design function of the applicable structure or system would not be impaired by the deficiency. The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of Conservative Bias, in the area of Human Performance. Specifically, the licensee failed to use decision making practices that emphasized prudent choices over those that are simply allowable when rounding off conversion factors in specifications, and when receiving coatings that were within less than 0.25% of the acceptance criterion. [H.14] (Section 1A06)

(Green) The inspectors identified an ITAAC finding of very low safety significance with an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to install Unit 3 core makeup tank (CMT) A upper level sensing lines for instruments PXS 11A/C and 13 B/D in accordance with ITAAC 2.2.03.08c.xii and the approved design requirements. The licensee entered this finding into its corrective action program for evaluation and identification of appropriate corrective actions (CR 50034981). Corrective actions for this issue included rework on the two-level sensing lines to correct the nonconforming conditions.

The performance deficiency was of more than minor safety significance, and thus a finding, because it was material to the acceptance criteria of an ITAAC and invalidated the Inspection, Test, or Analysis described in the ITAAC. The inspectors determined this finding was not associated with a security program; it was not associated with an IMC 2504 operational/construction program; and it was not associated with a repetitive, NRC-identified omission of a program critical attribute. The inspectors determined this finding was a performance deficiency of very low safety significance (Green) because if left uncorrected, the finding could reasonably be expected to impair the design function of only one train of a multi-train system. The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of Avoiding Complacency, in the area of Human Performance, in accordance with Appendix F of IMC 0613. Specifically, the licensee failed to properly implement appropriate error reduction tools, such as inadequate verification by personnel performing the measurements. [H.12] (Section 1A07)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Construction Status

Unit 3: The licensee set the shield building conical roof steel framing and was completing the shield building construction. In the containment building, the licensee continued with installation of reactor coolant system (RCS) and passive core cooling system (PXS) instrumentation, electrical conduits and cables (safety and non-safety related (NSR)) and commenced the ASME required hydrostatic testing of major PXS components. The licensee was nearing the end of the construction of the auxiliary building structure. Major electrical and instrumentation equipment, in the auxiliary building and the main control room (MCR), have been installed and termination of cables was ongoing.

Unit 4: The licensee continued with shield building construction. In the containment building, the licensee continued construction on the operating deck frame work and was completing installation of RCS and PXS large bore piping. The licensee continued construction of the auxiliary building structure from elevation 117-foot (') 6-inch (") to 160' and routing of electrical raceways.

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 2.1.02.02a (13) / Family 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.02.02a (13). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.03-02.03 - Installation and Welding
- 65001.03-02.06 - Nondestructive Examination (NDE)
- 65001.B-02.01 - Program and Procedures Review
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection

The inspectors reviewed design and work control documents associated with PCI Energy Services (PCI) using the electrical discharge machining (EDM) process for an internal modification on the downstream edge radius contour of the branch nozzle for the stage 4 automatic depressurization system (ADS) connection to the Unit 3 reactor coolant system (RCS) Loop 2 hot leg (Line L001B). This modification was required to address flow induced vibrations. Specifically, the inspectors reviewed quality assurance (QA) documents to verify if the EDM qualification and field activities were conducted in accordance with the approved design and requirements of the ASME Code Sections III and XI.

The inspectors reviewed the instructions and qualification test procedure for the EDM process, that applies to both Units 3 & 4, for the removal of three test coupons from a simulated Type 316LN stainless steel branch nozzle mock-up to verify if the equipment and PCI technicians/operators were monitored using established hold point sign-offs by QA/quality control (QC) inspectors in accordance with PCI's QA program and IWA-4460. The inspectors reviewed the following hold point associated activities:

- signing of the EDM operation parameter data sheet by the PCI technicians/operators to document controls were within established limits;
- thermally impacted surfaces of all three test coupons were examined at 10X magnification for evidence of cracks;
- two of the test coupons surfaces were ground, and polished surfaces were tested for grain size and ASTM A 262-Practice E corrosion sensitization;
- contour measurements using physical go/no-go templates at established azimuth marker locations to verify surfaces were within tolerances;
- surface finish roughness determination for maximum 125 micro-inch root mean square (RMS) using a comparator gauge;
- final nondestructive visual examinations (VT) and liquid penetrant examinations (PT) by NDE-VT/PT examiners; and
- laser scanning inspection to determine wall thickness of the modified ADS-4 branch nozzle mock-up.

The inspectors reviewed the PCI Quality Assurance Traveler 914262-001 used to control field activities for the Vogtle Unit 3 ADS-4 branch nozzle modification to verify if the design and inspection requirements were met with QA/QC and applicable Authorized Nuclear Inspector (ANI) hold points signed-off in accordance with PCI's QA program for each of the following final critical steps of the EDM operation:

- use of deionized water;
- alignment of the EDM head;
- rough cuts and contouring measurements using physical go/no-go templates at designated location markers;
- surface blending and polishing for surface roughness measurements using a comparator by an NDE Level II QC technician;
- NDE-PT in accordance with ASME Section III, NB-2546, by NDE Level II Examiner; and
- metrology laser scanning inspection for measuring wall thicknesses at several locations of the branch nozzle.

The inspectors reviewed the PCI/ Westinghouse Electric Company (WEC) final report 914262-RPT-005 methodology and results for the analysis using the as-built laser scan of the Unit 3 ADS-4 branch nozzle modification measurements to verify if the final dimensions were within tolerances, overall modification matched design, and azimuth locations passed the visual inspection with the physical go/no-go templates.

b. Findings

No findings were identified.

1A02 (Unit 3) ITAAC Number 2.2.01.02a (91) / Family 06F

a. Inspection Scope

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

- 65001.03-02.06 - Nondestructive Examination (NDE)
- 65001.B-02.05 - Inspection

The inspectors reviewed NDE for three Chicago Bridge and Iron (CB&I) Laurens fabricated welds on the spent fuel pool (SFS) suction and discharge lines between containment and valves SFS-PL-V035 and SFS-PL-V038, respectively. Specifically, the inspectors visually inspected weld numbers SV3-SFS-PLW-511-1, SV3-SFS-PLW-511-6, and SV3-SFS-PLW-521-1 on 6-inch diameter schedule 40S stainless steel pipe in line numbers L035 and L038 to verify there were no unacceptable lack of fusion, undercut, porosity, or cracks. Additionally, the inspectors reviewed the radiographic examination reports and the associated film for all three welds to determine whether the techniques, geometric unsharpness, density, and image quality indicator sensitivity were within allowable limits and met the requirements of American Society of Mechanical Engineers (ASME) Code Section V, Article 2. The inspectors also reviewed the radiographic film to verify the welds were free of rejectable indications as required by the acceptance criteria listed in ASME Code Section III, Article NC-5000.

b. Findings

No findings were identified.

1A03 (Unit 3) ITAAC Number 2.2.01.08 (109) / Family 08F
(Unit 4) ITAAC Number 2.2.01.08 (109) / Family 08F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.08 (109). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.08-02.04 - Inspection of Containment Electrical Penetration Assemblies (EPAs)
- 65001.08-02.05 - Inspection of Station Grounding and Surge Protection

The inspectors performed a review of design documents, test records, studies and engineering analysis associated with containment EPAs protection from high currents to determine if the design protected the cable through the penetration from currents exceeding the thermal limits of the penetration.

The inspectors reviewed Class 1E DC and UPS System (IDS) system breaker coordination studies for electrical penetration to verify if the design incorporated adequate fuse sizes to ensure protection from high currents. Specifically, the inspectors verified loads and fuse protection applied to the cables through the penetrations were within the ratings indicated by the manufacturer damage curves. The inspectors reviewed the rating/capacity to operate motor operated valves and other components inside containment which were fed from distribution panels and motor control centers protected by fuses sized to supply their loads. The inspectors performed this review to verify if the fuse rating would withstand fault currents for the time required to clear possible anticipated circuit faults as designed.

b. Findings

No findings were identified.

1A04 (Unit 3) ITAAC Number 2.2.01.08 (109) / Family 08F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.08 (109). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.08-02.02 - In-Process Installation
- 65001.08-02.04 - Inspection of Containment Electrical Penetration Assemblies (EPAs)
- 65001.F-02.04 - General QA Review

The inspectors reviewed equipment preservation check records of EPAs 12, 14, 16, 28, and 30 to determine whether the records showed that either the acceptance criteria for humidity, temperature, and nitrogen pressure were met or the record was referred to engineering for disposition in accordance with the Bechtel Project Nuclear Quality Control Manual (PNQCM).

The inspectors observed a sample of cable terminations for EPAs 6 and 31 in the auxiliary building to determine whether they were installed in accordance with the instructions and drawings in the work package. Specifically, the inspectors observed the in-process work to verify splices were performed in accordance with splice kit instructions in the work packages; the cables were sized in accordance with the drawings in the work package; the crimp type connectors were sized for the cables being spliced; and the crimper had been calibrated.

b. Findings

No findings were identified.

1A05 (Unit 3) ITAAC Number 2.2.03.08c.vi.03 (191) / Family 06A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.08c.vi.03 (191). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed an inspection to verify the Unit 3 in-containment refueling water storage tank (IRWST) calculated volume was greater than 73,100 cubic feet between the tank outlet connection and the tank overflow as specified in Table 2.2.3-4 of Appendix C of the Vogtle Unit 3 Combined License (COL). The inspectors observed the licensee survey selected portions of the inside of the IRWST; reviewed approved drawings for the IRWST and its internal structures and components; reviewed the design calculation for the IRWST's volume; compared the survey results with dimensions from the drawings and the design calculation; and reviewed the licensee's determination of the IRWST's volume based on the survey results. The inspectors also took independent measurements to validate inputs to the licensee's determination of the IRWST calculated volume.

b. Findings

No findings were identified.

1A06 (Unit 3) ITAAC Number 2.2.03.08c.x (195) / Family 14F
(Unit 4) ITAAC Number 2.2.03.08c.x (195) / Family 14F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.08c.x (195). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.14-02.01 - General Installation
- 65001.14-02.03 - Testing and Verification
- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.04 - General QA Review

The inspectors reviewed documents and observed application activities for Service Level (SL) I and II coatings and materials, used inside the containment, associated with ITAAC 2.2.03.08c.x (195). ITAAC 2.2.03.08c.x verifies that buildup of debris from potentially failed coatings and materials (e.g. caulk, fire barrier and ventilation filters, tags, signs, etc.) located inside containment, would be minimal and potential transport to the sump screens would be prevented. This inspection focused on the review of the following material transport aspects, as required by this ITAAC.

For in-containment coatings and materials applied on site, the inspectors interviewed personnel and reviewed records to determine if the applied coatings and materials met the ITAAC acceptance criteria, applicable quality standards, and the Updated Final Safety Analysis Report (UFSAR) commitments. Specifically, the inspectors:

- reviewed the unqualified coating log to verify nonconforming coatings that cannot be qualified as SL I were evaluated, on a case-by-case basis, relative to impact on plant safety as described in Section 6.1.2 of the UFSAR;
- interviewed personnel and reviewed a sample of the procurement and design change documents to determine if touch-ups or applications for inorganic zinc coatings were controlled per the licensee's quality control procedures for SL I coatings;
- reviewed a sample of purchase orders, receipt inspection reports, procedures, specifications, test reports, and certificates of conformance to determine if the approved SL II coatings met the density requirement of greater than or equal to 100 pounds per cubic foot (lbs/ft^3);
- walked down Unit 3 and 4 containment buildings to verify if the applied coatings, signs and tags would not inhibit safety systems functions as described in the UFSAR, and to determine if there were other materials that could be transported to the sump but were not included in the safety analysis;
- observed coating operations, coatings storeroom, surface preparation areas, and coating application booths to determine if quality controls were placed on coating activities and materials;
- reviewed procurement and receipt inspection documents for a sample of coating and additive batches from the storeroom, to verify that the associated QA records were retrievable, and that these documented a coating density of greater than or equal to 100 (lbs/ft^3); and
- reviewed a sample of qualification records for applicators and QC inspectors to verify if coatings activities were done by qualified individuals as per the licensee's quality program requirements.

For in-containment coatings and materials installed on a structures, systems, and components (SSC) by a vendor (i.e., coating applied prior to receipt inspection), the inspectors reviewed purchase orders, vendors qualifications and coatings work process documents, and receipt inspection reports to verify if the coatings and materials met the ITAAC acceptance criteria, applicable quality standards, and the UFSAR commitments. Specifically, the inspectors:

- reviewed procedures and records for the installation of fire barriers (i.e. high-density silicone elastomer) in penetrations to verify that the materials were tested and found to have a density greater than or equal to 100 (lbs/ft^3), as required by the ITAAC acceptance criterion;
- reviewed procurement documentation and records associated with tags and signs to verify that the signs and tags were manufactured by vendors on the approved vendors list (ASL), and found to have a density greater than or equal to 100 (lbs/ft^3), as required by the ITAAC acceptance criterion;
- reviewed the licensee's approved specification for moisture barrier seals (i.e. caulking) that would be used to procure caulking for moisture barriers inside containment to determine if it required that the density be greater than or equal to 100 (lbs/ft^3) as required by the ITAAC acceptance criteria and 10 Code of

Federal Regulations (CFR) Part 50 Appendix B Criterion IV which states, in part, that requirements for materials be passed down to suppliers in specifications;

- reviewed coating records from the Quality Assurance Data Packages (QADPs), associated with commodity codes SS30 (i.e. reactor pressure vessel (RPV) supports) and MH01 (i.e. polar crane), to determine if batches of paint used on SS30 and MH01 had an associated certified testing record that determined a dry film density greater than or equal to 100 (lbs/ft^3); and
- reviewed a sample of audit reports for a vendor associated with coating activities to verify that audits documented the placement or retention of the contractor on the ASL, were done by qualified auditors, and audit findings were documented and dispositioned.

b. Findings

Introduction

The inspectors identified an ITAAC finding of very low safety significance (Green) with an associated NCV of 10 CFR Part 50, Appendix B, Criterion IV, “Procurement Document Control,” for the licensee’s failure to specify an accurate conversion factor for calculating the dry film density of coatings used in containment. Specifically, the licensee used a conversion factor that was rounded in a non-conservative manner, which resulted in the dry film density not meeting the ITAAC.

Description

During the NRC inspection of ITAAC 2.2.03.08c.x conducted November 12 to 21, 2019, the inspectors identified the licensee’s coatings specification used an incorrect non-conservative conversion factor to calculate the dry film density of coatings to be used in containment. The ITAAC requires coatings used on containment surfaces to have a dry film density of 100 pounds per cubic feet (lbs/ft^3), or if a coating is used with a lower dry film density a report must exist and conclude the coating will not transport to the containment sump screen. The inspectors found coatings specification APP-G1-X0-001, "Protective Coatings Design Requirements," Revision 8, required calculation of the dry film density using 7.5 as the conversion factor from gallons to cubic feet. The correct conversion factor should have been 7.48. This resulted in non-conservative rounding in dry film density calculations for coatings applied in containment. A review of the coatings density records found one batch had been used inside containment that had an actual dry film density of 99.83 lbs/ft^3 without a report to support its use. The licensee entered this issue into the corrective action program as CR 50034350 and CR 50034649 for evaluation and identification of appropriate corrective actions.

Analysis

The licensee’s failure to use an accurate conversion factor in the coatings specification was a performance deficiency. Criterion IV, “Procurement Document Control,” of 10 CFR Part 50 Appendix B, requires in part that requirements which are necessary to assure quality are suitably included or referenced in the documents of procurement of

material. The licensee failed to meet this requirement by procuring coatings with a specification that did not include requirements for using correct conversions from gallons to cubic feet and resulted in material that was purchased and used that did not meet the AP1000 design requirements. This performance deficiency was screened as more than minor in accordance with Manual Chapter 0613 Appendix E, "Examples of Minor Construction Issues." The inspectors determined this performance deficiency was of more than minor safety significance, and thus a finding, because it was material to the acceptance criteria of an ITAAC. The acceptance criterion of ITAAC number 2.2.03.08c.x requires, in part, that a report exist and concludes that the coatings used on these surfaces have a dry film density of 100 lbs/ft^3. If a coating is used that has a lower dry film density, a report must exist and conclude that the coating will not transport. Contrary to the above, the licensee procured and subsequently installed the coatings inside containment with a density of 99.83 lbs/ft^3, without a report to support its use.

The inspectors determined this finding was associated with the Material Control attribute of the Procurement/Fabrication Cornerstone. The finding was not associated with a security program; it was not associated with an IMC 2504 operational or construction program; and it was not associated with a repetitive, NRC-identified omission of a program critical attribute. In accordance with IMC 2519, "Construction Significance Determination Process," Appendix A, "AP 1000 Construction Significance Determination Process," dated December 6, 2017, the inspectors determined the finding was associated with the PXS system which is assigned to the high risk importance column of the "AP1000 Construction Significance Determination Matrix," dated December 6, 2017. The inspectors determined this finding was of very low safety significance (Green) because the licensee was able to demonstrate with reasonable assurance that the design function of the applicable structure or system would not be impaired by the deficiency (Step 7.a.2 of Appendix A, IMC 2519).

In accordance with IMC 0613, Appendix F, "Construction Cross-Cutting Areas and Aspects," dated October 1, 2018, the inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of Conservative Bias, in the area of Human Performance. Specifically, the licensee failed to use decision making practices that emphasized prudent choices over those that are simply allowable when rounding off conversion factors in specifications, and when receiving coatings that were within less than 0.25% of the acceptance criterion. [H.14]

Enforcement

10 CFR Part 50 Appendix B, Criterion IV, "Procurement Document Control," requires, in part, that "measures shall be established to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure quality are suitably included or referenced in the documents for procurement of material, equipment, and services, whether purchased by the applicant or by its contractors or subcontractors."

Contrary to the above, prior to November 12, 2019, the licensee failed to assure that applicable requirements were included in documents for procurement of material. Specifically, specification APP-G1-X0-0001 was sent to suppliers to procure coatings that stated: “Calculate the dry film unit weight, also referred to as dry film density, using the following expression: Unit weight (lbs/ft^3 dry) = 7.5 Wg (Sw/Sv),” which assumes that one cubic foot equals 7.5 gallons rather than 7.48 gallons. The failure to include accurate conversion factor in procurement documentation resulted in coatings that were procured, received, and installed in containment that had an actual dry film density that was less than 100 lbs/ft^3. The licensee performed immediate corrective actions to demonstrate with reasonable assurance that the nonconforming coatings with a dry film density of 99.83 lbs/ft^3 would not transport to the containment sump screens and the design function of the PXS would not be impaired. The licensee entered this issue into its corrective action program as CRs 50034350 and 50034649. Because this violation was not repetitive or willful, was of very low safety significance, and was entered into the licensee’s corrective action program, it is being treated as an NCV consistent with Section 2.3.2.a of the NRC Enforcement Policy (NCV 05200025/2019004-02 and 05200026/2019004-02, Non-Conservative Rounding of Conversion Factor Used in Formula for Calculating Density of Protective Coatings).

1A07 (Unit 3) ITAAC Number 2.2.03.08c.xii (197) / Family 03A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.08c.xii (197). The inspectors used the following NRC IPs/sections to perform this inspection:

- 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 an as-built inspection of the Unit 3 CMT upper level sensing lines for both CMTs to verify the ITAAC. The inspectors performed a walkdown of the CMT level sensing lines for CMT level sensors PXS11A/B/D/C, 12A/B/C/D, 13A/B/C/D, and 14A/B/C/D with the licensee, observed the licensee perform surveys of the level sensing lines, and performed an independent assessment to verify the as-built piping was consistent with the approved design requirements. In addition, the inspectors reviewed quality records including the Principal Closure Document (PCD), design drawings, and survey results to determine whether the upper level sensing lines for the CMTs had a minimum downward slope of 2.4 degrees from the centerline of the connection to the CMT to the centerline of the connection to the standpipe as specified in Table 2.2.3-4 of Appendix C of the Vogtle Unit 3 COL.

b. Findings

Introduction

The inspectors identified an ITAAC finding of very low safety significance (Green) with an associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to install Unit 3 CMT A upper level sensing lines for instruments PXS 11A/C and 13 B/D in accordance with ITAAC 2.2.03.08c.xii and the approved design requirements.

Description

On November 20, 2019, the inspectors performed an as-built inspection of the Unit 3 CMT upper level sensing lines for both CMTs associated with CMT level sensors PXS 11A/B/D/C, 12A/B/C/D, 13A/B/C/D, and 14A/B/C/D to verify ITAAC2.2.03.08c.xii. The ITAAC required the upper level sensing lines for the CMTs to have a minimum downward slope of 2.4 degrees from the centerline of the connection to the CMT to the centerline of the connection to the standpipe. The inspectors performed a walkdown of the CMT upper level sensing lines with the licensee and observed the licensee reperform slope measurements after the licensee had already completed and verified the acceptance criteria. Absent this walkdown and additional measurements taken for the inspectors, the licensee had completed its inspection and was prepared to submit its 10 CFR 52.99(c)(1) completion notification. During the inspection, the inspectors identified two upper level sensing lines (one on each of two CMT A level sensors) did not meet the minimum slope requirement. Line SV3-PXS-205 on PXS 11A/C did not meet the minimum slope requirement along the 19-inch section of pipe. The as-built measurement taken was 2.1 degrees. The previous measurement taken by the licensee on November 16, showed the slope of this pipe section was in conformance with the ITAAC at 2.8 degrees. Line SV3-PXS-335 on PXS 13B/D did not meet the minimum slope requirement along the 12-1/16 inch section of pipe. The as-built measurement taken was 2.3 degrees. The previous measurement taken by the licensee on November 15, showed the slope of this pipe section was in conformance with the ITAAC at 2.8 degrees.

The inspectors reviewed the design requirements for installation of the CMT level instruments and noted the minimum slope requirement was included in two design instructions that provided installation requirements for the CMT level instruments. Design change proposal (DCP) APP-GW-GEE-4516, "Redesign the CMT Level Instrument Layout due to Overstress in Instrument Related Pipe and Nozzles of the Tap Lines," Revision 1.0, and E&DCR APP-PXS-GEF-276, "CMT Level Instrument Tap Piping Tolerances," Revision 0, both contained the minimum slope requirement. Additionally, the inspectors noted the design drawings for each of the CMT level instrument taps contained a note specifying the minimum slope requirement. Drawings APP-PXS-PLW-205, "Passive Core Cooling System Containment Bldg. Room 11400 CMT A Lvl Instrument Tap LT011A/C," Revision 3, and APP-PXS-PLW-335, "Passive Core Cooling System Containment Bldg. Room 11300 CMT A Lvl Instrument Tap LT013B/D," Revision 3, were issued for the Unit 3 CMT A upper level sensing lines for instruments PXS 11A/C and 13 B/D, respectively.

The licensee entered this issue into its corrective action program as CR 50034981 for evaluation and identification of appropriate corrective actions and performed in-field rework on the two level sensing lines which included cutting the sensing welds, correcting the slope of the lines, and rewelding the sensor lines, to correct the nonconforming conditions.

On December 10, the inspectors observed the licensee reperform the as-built inspection of the Unit 3 CMT upper level sensing lines for all four CMT A level sensors (i.e., PXS 11A/B/D/C and 13A/B/C/D) to verify the ITAAC was satisfied after the rework.

Analysis

The licensee's failure to perform Unit 3 CMT sensor installation activities in accordance with ITAAC 2.2.03.08c.xii and approved design requirements was a performance deficiency. The inspectors determined that the licensee failed to perform activities that affected quality, in accordance with 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and specified in APP-GW-GEE-4516, APP-PXS-GEF-276, APP-PXS-PLW-205, and APP-PXS-PLW-335 to ensure the Unit 3 CMT A upper level sensing lines for instruments PXS 11A/C and 13 B/D met minimum requirements of 2.4 degree slope. This performance deficiency was screened as more than minor in accordance with Manual Chapter 0613 Appendix E. The inspectors determined this performance deficiency was of more than minor safety significance, thus a finding, because it was material to the acceptance criteria of an ITAAC and invalidated the Inspection, Test, or Analysis described in the ITAAC. Specifically, the acceptance criteria for ITAAC 2.2.03.08c.xii states: "Each upper level tap line has a downward slope of greater than or equal to (≥) 2.4 degrees from the centerline of the connection to the CMT to the centerline of the connection to the standpipe." The inspectors also reviewed the Appendix E examples of minor issues and found two similar examples of "not minor if" performance deficiencies. Example 1 was similar, in that the inspectors identified the as-built condition did not meet the applicable design requirements and the performance deficiency was not minor because substantial rework was required to restore the components to the approved design. Example 11 was similar, in that the inspectors identified the licensee had failed to identify the acceptance criteria were not met for the two level sensing lines during its quality inspection and the performance deficiency was not minor because the components were rendered unacceptable and corrective action was required to bring them into conformance.

The inspectors determined this finding was related to the Construction/Installation attribute of the Construction Reactor Safety Cornerstone. The inspectors determined this finding was not associated with a security program; it was not associated with an IMC 2504 operational/construction program; and it was not associated with a repetitive, NRC-identified omission of a program critical attribute. In accordance with Appendix A of IMC 2519, the inspectors determined that the finding associated with the PXS (CMT) system which is assigned to the intermediate risk importance column of the “AP1000 Construction Significance Determination Matrix." The inspectors determined this finding was a performance deficiency of very low safety significance (Green) because if left uncorrected, the finding could reasonably be expected to impair the design function of only one train of a multi-train system (Step 11.a of Appendix A, IMC 2519).

In accordance with IMC 0613, Appendix F, the inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of Avoiding Complacency, in the area of Human Performance.

Specifically, the licensee failed to properly implement appropriate error reduction tools, such as inadequate verification by personnel performing the measurements. [H.12]

Enforcement

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and be accomplished in accordance with these instructions, procedures, or drawings.

Contrary to the above, on November 20, 2019, the licensee failed to install Unit 3 CMT A upper level sensing lines for instruments PXS 11A/C and 13 B/D in accordance with ITAAC 2.2.03.08c.xii and the approved design requirements specified in APP-GW-GEE-4516, APP-PXS-GEF-276, APP-PXS-PLW-205, and APP-PXS-PLW-335. The licensee entered this finding into its corrective action program for evaluation and identification of appropriate corrective actions (CR 50034981). Corrective actions for this issue included rework on the two level sensing lines to correct the nonconforming conditions. Because this violation was not repetitive or willful, was of very low safety significance, and was entered into the licensee's corrective action program, it is being treated as an NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy (NCV 05200025/2019004-01, Failure to Meet ITAAC for Installation of CMT Level Sensing Lines).

1A08 (Unit 3) ITAAC Number 2.5.02.08b.i (542) / Family 10A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.08b.i (542). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.10-02.02.b - Completed Work
- 65001.10-02.02.c - As Built Verification

The inspectors performed an as-built inspection of the Unit 3 protection and safety monitoring system (PMS) PMS main control room (MCR)/remote shutdown workstation transfer panel to verify the ITAAC. The inspectors performed a post-installation field inspection of the transfer panel with the licensee and reviewed quality records including the PCD and design drawings to determine whether separate transfer switches existed for each safety-related division and the nonsafety-related control capability as specified in Table 2.5.2-8 of Appendix C of the Vogtle Unit 3 COL.

b. Findings

No findings were identified.

1A09 (Unit 3) ITAAC Number 2.5.02.11 (550) / Family 10F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.11 (550). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.F-02.04 - General QA Review

The inspectors observed the handling and transport of Divisions A, B, and D PMS cabinets between the 100 ‘ and 117’ elevations to verify the cabinets were appropriately rigged and handled in accordance with the vendor technical manual and protected from damage and obstructions during transport. The inspectors also performed walkdowns of the areas where the cabinets were to be installed and verified the areas were being controlled in accordance with Nuclear Quality Assurance (NQA)-1 Level B storage requirements for temperature and humidity. In addition, the inspectors observed the final placement and welding of PMS cabinets to verify the cabinets were oriented and installed in their correct locations and in accordance with the weld specifications. The inspectors verified the weld rod materials were listed on the welding procedure specification (WPS). The inspectors verified the field welds were the correct length, size, spacing, and applied in the correct locations in accordance with design drawings.

The inspectors observed welding of multiple shims using fillet welds to the base of two electrical cabinets and adjoining floor embedment plates at several locations to verify if the shims were installed in accordance with drawing 10112D20 and American Welding Society (AWS) Code D1.1:2000 for the PMS. The inspectors reviewed two Bechtel welding inspection checklist entries for 17 fillet welds to determine if QC inspection hold points were signed-off and dated for preheat, fit-up, interpass temperature, and final visual inspections in accordance with the requirements of AWS D1.1, Clauses 5 and 6. The inspectors also reviewed the checklist entries against the rod tickets to determine if the traceability of the welder and welding electrodes were controlled in accordance with work package SV3-PMS-JDW-1023214. The inspectors reviewed WPS P1-A-Lh (using supporting PQR-1310) to verify if the welding procedure was qualified and certified in accordance with the requirements of ASME Section IX, Article II. The inspectors reviewed the certified material test report (CMTR) for 3/32" diameter E7018 electrodes with lot-no. 1408A and material issue code S024 to verify if the chemical analysis and mechanical properties were in accordance with the requirements of ASME Section II-Part C, SFA-5.1. The inspectors reviewed the performance qualification record of welder EL141 to determine if he/she was tested and certified in accordance with the requirements of the ASME Code, Section IX, Article III. The inspectors reviewed visual examination procedure VT-AWS D1.1 to verify if it was written in accordance with the requirements of AWS D1.1, Clause 6. The inspectors also reviewed the Certificate of Qualification for Level II QC welding inspector "JL" and the visual acuity and color contrast examination record to verify if the individual was qualified with current annual vision examination in accordance with the requirements of AWS D1.1, Clause 6.1.4.

b. Findings

No findings were identified.

1A10 (Unit 3) ITAAC Number 2.6.03.04b (602) / Family 08E

(Unit 4) ITAAC Number 2.6.03.04b (602) / Family 08E

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.6.03.04b (602). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.08-02.06 - Testing and Verification
- 65001.E-02.04-Documentation

The inspectors performed a review of design documents, test records, studies and engineering analysis associated with ITAAC Number 2.6.03.04b (602) design inspection.

The inspectors used the NRC inspection procedure (IP) 65001.08 to verify that the electrical components were rated (e.g., voltage, current, interrupting, current withstand, type, size, material, etc.) consistent with the results of the analysis and calculations reviewed. In addition, the inspectors reviewed applicable electrical design calculations (e.g., voltage drop calculations, AC and DC load studies, short circuit calculation, and coordination studies.)

The inspectors focused their review on Class 1E components including:

- battery chargers,
- batteries,
- inverters,
- regulating transformers,
- DC distribution panels,
- DC motor control centers,
- Class 1E uninterruptible power supply system (IDS) distribution systems circuit breakers and fuses, and
- IDS distribution systems branch wiring and feeder conductors.

Under ITAAC 2.6.03.04b (602), the inspectors reviewed a sample of calculations for the analysis of the main AC power system (ECS) (non-1E) and IDS (1E) design basis (e.g. short circuit, grounds, etc.) to determine if the associated short circuit, fault currents and grounds were correctly designed and integrated throughout the AC and DC electrical distribution systems.

The inspectors reviewed samples of the associated coordination study for the IDS to verify that short circuit and fault currents were adequately applied and that electrical equipment such as circuit breakers and fuses were adequately coordinated. In addition, the inspectors reviewed the electrical design specifications and design reports associated with the ECS (non-1E) and IDS (1E) to determine if the requirements for short circuit, grounds, coordination, etc. were identified and implemented in accordance with UFSAR sections 8.3.1 and 8.3.2 and Institute of Electrical and Electronic Engineers (IEEE) 323 (1974), IEEE 141 (1993), and IEEE 242 (1986) standards.

The inspectors also reviewed the revised electrical calculations identified in NRC inspection report, Westinghouse/WECTEC Report No. 99901467/2016-201. Specifically, the inspectors reviewed samples of these revised design calculations to verify that the inspection results associated with the IDS Coordination Studies and Degraded Grid Voltage to Regulating Transformers calculations previously reviewed under vendor inspection 99901467/2016-201 were still adequate.

b. Findings

No findings were identified.

1A11 (Unit 3) ITAAC Number 2.6.03.04j (876) / Family 08E
(Unit 3) ITAAC Number 2.6.03.04j (876) / Family 08E

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.6.03.04j (876). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.08 - Inspection of ITAAC-Related Installation of Electric Components and Systems

- 65001.E-02.01 - Design Basis Requirements
- 65001.E-02.03 - Qualification
- 65001.E-02.04 - Documentation

The inspectors reviewed test records, wiring diagrams, and other applicable documentation to verify the acceptance criteria of the ITAAC was met and to verify the design and installation of the battery monitor fuse isolation panels would prevent credible faults from propagating into the Class 1E portions of the IDS. Specifically, the inspectors reviewed test reports APP-IDS-VTR-001, APP-IDS-VTR-002, APP-IDS-VTR-003, and APP-IDS-VTR-004 to verify if qualification test records identified critical characteristics of isolation barriers for maximum credible fault currents. The inspectors verified if the reports documented results that verified fuses were installed as double fuse isolation between Class 1E and non-Class 1E and interrupted the faults applied without physical damage to the barrier components. The inspectors also noted that the report identified that isolation barriers were able to withstand applied faults without signs of degradation. The inspectors reviewed a condition report and qualification records to verify that testing and reconciliation was performed for the electrical isolation components between the battery monitors and the battery banks.

b. Findings

No findings were identified.

1A12 (Unit 3) ITAAC Number 2.6.03.07 (616) / Family 08F
(Unit 4) ITAAC Number 2.6.03.07 (616) / Family 08F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.6.03.07 (616). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.08-02.02 - In-Process Installation
- 65001.F-02.01 - Design Document Review

The inspectors performed a review of design documents, test records, studies and engineering analysis associated with ITAAC Number 2.6.03.07 (616) Breakers and Fuses Supplying Loads.

The inspectors used NRC IP 65001.08 to verify that the electrical components were rated (e.g., voltage, current, withstand/interrupting current, type, size, material, etc.) consistent with the results of the analysis and calculations reviewed. In addition, the inspectors reviewed applicable electrical design calculations (e.g., voltage drop calculations, AC and DC load studies, short circuit calculation, and coordination studies).

The inspectors focused their review on Class 1E components including:

- battery chargers,
- batteries,
- inverters,
- regulating transformers,
- DC distribution panels,
- DC motor control centers,
- IDS distribution systems circuit breakers and fuses, and
- IDS distribution systems branch wiring and feeder conductors.

Under ITAAC 2.6.03.07 (616), the inspectors reviewed samples of the IDS system load calculations and coordination studies to verify that DC battery fuses, battery charger circuit breakers, distribution panel fuses, circuit breakers, motor control center fuses and circuit breakers were sized to supply their respective loads and were rated to withstand fault currents for the time required to clear possible anticipated circuit faults.

The inspectors performed walkdowns of the following IDS equipment; battery charger SV3-IDSC-DC-1, IDS switchboard SV3-IDSC-DS-1, inverter SV3-IDSC-DU-2, motor control center SV3-IDSC-DK-1, distribution panels SV3-IDSC-EA-1, SV3-IDSC-EA-2, and SV3-IDSC-EA-3, to verify that the affixed manufacturers' nameplate data which defines parameters, such as fault current, voltage, and continuous current ratings, matched those specified in the design documents listed in the document reviewed section of this report.

The inspectors reviewed SV3-IDS-E8-001, "Class 1E DC and UPS System Specification Document," Revision 5 and SV3-IDS-E0C-004, "IDS Power Cable Sizing and Voltage Drop Analysis," Revision 5 to determine if the cable rating for the following IDS components met the acceptance criteria of this ITAAC to withstand associated fault currents: Class 1E 250 V DC batteries, Class 1E battery chargers, Class 1E DC switchboards, Class 1E DC motor control centers (MCCs), and Class 1E 250 V DC distribution panels.

The inspectors reviewed the cable rating for each component in Division B of the IDS from Appendix B of SV3-IDS-E8-001, with the voltage drop analysis connection list from Attachment A-1 of SV3-IDS-E0C-004, to determine if the cable sizing and number of conductor(s) requirements were correctly analyzed in accordance with National Fire Protection Association (NFPA) 70, National Electrical Code (NEC), 1999 and was adequate to withstand the associated fault currents. The inspectors also reviewed the listed conductor sizing and number of cables in the voltage drop analysis connection list from Attachment A-1 of SV3-IDS-E0C-004 and compared those with drawings SV3-IDS-E3-002, SV3-IDS-E3-003, SV3-IDS-E3-006, SV3-IDS-E3-007, and SV3-IDS-E3-012 to verify the cable sizing and number of conductors was translated to the drawings correctly.

The inspectors reviewed Class 1E DC and UPS system specifications and Class 1E (IDS) 250V DC system coordination study to determine if the fuse and circuit breaker sizing for the following IDS components met the acceptance criteria of this ITAAC for exceeding their analyzed load requirements: Class 1E 250 V DC batteries, Class 1E battery chargers, Class 1E DC switchboards, Class 1E DC MCCs, and Class 1E 250 V DC distribution panels.

Specifically, the inspectors reviewed the fuse sizing for each component in Division B of the Class 1E DC and UPS system coordination study outlined in SV3-IDS-E0C-011 to determine if the load requirements were correctly analyzed. The inspectors also reviewed the fuse sizing in Section 5.0 of SV3-IDS-E0C-011 and compared those with drawings SV3-IDS-E3-002, SV3-IDS-E3-003, SV3-IDS-E4-006, SV3-IDS-E3-007, and SV3-IDS-E3-012, to verify the fuse sizing was translated to the drawings correctly.

The inspectors reviewed specifications for Class 1E MCCs to determine if the fuse sizing was adequate for the associated loads fed from the MCCs. Specifically, the inspectors reviewed the APP-IDSB-DK-1 (Division B MCC) listed load Locked Rotor Amperes (LRA) and Full Load Amperes (FLA) against the listed fuse size in Appendix F of SV3-DK01-Z0-010 to determine if the associated components could perform their intended safety functions and to determine if the loads would momentarily (approximately 1 second) experience the full LRA and would not cause their associated fuses to exceed the melt limit before reaching their continuous FLA. The inspectors reviewed calculation APP-IDS-E0C-015, "IDS MCC PWER FUSE RG1.106 Compliance," Revision 0 to determine if the following LRA and fuse sizing would allow the components to perform their intended safety function:

- LRA 151A at fuse rating 125 ampere(A),
- LRA 362A at fuse rating 200A, and
- LRA 382A at fuse rating 200A.

The inspectors reviewed design specifications, coordination studies, and drawings to determine if the power buses for the following components could withstand the associated short circuit current experienced in the IDS: Class 1E DC switchboards, Class 1E inverters, Class 1E DC MCCs, and Class 1E 250 V DC distribution panels. Specifically, the inspectors reviewed the worst-case short circuit available current on Division B of the IDS from the battery sizing calculations against design specifications for Class 1E 250 VDC IDS switchboards, inverters, static transfer and manual bypass switches, MCCs, distribution panels, and Class 1E fuse panels, to determine if the components were sized to withstand the short circuit current. The inspectors also reviewed drawings of system One Line Meter & Relay Diagrams to verify that withstand currents on the associated power busses were translated to the drawings correctly.

Notice of Nonconformance (NON) 99901467/2016-201-01 was documented in NRC inspection report 99901467/2016-201 (ADAMS Accession No.: ML17013A658). This was an ITAAC Finding for the licensee's failure (through the contractor) to identify and verify the adequacy of circuit breaker and fuse interrupting current ratings as a critical characteristic, as part of its commercial grade dedication process. During this inspection, the inspectors reviewed testing of fuses and circuit breakers and fuse interrupting current ratings, which were defined as critical characteristics in its commercial grade dedication process. The inspectors reviewed EMPE-EV-97-APP, "Westinghouse Isolation Barrier Maximum Credible Fault Test Report" to verify that Class 1E to non-Class 1E isolation barriers met applicable requirements from IEEE 384-1981 associated with maximum credible faults for IDS components including circuit breakers and fuses installed in battery chargers, DC distribution panels, and MCC circuits were rated to interrupt available fault currents.

The inspectors verified if the testing met applicable requirements associated with maximum credible faults as directed by the EMPE-ATP-42, "Isolation Barrier IEEE Standard 384-1981 Fault Test Plan." The testing was performed at the KEMA Powertest LLC. in Chalfont, Pennsylvania under Westinghouse CDI-4815, Commercial Dedication Instruction Fault Testing Services AC & DC Short Circuit Withstand, which credited the KEMA Powertest ISO/IEC 17025 accreditation. As a result, Non-conformance 99901467/2016-201-01 identified in the respective vendor inspection report is considered closed.

NRC vendor inspection report 99901467/2016-201, noted that "complete coordination between the protective devices within the bus was not achieved for the situation of an impedance fault". The inspectors discussed this item with Westinghouse representatives during the IDS design inspection. Westinghouse identified a high impedance fault within a panel to be caused by a loose connection of cable connections or of the buswork itself. It was not believed that this was credible for class 1E equipment due to crediting the quality process in this equipment through the commercial dedication process. This (commercial dedication) process inherently revisits connections specifically for items such as torque/ tightness and to ensure connectors/ connections are of a high integrity (i.e. no stripped connectors/ threaded holes). The inspectors verified that the equipment under review was qualified to include design basis seismic events (DBE and SSE) and the connections and workmanship (both of the equipment and connections to the equipment) were controlled by NQA-1 processes. Consequently, the type of conditions that would produce high impedance faults was not applicable for this IDS equipment.

b. Findings

No findings were identified.

1A13 (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

The inspectors observed the fit-up and tack welding for the external vertical field weld 7 joining shield building tension ring modules TR03 and TR04 to air inlet module AI11. The inspectors observed in-process shielded metal arc welding (SMAW) of intermediate weld passes for the external horizontal seam field weld 5 joining shield building tension ring module TR02 to the inlet modules AI04, AI05, and AI06 to verify the welders were depositing sound weld metal in a clean weld butt joint using staggered starts and stops in accordance with the CB&I general welding procedure and AWS D1.1:2000 Code. The inspectors also verified if the certified welders were using E8018-C1 electrodes in accordance with the CB&I WPS 181816-000-WS-SP-E8018.

The inspectors reviewed weld travelers and spreadsheets associated with the two field welds mentioned above to verify that work was conducted in accordance with documents/procedures that sequences all operations, references procedures and instructions; established hold points, and provided for production welding and inspection sign-offs. The inspectors also verified that QC inspection hold points for fit-up and tack of the horizontal seam were signed-off on the weld traveler in accordance with the CB&I quality assurance program.

The inspectors reviewed two CMTRs for welding electrodes of classification E8018-C1 for lot-numbers 1400D and 1419R to verify if the chemical analysis and mechanical properties were in accordance with the requirements of ASME Section II, Part C, SFA-5.5, specification for low-alloy steel electrodes. The inspectors reviewed welder performance qualification records for three welders having site identification designations CJP6977, DAC9679, and JHB9283 to determine if the CB&I welders were qualified in accordance with ASME Boiler and Pressure Vessel (BPV) Code, Section IX and had maintained their qualifications.

b. Findings

No findings were identified.

1A14 (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
- 65001.01-02.06 - Records
- 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
- 65001.02-02.06 - Record Review
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.02-02.09 - Concrete Quality Process Problems
- 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
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors reviewed quality records and performed direct inspection of construction activities associated with the Vogtle Unit 3 shield building. Specifically, the inspectors sampled the following tension ring modules installed between elevations 264'-4" and 274'-1/16":

- TR06, between azimuths 140 degrees and 173 degrees;
- TR07, between azimuths 173 degrees and 207 degrees;
- TR08, between azimuths 207 degrees and 241 degrees; and
- TR09, between azimuths 241 degrees and 274 degrees.

The inspectors reviewed the work package and the placement plan included in the work package to determine whether the work instructions translated mockup program requirements of UFSAR Section 3.8.4.8 and the enhanced shield building construction mockup program. Additionally, the inspectors reviewed the concrete placement plan included in the work package to determine whether pre-placement planning had been completed, including considerations for mass concrete, equipment malfunctions, and unexpected events. The inspectors independently assessed the placement areas prior to the concrete placements to determine whether they were secure, leak tight, and free from debris or excess water as required by American Concrete Institute (ACI) 349-01 and SV3-CC01-Z0-031.

The inspectors observed concrete placement activities and reviewed signature logs in the work package to determine whether approved work instructions and specifications were available in the work area and were followed throughout the concrete placements as required by the licensee's quality assurance program and 10 CFR 50, Appendix B, Criterion V. The inspectors observed concrete placement activities and reviewed batch plant records to determine whether the following were in accordance with ACI 349-01, SV3-CC01-Z0-026, and SV3-CC01-Z0-031:

- the maximum water/cement ratio was not exceeded;
- concrete was placed in lifts;
- placement drop distances did not exceed requirements and did not result in concrete segregation;
- concrete was visible in each placement port and nozzle;
- the time interval between mixing and placing was less than 90 minutes and the concrete trucks had less than 300 revolutions for each batch of concrete; and
- the concrete in the concrete trucks and at the point of placement was uniformly mixed.

The inspectors evaluated a sample of batch tickets as they were being filled out and signed to verify the following was conducted in accordance with ACI 349-01 and SV3-CC01-Z0-031:

- batch records were generated, controlled, and indicated placement location, mix, volume, date, time, and special instructions;
- each truck was measured, and each trip received proper ticketing and documentation;
- the mix listed and the weights of each constituent were reviewed prior to placing the concrete;
- each batch ticket was reviewed for transport time and truck rotations; and
- water was adjusted to account for moisture content of aggregates.

The inspectors observed field engineering and QC inspections throughout the concrete placements to verify inspection was performed during placement as required by ACI 349-01, SV3-CC01-Z0-031, and 26139-000-4MP-T81C-N3210. During the placements, the inspectors observed in-process concrete testing to determine whether:

- concrete temperature, slump, j-ring, air content, and unit weight were determined at the proper location and frequency as required by ACI 349-01, SV3-CC01-Z0-027, 132175-102-006-04-000052, and the applicable ASTM standards;
- sample collection, testing techniques, and testing equipment conformed to ACI 349-01, SV3-CC01-Z0-027, and the applicable American Society for Testing and Materials (ASTM) standards;
- test results were evaluated against applicable quantitative and qualitative acceptance criteria in accordance with 10 CFR 50, Appendix B, Criterion V; and
- concrete strength test sample cylinders were made at the required location and frequency and were cured in accordance with ACI 349-01, SV3-CC01-Z0-027, and the applicable ASTM standards.

The inspectors observed laboratory concrete cylinder compression break testing to determine whether the following were in accordance with SV3-CC01-Z0-027 and the applicable ASTM standards:

- testing times and intervals;
- marking, control, and preparation of test cylinders;
- test equipment calibration, maintenance, and operation; and
- adherence to test procedures.

The inspectors reviewed a sample of batch tickets and test reports, including the concrete cylinder strength testing, to verify the records were complete and contained the required information in accordance with ACI 349-01, SV3-CC01-Z0-027, and the applicable ASTM standards. Additionally, the inspectors reviewed the concrete cylinder break test results to verify the concrete tested met the strength requirements for the specified concrete mix in accordance with SV3-CC01-Z0-026. The inspectors reviewed the QC inspection reports for the concrete placements to verify the inspections were documented and the activities were accepted in accordance with SV3-CC01-Z0-031 and 26139-000-4MP-T81C-N3210. The inspectors observed concrete curing activities to determine whether curing was in accordance with ACI 349-01 and SV3-CC01-Z0-031 with regard to the method, materials, duration, and temperature.

The inspectors reviewed CR 50032191, CR 50032417, and CR 70000336 associated with the concrete placements to verify the evaluations and corrective actions were conducted in accordance with the licensee's CAP; the issues were identified and documented in a timely manner; and the issues were classified and resolved commensurate with their safety significance. The inspectors reviewed nonconformance and disposition report (N&D) SV3-CC01-GNR-00057 associated with CR 70000336 to verify the nonconformance had a technical evaluation and was dispositioned in accordance with APP-GW-GAP-428, "Nonconformance and Disposition Report." The inspectors reviewed a sample of engineering & design coordination reports (E&DCRs) to verify the design changes had technical evaluations and were dispositioned in accordance with APP-GW-GAP-420, "Engineering and Design Coordination Reports."

b. Findings

No findings were identified.

1A15 (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
- 65001.01-02.07 - Identification and Resolution of Problem

- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F-02.01 - Design Document Review
- 65001.F-02.04 - General QA Review

The inspectors reviewed quality records and performed direct inspection of construction activities associated with the Unit 3 shield building. Specifically, the inspectors sampled the reinforced concrete to steel composite (RC/SC) connection between the auxiliary building roof and the shield building cylinder between elevations 152'-11" and 155'-6" and approximate azimuths 22 degrees and 50 degrees.

The inspectors reviewed a sample of design drawings to determine whether the design documents defined the final design and arrangement of the roof, including dimensions and welds, and the design implemented was in accordance with UFSAR Section 3H and Vogtle Unit 3 COL, Appendix C, Section 3.3. The inspectors independently measured the following attributes associated with the welded connections of the auxiliary building roof horizontal steel reinforcement to the roof connection plates attached to the shield building cylinder to verify they were installed in accordance with the design drawings and would provide sufficient development:

- partial joint penetration (PJP) welds of the upper N-S and E-W horizontal reinforcing bar dowels to the shim plates;
- shim plate PJP welds to the upper ring plate;
- shim plate sizes and locations; and
- reinforcing bar sizes, spacing, number, and dowel lengths.

The inspectors performed an independent visual inspection the completed welds described above to determine whether:

- the welds were free from defects such as cracks, lack of fusion, or excessive overlap/undercut/porosity;
- the welds met the type, size, length, and location requirements of the drawings; and
- the welds met the visual inspection acceptance criteria for 181816-000-WS-PR-45056 and AWS D1.1-2000.

The inspectors reviewed CR 70000339 associated with the roof reinforcement to verify the evaluation and corrective actions were conducted in accordance with the licensee's CAP, the issue was identified and documented in a timely manner, and the issue was classified and resolved commensurate with its safety significance. The inspectors reviewed N&D SV3-CE01-GNR-000386 to verify the nonconformance had a technical evaluation and was dispositioned in accordance with APP-GW-GAP-428.

b. Findings

No findings were identified.

1A16 (Unit 3) 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.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F-02.03 - Observation of Fabrication Activities

The inspectors observed construction activities associated with wall I between column lines 5 and 7.3 at elevation 135'-3" of the auxiliary building. The inspectors observed concrete placement activities and reviewed design specifications, quality control documents, and correlation testing reports.

The inspectors reviewed concrete pour card No. 5291 to determine whether concrete mix design requirements were translated from specification SV3-CC01-Z0-026 as required by NQA-1 1994, Basic Requirements 3 and 5. The inspectors reviewed batch tickets during the concrete placement to verify transport time was completed within the time allowed by ACI 349-01 and the delivery was intended for the location indicated in the pour card. The inspectors also reviewed a correlation testing report to determine whether the correlation values used for this placement were obtained through field testing in accordance with section 6.2 of specification SV3-CC01-Z0-027.

The inspectors observed concrete placement activities to determine whether placement drop distances met the requirements specified in Section 4.2.4 of specification SV3-CC01-Z0-031. The inspectors also reviewed records associated with testing of fresh concrete to verify mix characteristics such as slump range, air content, mix temperature, and target wet density met the requirements of SV3-CC01-Z0-027.

b. Findings

No findings were identified.

1A17 (Unit 3) 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:

- 65001.01-02.05 - Steel Structures
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F-02.01 - Design Document Review
- 65001.F-02.04 - General QA Review

The inspectors reviewed quality records and performed direct inspection of construction activities associated with construction of the non-radiologically controlled portion of the Unit 3 auxiliary building. Specifically, the inspectors sampled the reinforced concrete roof section from elevation 152'-11" to 155'-6" between the shield building and column lines 7.3, 11, I, and L, including the RC/SC connection with the shield building.

The inspectors reviewed a sample of design drawings to determine whether the design documents defined the final design and arrangement of the roof, including dimensions and welds, and the design implemented was in accordance with UFSAR Section 3H and Vogtle Unit 3 COL, Appendix C, Section 3.3. The inspectors reviewed a sample of four design changes associated with the steel reinforcement and concrete to verify design changes were conducted in accordance with the requirements of APP-GW-GAP-420. Additionally, the inspectors reviewed the dispositions to the design changes to verify the changes from the original design did not make substantial changes that would require reevaluation of the design calculations.

The inspectors independently measured the penetration locations and dimensions to determine whether they were installed in accordance with the design drawings, ACI 349-01, and SV3-CC01-Z0-031. The inspectors observed the markings on the reinforcing bars to verify they were the size specified on the design drawings and were the material required by ACI 349-01 and SV3-CR01-Z0-011. The inspectors independently measured the following steel reinforcement attributes to determine whether the reinforcement was installed in accordance with the design drawings, ACI 349-01, and SV3-CC01-Z0-031:

- size, spacing, and locations of the North/South and East/West horizontal bars;
- dowels and lap splices;
- detailed steel around the penetrations;
- embedment locations and dimensions; and
- clearances and clear cover.

The inspectors independently measured the following attributes associated with the welded connections of the auxiliary building roof horizontal reinforcing bars to the roof connection plates attached to the shield building cylinder to verify they were installed in accordance with the design drawings and would provide sufficient development:

- PJP welds of the upper N-S and E-W horizontal reinforcing bar dowels to the shim plates;
- shim plate PJP welds to the upper ring plate;
- shim plate sizes and locations; and
- reinforcing bar sizes, spacing, number, and dowel lengths.

The inspectors performed an independent visual inspection of the completed welds described above to determine whether:

- the welds were free from defects such as cracks, lack of fusion, or excessive overlap/undercut/porosity;
- the welds met the type, size, length, and location requirements of the drawings; and
- the welds met the visual inspection acceptance criteria for 181816-000-WS-PR-45056 and AWS D1.1-2000.

The inspectors reviewed three CRs associated with the roof reinforcement to verify the evaluations and corrective actions were conducted in accordance with the licensee's CAP; the issues were identified and documented in a timely manner; and the issues were classified and resolved commensurate with their safety significance. The inspectors reviewed a sample of two N&Ds to verify the nonconformances had technical evaluations and were dispositioned in accordance with APP-GW-GAP-428.

b. Findings

No findings were identified.

1A18 (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:

- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed inspection of construction activities associated with the floor-slab for Room 12553, located in Area 4, from column line I to J-2 and from Column line 4 to 4.8 (i.e. approximately 16' south of column line 5) at elevation 135'-3" in the radiologically controlled area of the auxiliary building.

The inspectors observed floor structure installation activities, reviewed licensee records including design drawings, design specifications, and E&DCRs. The inspectors observed placement of concrete reinforcing bars to verify that the installation was performed in accordance with approved design drawings and requirements from the ACI 349-01. Specifically, the inspectors independently measured reinforcing steel bars size, spacing, concrete clear cover and lap splice length to verify compliance with requirements of the ACI 349-01, and to determine if concrete reinforcement around penetrations were installed in accordance with the design drawings.

The inspectors also observed as-built attributes of the structural steel beams supporting the reinforced concrete floor-slab and reviewed the respective licensee records including design drawings and specifications. Specifically, the inspectors performed field measurements to verify that size and pattern of the headed shear studs, welded on the structural beams, were installed in accordance with design and shop drawings. Further, structural beams sequences from APP-12351-SS-B014 thru B022 and APP-12451-SS-B001 thru B006 were identified and independently measured to verify that their location, configuration and size parameters were in conformance with the American Institute of Steel Construction (AISC) N690-1994 construction and design drawings.

The inspectors reviewed work package SV3-1250-CCW-800004/196181, for the observed floor installation activities, to verify they were completed using the latest approved design changes, design drawings and design specifications in accordance with NQA-1 1994, Basic Requirement 3. The inspectors reviewed five E&DCRs to verify design changes were processed and translated into design drawings in accordance with procedure APP-GW-GAP-420.

b. Findings

No findings were identified.

1A19 (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:

- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.02 - Laboratory Testing
- 65001.02-02.06 - Record Review
- 65001.02-02.07 - Problem Identification and Resolution
- 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 Vogtle Unit 3 auxiliary building. Specifically, the inspectors sampled the following wall sections:

- wall section along column line 4 from column lines I to K-2 between elevations 135'-3" and 163'-0", and
- wall section along column line I from column lines 1 to 4 between elevation 153'-0" and the roof at elevation 180'-9".

The inspectors independently assessed the placement area prior to concrete placement to determine whether it was secure, leak tight, and free from debris or excess water as required by ACI 349-01 and SV3-CC01-Z0-031. The inspectors observed concrete placement activities and reviewed batch plant records to determine whether the following were in accordance with ACI 349-01, SV3-CC01-Z0-026, and SV3-CC01-Z0-031:

- the maximum water/cement ratio was not exceeded;
- concrete was placed in lifts;
- placement drop distances did not exceed requirements and did not result in concrete segregation;
- the time interval between mixing and placing was less than 90 minutes and the concrete trucks had less than 300 revolutions for each batch of concrete; and
- the concrete in the concrete trucks and at the point of placement was uniformly mixed.

The inspectors evaluated a sample of batch tickets as they were being filled out and signed to verify the following was conducted in accordance with ACI 349-01 and SV3-CC01-Z0-031:

- batch records were generated, controlled, and indicated placement location, mix, volume, date, time, and special instructions;
- each truck was measured, and each trip received proper ticketing and documentation;
- the mix listed and the weights of each constituent were reviewed prior to placing the concrete;
- each batch ticket was reviewed for transport time and truck rotations; and
- water was adjusted to account for moisture content of aggregates.

The inspectors observed field engineering and QC inspections throughout the concrete placement to verify inspection was performed during placement as required by ACI 349-01, SV3-CC01-Z0-031, and 26139-000-4MP-T81C-N3210. 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 ACI 349-01, SV3-CC01-Z0-027, 132175-102-006-04-000052, and the applicable ASTM standards;
- sample collection, testing techniques, and testing equipment conformed to ACI 349-01, SV3-CC01-Z0-027, and the applicable ASTM standards;
- test results were evaluated against applicable quantitative and qualitative acceptance criteria in accordance with 10 CFR 50, Appendix B, Criterion V; and
- concrete strength test sample cylinders were made at the required location and frequency and were cured in accordance with ACI 349-01, SV3-CC01-Z0-027, and the applicable ASTM standards.

The inspectors observed laboratory concrete cylinder compression break testing to determine whether the following were in accordance with SV3-CC01-Z0-027 and the applicable ASTM standards:

- testing times and intervals;
- marking, control, and preparation of test cylinders;
- test equipment calibration, maintenance, and operation; and
- adherence to test procedures.

The inspectors reviewed a sample of batch tickets and test reports, including the concrete cylinder strength testing, to verify the records were complete and contained the required information in accordance with ACI 349-01, SV3-CC01-Z0-026, SV3-CC01-Z0-027, and the applicable ASTM standards. The inspectors performed independent inspection and measurements of the as-built concrete to determine whether the as-built configuration was in accordance with ACI 349-01, SV3-CC01-Z0-031, and the work package. The inspectors reviewed CR 50027521 associated with the concrete placement to verify the evaluation and corrective actions were conducted in accordance with the licensee's CAP; the issue was identified and documented in a timely manner; and the issue was classified and resolved commensurate with its safety significance.

b. Findings

No findings were identified.

1A20 (Unit 3) ITAAC Number 3.3.00.04b (782) / Family 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.04b (782). 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
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed independent inspection and reviewed records to verify the walls of the waste accumulation room in the radwaste building, except for designed openings and penetrations, met the thickness requirements specified in Table 3.3-6 of Appendix C of the Vogtle Unit 3 COL. The inspectors independently measured a sample of walls to determine whether they met the acceptance criteria of the ITAAC. The inspectors reviewed the survey records for the wall thicknesses to verify the survey results were correctly translated to the as-built elevation drawings and the survey results indicated compliance with the ITAAC acceptance criteria.

The inspectors reviewed the concrete test records to verify the concrete mix used met the density requirements for concrete used for shielding in accordance with SV3-CC01-Z0-026, "Safety Related Mixing and Delivering Concrete." The inspectors reviewed CR 50029578 associated with the wall thickness surveys to verify the evaluation and corrective actions were conducted in accordance with the licensee's CAP; the issue was identified and documented in a timely manner; and the issue was classified and resolved commensurate with its safety significance. The inspectors reviewed N&Ds SV3-CC01-GNR-000567, SV3-CC01-GNR-000580, and SV3-CC01-GNR-000584 associated with CR 50029578 to verify the nonconformances had technical evaluations; were dispositioned in accordance with APP-GW-GAP-428, ; and concluded the ITAAC acceptance criteria was met.

b. Findings

No findings were identified.

1A21 (Unit 3) ITAAC Number 3.3.00.07bb (793) / Family 09A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.07bb (793). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.09-02.01 - Physical Separation of Cables
- 65001.A.02.01 - Observation of in-Process Installation Activities

The inspectors observed the installation of Class 1E electrical cables into raceways in the non-radiological portion of the auxiliary building for IDS electrical equipment, PMS cabinets, and PXS and components. Specifically, the inspectors observed the installation of Class 1E cables SV3-PXS-EW-PLV042AXD, SV3-IDSD-EW-DK1AXD, SV3-PMS-EW-JDILCC02BXC, SV3-PMS-EW-JDILCC02ACX, SV3-PXS-EW-100704EZD, SV3-PMS-EW-JDMTCC0103PZC, SV3-PMS-EW-JDMTCC0103OZC, SV3-PMS-EW-JDMTCC0103NZC, SV3-PMS-EW-JDMTCC0103MZC, and SV3-PMS-EW-JDMTCC0103LZC into their respective raceways or conduits to verify the following attributes performed were in accordance with the design installation specification, work packages, or cable pull ticket:

- cables were routed in the correct location (i.e. respective room and raceway sections);
- cables were marked with the proper color-code designations for their respective divisions;
- cable bend radii were not exceeded during the cable pulls;
- cable mark numbers indicated on the pull tickets matched the labels on the cables;
- cable voltage and temperature ratings, and descriptions specified on the pull ticket were as indicated on the cables;
- cable insulation remained undamaged during the pulls;
- cables were ty-wrapped to the cable tray rungs at the correct frequency; and
- cables did not overlap within cable trays.

b. Findings

No findings were identified.

1A22 (Unit 3) ITAAC Number E.3.9.05.01.07 (855) / Family 18D
(Unit 4) ITAAC Number E.3.9.05.01.07 (855) / Family 18D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number E.3.9.05.01.07 (855). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.18-02.08-Emergency Facilities and Equipment

The inspectors performed an inspection to verify a reliable and backup electrical power supply is available for the technical support center (TSC) as specified in Table E.3.9-5 of Appendix C of the Vogtle Unit 3 & 4 COL. During this inspection period, the inspectors observed the TSC diesel generator functional testing, which demonstrated the capability of the backup diesel generator to auto start and supply required loads. The inspectors observed the test to verify plant operators followed an approved procedure with appropriate acceptance criteria; adequate test instrumentation was available and used; and test results were recorded and evaluated in accordance with 10 CFR 50, Appendix B, Criteria V and XI. The inspectors also reviewed the completed test package for completeness and to verify the acceptance criteria for the test were satisfied in accordance with 10 CFR 50, Appendix B, Criterion XI. The inspectors had previously observed selected portions of the TSC backup electrical power supply battery and inverter functional testing, which demonstrated the capability of the battery to supply required load and the inverter to transfer load between the normal power transformer and the battery and documented the inspection in NRC Integrated Inspection Report 05200025/2019003, 05200026/2019003.

b. Findings

No findings were identified.

1A23 (Unit 4) ITAAC Number 2.1.02.02a (13) / Family 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.02.02a (13). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.03-02.03 - Installation and Welding
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection

The inspectors observed machine welding and reviewed documents associated with field welds SV4-RCS-PLW-015-4 and -5 on the inlet and outlet sides of valve V012A, respectively, for the upper tier second-stage ADS located in the Q601 module to verify if the 8-inch diameter gate valves were installed in accordance with the ASME Code Section III, Subsection NB, for Class 1 components. Specifically, the inspectors observed in-process machine gas tungsten arc welding (GTAW) using direct visual control for weld-no. PLW-015-4 to verify if the cleanliness, use of amperage, and abilities of the welding operator to deposit sound weld metal were in accordance with welding procedure WPS1-8.8T01 using ER316L spool wire with heat-no. 1283L. The inspectors also observed machine welding and reviewed documents for field weld SV4-RCS-PLW-01E-10 for the second stage ADS valve V002B located in the Q601 module.

The inspectors reviewed the Stone & Webster (S&W) weld data sheet (WDS) entries for the three welds to determine if QC inspection hold points were signed-off and dated for internal cleanliness and joint fit-up, including weld joint bevel-end preparations and inservice inspection (ISI) markings on each of the pipe and valve sides in accordance with the ASME Code, Section III, Subsections NCA-4134.10 and NB-4230. The inspectors also reviewed welding material requisitions (WMRs) against the WDS entries to determine if traceability of the previously inspected welder qualifications and welding rods were controlled in accordance with NB-4122 and NB-4300.

The inspectors reviewed the CMTR for ER316L spool wire of 0.035-inch diameter with heat-no. 1283L to verify if the chemical analysis, mechanical properties, and minimum delta ferrite were in accordance with the requirements of ASME Section II-Part C, SFA-5.9, and NB-2400. The inspectors reviewed the performance qualification record of welding operator to determine if he was tested and certified in accordance with the requirements of the ASME Code, Section IX, Article III.

b. Findings

No findings were identified.

1A24 (Unit 4) ITAAC Number 2.1.02.02a (13) / Family 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.02.02a (13). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.03-02.03 - Installation and Welding
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls

The inspectors observed machine welding and reviewed documents associated with field weld SV4-RCS-PLW-030-6 on the inlet side of valve V014B for the stage-four ADS to verify if the 14-inch diameter gate valve was installed in accordance with the ASME Code Section III, Subsection NB, for Class 1 components. Specifically, the inspectors observed in-process machine GTAW to verify if the internal cleanliness, use of amperage, and abilities of the welding operator to deposit sound weld metal were in accordance with welding procedure WPS1-8.8T01 using previously inspected ER316L spool wire with heat-no. 1283L. The inspectors reviewed the (S&W) WDS entries to determine if QC inspection hold points were signed-off and dated for internal cleanliness and joint fit-up, including identification of materials and ISI markings on the pipe and valve sides were in accordance with the ASME Code, Section III, Subsections NCA-4134.10 and NB-4230. The inspectors also reviewed three WMRs against the WDS entries to determine if the traceability of the previously inspected welding rods/wires and welders/welding operator were controlled in accordance with NB-4122 and NB-4300.

b. Findings

No findings were identified.

1A25 (Unit 4) ITAAC Number 2.1.02.02a (13) / Family 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.02.02a (13). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.04-02.01 - General Installation

The inspectors reviewed drawings and performed independent measurements of safety class A and seismic category 1 RCS pipe supports located in the containment building pressurizer compartment to verify if they were installed in accordance with the ASME Code, Section III, Subsection NF. The inspectors reviewed the installation of the following four pipe supports:

- variable spring support SV4-RCS-PH-11V0101 on surge line spool piece 1;
- constant load support SV4-RCS-PH-11C0102 on surge line spool piece 2;
- snubber SV4-RCS-PH-11Y0103 on surge line spool piece 3; and
- constant load support SV4-RCS-PH-11C0104 on surge line spool piece 3.

In addition, the inspectors reviewed the isometric construction drawings for these pipe supports to verify if the dimensions and tolerances were in accordance with the WEC fabrication and installation specification. The inspectors also performed a walk-down of each pipe support to verify if the correct type was installed in the designated location, restrained to the pipe and anchor point, and aligned in accordance with the pipe support installation construction drawings.

During the walk-down, the inspectors independently measured these pipe supports to verify the applicable distance between the center line of the RCS-PL-L003 pipe to base plate, and distance between the center of the pipe support and existing overlay plate reference point for the CA01 structural module wall met the dimensional requirements of the design drawings. The inspectors examined the pipe supports to verify there was no structural damage and oil leakage from the snubber, as required by the WEC fabrication and installation specification.

b. Findings

No findings were identified.

1A26 (Unit 4) ITAAC Number 2.1.02.02a (13) / Family 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.02.02a (13). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.03-02.03 - Installation and Welding
- 65001.03-02.06 - Nondestructive Examination (NDE)
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection

The inspectors reviewed design and work control documents associated with PCI using the EDM process for an internal modification on the downstream edge radius contour of the branch nozzle for the stage 4 ADS connection to the Unit 4 RCS Loop 2 hot leg (Line L001B). This modification was required to address flow induced vibrations. Specifically, the inspectors reviewed QA documents to verify if the EDM qualification and field activities were conducted in accordance with the approved design and requirements of the ASME Code Sections III and XI.

The inspectors reviewed the instructions and qualification test procedure for the EDM process, that applies to both Units 3 & 4, with the removal of three test coupons from a simulated Type 316LN stainless steel branch nozzle mock-up to verify if the equipment and several PCI technicians/operators were monitored using established hold point sign-offs by QA/QC inspectors in accordance with PCI's QA program and IWA-4460. The inspectors reviewed the following hold point associated activities:

- signing of the EDM operation parameter data sheet by the PCI technicians/operators to document controls were within established limits;
- thermally impacted surfaces of all three test coupons were examined at 10X magnification for evidence of cracks;
- two of the test coupons surfaces were ground, and polished surfaces were tested for grain size and ASTM A 262-Practice E corrosion sensitization;

- contour measurements using physical go/no-go templates at established azimuth marker locations to verify surfaces were within tolerances;
- surface finish roughness determination for maximum 125 microinch RMS using a comparator gauge;
- final nondestructive visual and liquid penetrant examinations by NDE-VT/PT examiners; and
- laser scanning inspection to determine wall thickness of the modified ADS-4 branch nozzle mock-up.

The inspectors reviewed the PCI QA traveler 914263-001 used to control field activities for the Vogtle Unit 4 ADS-4 branch nozzle modification to verify if the design and inspection requirements were met with QA/QC and applicable ANI hold points signed-off in accordance with PCI's QA program for each of the following final critical steps of the EDM operation:

- use of deionized water;
- alignment of the EDM head;
- rough cuts and contouring measurements using physical go/no-go templates at designated location markers;
- surface blending and polishing for surface roughness measurements using a comparator by an NDE Level II QC Technician;
- NDE-PT in accordance with ASME Section III, NB-2546, by NDE Level II Examiner; and
- metrology laser scanning inspection for measuring wall thicknesses at several locations of the branch nozzle.

The inspectors reviewed the PCI/WEC final report 914263-RPT-002 methodology and results for the analysis using the as-built laser scan of the Unit 4 ADS-4 branch nozzle modification measurements to verify if the final dimensions were within tolerances, overall modification matches design, and azimuth locations passed the visual inspection with the physical go/no-go templates.

b. Findings

No findings were identified.

1A27 (Unit 4) ITAAC Number 2.2.01.02a (91) / Family 06F

a. Inspection Scope

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

- 65001.B-02.04-Production Controls

The inspectors observed in-process manual GTAW welding activities on a pressure boundary weld within the containment system. Specifically, the inspectors observed joint fit-up and tack welds associated with weld SV4-CCS-PLW-040-1 in the component cooling water supply line CCS-PL-L201 to containment. The inspectors verified if the welding was done in accordance with a WDS and referenced the applicable WPS. The inspectors reviewed the S&W WDS to determine if QC inspection hold points were signed-off and dated for material identification markings, cleanliness, and joint fit-up in accordance with the ASME Code, Section III, Subsections NCA-4134.10 and NC-4230. The inspectors observed the welding surfaces to determine if they were smooth, uniform, and free from significant surface discontinuities such as cracks or seams, and free from oil, grease, and other foreign material that would be detrimental to the weld quality. The inspectors also took independent measurements of the weld joint geometry to verify if the root opening and offset tolerances were in accordance with the WPS and the ASME Code, Section III-NC for Class 2 piping.

b. Findings

No findings were identified.

No findings were identified.

1A28 (Unit 4) 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:

- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.04 - Production Controls
- 65001.F-02.01 - Design Document Review

The inspectors observed in-process welding activities and reviewed records associated with construction of the Unit 4 shield building. Specifically, the inspectors sampled the RC/SC connection between the auxiliary building roof and the shield building cylinder between elevations 151'-0" and 154'-10" and azimuths 337.281 degrees and 50.874 degrees.

The inspectors reviewed a sample of design drawings and fabrication drawings to verify they incorporated the details from UFSAR Section 3H and Vogtle Unit 4 COL, Appendix C, Section 3.3, including dimensions and welds.

The inspectors observed several stages of in-process welding, including intermediate pass and cap hand welding, of the roof connection plates, wall connection faceplates, and coupler assembly plates, to Panels 07A, 07L, and 07M to verify the welding activities were conducted in accordance with the requirements of the specifications, procedures, and AWS D1.1:2000. During in-process welding, the inspectors observed the following attributes to verify the welding was being performed in accordance with the applicable WPS:

- the weld material used, including AWS electrode classification;
- the weld variables, including voltage, amperage, and travel speed;
- the cleanliness between passes;
- the heat input and interpass temperature;
- the joint configuration and weld position; and
- the environmental conditions, including protection from wind and moisture.

The inspectors reviewed the weld traveler for the weld joints listed above to determine if established QC inspection hold points and required visual inspections were signed-off in accordance with 181816-000-WS-SP-45001. The inspectors reviewed the WPS and supporting procedure qualification records to determine if they were written and qualified in accordance with the requirements of AWS D1.1-2000, Section 4.
The inspectors performed an independent visual inspection of portions of the completed welds to determine whether:

- the welds were free from defects such as cracks, lack of fusion, or excessive overlap/undercut/porosity;
- the welds met the type, size, and location requirements of the drawings and the WPSs; and
- the welds met the visual inspection acceptance criteria for 181816-000-WS-PR-45056 and AWS D1.1-2000.

The inspectors reviewed a sample of N&Ds associated with the welding to verify the nonconformances had supporting technical evaluations and were dispositioned in accordance with APP-GW-GAP-428. The inspectors reviewed the associated IR-2019-6167 to verify the evaluation and corrective actions were conducted in accordance with the licensee's CAP; the issue was identified and documented in a timely manner; and the issue was classified and resolved commensurate with their safety significance.

b. Findings

No findings were identified.

1A29 (Unit 4) 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
- 65001.01-02.05 - 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.02.01 - Observation of in-Process Installation Activities
- 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-02.01 - Design Document Review

The inspectors reviewed quality records and performed direct inspection of construction activities associated with the Vogtle Unit 4 shield building RC/SC horizontal connection on the east side located approximately between azimuths 74 degrees and 183 degrees at elevation 149'-2". Specifically, the inspectors observed the installation of the ASTM A563 Grade DH heavy hex nuts and ASTM F436 flat washers onto the No. 11 vertical reinforcement bars installed through the RC/SC support plates for the mechanical connection of the RC/SC horizontal transition.

The inspectors reviewed a sample of design drawings to verify they were in accordance with the UFSAR Section 3H.5.7.2 and Vogtle Unit 4 COL. The inspectors reviewed work package SV4-1208-CCW-1042919, SV4-CR01-Z0-010, SV4-1208-Z0-001, and N&D SV0-CR01-GEF-000519 to determine whether the work instructions translated design requirements of the UFSAR and design drawings.

Prior to installation, the inspectors observed construction personnel cleaning and inspecting threads on the vertical reinforcement, the heavy hex nuts, and the washers to verify they were free of damage, foreign material, and rust in conformance with specification SV4-CR01-Z0-010. The inspectors observed the storage of the heavy hex nuts and flat washers in the field to determine whether the storage conditions were in accordance with SV4-CR01-Z0-010.

The inspectors observed the installation and QC verification of a sample the heavy hex nuts and flat washers to the vertical reinforcement to determine whether the following was done in accordance with work package SV4-1208-CCW-1042919 and SV4-CR01-Z0-010:

- the mechanical connection installation was controlled;
- the torqueing requirements were satisfied;
- each splice was documented; and
- the inspection was performed as required.

The inspectors reviewed installation and inspection records and independently inspected the as-installed heavy hex nuts and flat washers to verify the inspection activities were documented, documentation was complete, and the records were reviewed and approved by the responsible organization.

The inspectors reviewed the associated N&Ds to verify the nonconformances had supporting technical evaluations and were dispositioned in accordance with APP-GW-GAP-428.

b. Findings

No findings were identified.

1A30 (Unit 4) 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:

- 65001.01-02.06 - Records
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.03 - Special Considerations
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors reviewed quality records and performed direct inspection of construction activities associated with the Vogtle Unit 4 shield building RC/SC horizontal connection on the east side located approximately between azimuths 74 degrees and 183 degrees and between elevations 139'-4" and 149'-2".

The inspectors independently assessed the placement area prior to concrete placement to determine whether it was secure, leak tight, and free from debris or excess water as required by ACI 349-01 and SV4-CC01-Z0-031. The inspectors reviewed the concrete placement plan included in the work package to determine whether pre-placement planning had been completed, including considerations for weather, mass concrete, and unexpected events. The inspectors observed concrete placement activities to determine whether approved work instructions and specifications were available in the work area and were followed throughout the concrete placement as required by the licensee's quality assurance program and 10 CFR 50, Appendix B, Criterion V. The inspectors observed concrete placement activities and reviewed batch plant records to determine whether the following were in accordance with ACI 349-01, SV4-CC01-Z0-026, and SV4-CC01-Z0-031:

- the maximum water/cement ratio was not exceeded;
- concrete was placed in lifts;
- placement drop distances did not exceed requirements and did not result in concrete segregation;
- the time interval between mixing and placing was less than 90 minutes and the concrete trucks had less than 300 revolutions for each batch of concrete; and
- the concrete in the concrete trucks and at the point of placement was uniformly mixed.

The inspectors evaluated a sample of batch tickets as they were being filled out and signed to verify the following was conducted in accordance with ACI 349-01 and SV4-CC01-Z0-031:

- batch records were generated, controlled, and indicated placement location, mix, volume, date, time, and special instructions;
- each truck was measured, and each trip received proper ticketing and documentation;
- the mix listed and the weights of each constituent were reviewed prior to placing the concrete;
- each batch ticket was reviewed for transport time and truck rotations; and
- water was adjusted to account for moisture content of aggregates.

The inspectors observed field engineering and QC inspections throughout the concrete placement to verify inspection was performed during placement as required by ACI 349-01, SV4-CC01-Z0-031, and 26139-000-4MP-T81C-N3210. During the placement, the inspectors observed in-process concrete testing to determine whether:

- concrete temperature, slump, j-ring, air content, and unit weight were determined at the proper location and frequency as required by ACI 349-01, SV4-CC01-Z0-027, 132175-102-006-04-000052, and the applicable ASTM standards;
- sample collection, testing techniques, and testing equipment conformed to ACI 349-01, SV4-CC01-Z0-027, and the applicable ASTM standards;
- test results were evaluated against applicable quantitative and qualitative acceptance criteria in accordance with 10 CFR 50, Appendix B, Criterion 5; and
- concrete strength test sample cylinders were made at the required location and frequency and were cured in accordance with ACI 349-01, SV4-CC01-Z0-027, and the applicable ASTM standards.

The inspectors reviewed a sample of batch tickets to verify the records were complete and contained the required information in accordance with ACI 349-01, SV4-CC01-Z0-027, and the applicable ASTM standards. The inspectors reviewed the QC inspection report for the concrete placement to verify the inspection was documented and the activities were accepted in accordance with SV4-CC01-Z0-031 and 26139-000-4MP-T81C-N3210. The inspectors observed concrete curing activities to determine whether curing was in accordance with ACI 349-01 and SV4-CC01-Z0-031 with regard to the method, materials, duration, and temperature.

b. Findings

No findings were identified.

1A31 (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.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors observed construction activities associated with a wall section of column line L between column lines 10 and 11, from elevation 117'-6" to 133'-3", located in the non-radiation area of the auxiliary building. The inspectors observed ongoing reinforcement installation, performed independent measurements, and reviewed licensee records including design drawings, specifications, E&DCRs, and non-conformance reports.

The inspectors performed independent measurements of installed reinforcing bars within the wall section. Specifically, the inspectors measured installed reinforcing steel to verify the bar size, spacing requirements, minimum concrete cover, and lap splices were in accordance with drawing SV4-0000-C9-001, along with other design drawings. The inspectors also evaluated the condition of reinforcing bars, mechanical splices and couplings to determine whether they were free of excessive rust, concrete, or grease in accordance with Section 4.2.4.1 of specification SV4-CC01-Z0-031. The inspectors independently measured concrete clear cover and spacing in steel reinforcement congested areas to verify compliance with the requirements of Sections 3.3.2 and 7.5.2 of ACI 349-01.

The inspectors observed reinforcement installation activities to verify they were performed using the latest-approved design changes, design drawings, and design specifications, as required by licensee procedures. Specifically, the inspectors reviewed work order package SV4-1240-C0W-800017/128644, to determine if these latest approved design documents were included in the package. The inspectors also reviewed four E&DCRs to verify the design control process was performed in accordance with APP-GW-GAP-420, and the reinforcement configuration of the wall reflected the approved changes described in the E&DCRs. The inspectors also reviewed two N&Ds to verify that technical dispositions had adequate technical bases in accordance with ACI-349-01 and 10 CFR 50, Appendix B.

b. Findings

No findings were identified.

1A32 (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:

- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed inspection of construction activities associated with wall 1 between column lines I and N between elevations 135'-3" and 160'-9" in the radiation area of the auxiliary building. The inspectors observed ongoing reinforcement installation, and reviewed licensee records including design drawings, specifications, E&DCRs, and N&Ds.

The inspectors sampled a total of three E&DCRs associated with wall 1. Specifically, the inspectors verified design changes were subject to control measures commensurate with those applied to the original design and were approved by the organization that performed the original design or the designated responsible organization. The inspectors also reviewed the E&DCRs to verify a technical justification was provided for the design changes; deviations from applicable quality standards such ACI 349-01 were controlled; and the revised design was translated into the updated design drawings.

The inspectors reviewed design drawings associated with a segment of wall 1 to determine whether reinforcement configuration was in accordance with specification SV4-CC01-Z0-031 and ACI 349-01. The inspectors observed reinforcement installation activities to verify steel reinforcement was installed in accordance with the latest approved design changes and design drawings. The inspectors also performed independent measurements of installed steel reinforcement. Specifically, the inspectors measured installed reinforcement steel to verify the size, spacing, concrete clear cover, and lap splice length were in accordance with design drawings.

The inspectors reviewed a condition report (CR) and associated nonconformance report to verify that deviations from the approved design where being identified, documented, and dispositioned in accordance with the requirements of section 14.3 of ACI 349-01 and Section 3H.5-3 of the UFSAR.

b. Findings

No findings were identified.

1A33 (Unit 4) ITAAC Number 3.3.00.04b (782) / Family 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.04b (782). 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

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

The inspectors performed independent inspection and reviewed records to verify the walls of the waste accumulation room in the radwaste building, except for designed openings and penetrations, met the thickness requirements specified in Table 3.3-6 of Appendix C of the Vogtle Unit 4 COL.

The inspectors independently measured a sample of walls to determine whether they met the acceptance criteria of the ITAAC. The inspectors reviewed the survey records for the wall thicknesses to verify the survey results were correctly translated to the as-built elevation drawings and the survey results indicated compliance with the ITAAC acceptance criteria. The inspectors reviewed the concrete test records to verify the concrete mix used met the density requirements for concrete used for shielding in accordance with SV4-CC01-Z0-026, "Safety Related Mixing and Delivering Concrete."

The inspectors reviewed CR 50036366 associated with the wall thickness surveys to verify the evaluation and corrective actions were conducted in accordance with the licensee's CAP; the issue was identified and documented in a timely manner; and the issue was classified and resolved commensurate with its safety significance. The inspectors reviewed N&Ds SV4-CC01-GNR-000347 and SV4-CC01-GNR-000348 associated with CR 50036366 to verify the nonconformances had technical evaluations, were dispositioned in accordance with APP-GW-GAP-428, and concluded the ITAAC acceptance criteria was met.

b. Findings

No findings were identified.

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

1P01 Construction QA Criterion 16

- 35007-A16.04 - Inspection Requirements and Guidance
- 35007-A16.04.01 - Inspection of QA Implementing Documents
- 35007-A16.04.02 - Inspection of QA Program Implementation

a. Inspection Scope

Quarterly Resident Inspector Corrective Action Program (CAP) Routine Review

The inspectors reviewed issues entered into the licensee's CAP daily to assess issues that might warrant additional follow-up inspection, to assess repetitive or long-term issues, to assess adverse performance trends, and to verify the CAP appropriately included regulatory required non-safety related SSCs.

The inspectors periodically attended the licensee's CAP review meetings, held discussions with licensee and contractor personnel, and performed reviews of CAP activities during the conduct of other baseline inspection procedures. The inspectors reviewed conditions entered into the licensee's CAP to determine whether the issues were appropriately classified in accordance with the licensee's QA program and CAP implementing procedures. The inspectors reviewed corrective actions associated with conditions entered into the CAP to determine whether appropriate actions to correct the issues were identified and implemented effectively, including immediate or short-term corrective actions, in accordance with the applicable QA program requirements and 10 CFR 50, Appendix B, Criterion XVI. Additionally, the inspectors reviewed the corrective actions taken to determine whether they were commensurate with the significance of the associated conditions in accordance with the licensee's CAP implementing procedures. The inspectors completed reviews of CAP entry logs to verify issues from all aspects of the project, including equipment, human performance, and program issues, were being identified by the licensee and its contractors at an appropriate threshold and entered into the CAP as required by licensee's CAP implementing procedures.

b. Findings

No findings were identified.

1P02 Construction QA Criterion 16 – Annual Team Inspection (IP 35007, Appendix 16)

.1 Assessment of the Corrective Action Program Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's CAP to determine if:

- the licensee had effectively implemented its approved quality assurance program as required by 10 CFR Part 50, Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants;”
- the licensee clearly defined the interface requirements for implementing the CAP to its contractors, Westinghouse and Bechtel; and
- the delegation was allowed by the licensee’s QAPD, Section 16, “Corrective Action,” and details outlined in the services agreement and interface documents. The inspection scope therefore included a review of the CAP interface between the licensee and its contractors.

The inspectors reviewed implementing procedures and documents from the licensee and its contractors for the identification, evaluation, and resolution of conditions adverse to quality to determine if they met Section 16 of the licensee's QAPD, Basic Requirement 16 of NQA-1, and Section 17.5 “Quality Assurance Program Description” of the UFSAR.

The inspectors reviewed the CAP implementing procedures to determine if they established: thresholds for problem identification; requirements for the effectiveness of immediate and preventative corrective actions; the accuracy and thoroughness of problem documentation; and the adequacy of corrective actions for previously identified compliance issues.

The program review scope included an evaluation of the following CAP performance attributes to verify if they were addressed in the CAP programs:

- classification, prioritization, and evaluation for reportability of conditions adverse to quality (CAQs);
- identification of problems in a timely manner fitting with their significance and ease of discovery;
- screening of items entered into the CAP to determine the proper level of evaluation;
- finding and fixing procurement program problems;
- finding and fixing design errors;
- considerations for extent of conditions, generic implications, common causes, and previous occurrences as appropriate;
- classification and prioritization of the resolution of problems fitting the safety significance;
- for significant conditions adverse to quality (SCAQs), identification of root and contributing causes, as well as actions to prevent recurrence;
- identification of corrective actions focused to fix the problem;
- completing corrective actions in a timely manner proportional to the safety significance of the issue (including the use of interim corrective actions to minimize the problem and/or mitigate its effects until permanent actions can be done);
- provisions for escalating corrective actions that are not adequate or timely to higher management;
- overview of trends in CAQs;
- coverage to include important non-safety related structures, systems, and components; and
- evaluation of operating experience information.

The inspectors reviewed a sample of CAP issues closed since the last CAP inspection (August 2018) to determine if the program procedures were properly implemented. The issues chosen included a diverse sample across the licensee and contractors' programs. The inspectors sampled issues related to CAQs and issues that had been determined to not be CAQs to determine if:

- conditions adverse to quality were found and fixed in required time frames per procedures;
- classification and prioritization of the resolution of each problem was proportionate with its safety significance and at the appropriate threshold;
- conditions were screened upon entry into the CAP to determine the proper level of evaluation;
- proper consideration was given to extent of conditions, generic implications, common causes, and previous occurrences;
- the corrective actions were focused to ensure the problems were fixed;
- the licensee and its contractors evaluated and reported conditions per 10 CFR 50.55(e) and 10 CFR 21;
- the identification and correction of design deficiencies were being adequately addressed;

- extent of conditions were adequately addressed and appropriate corrective actions were developed and done; and
- the evaluations properly considered the escalation of issues to higher management if the corrective actions were not adequate or timely.

The inspectors reviewed the procedures and a sample of issues from the licensee and contractor's observation, trending, and metrics programs to determine if the licensee was identifying CAQs and transferring those issues to the respective CAP program.

The inspectors reviewed a sample of recent trend reports and metrics to determine if:

- the trend reports were issued within the time frames given in procedures;
- the trend reports and metrics had information and analyses of licensee and contractor performance improvement activities; and
- CAP inputs were generated for adverse trends or recommendations as required by program procedures.

The inspection scope included an evaluation of the handling of issues introduced into the CAPs from sources such as: self-assessments and audits, NRC generic communications, and operating and construction experience.

The inspectors evaluated the processing of CAP entries to determine if the following qualities were considered: risk, safety significance, consequence of malfunctions, complexity of design and fabrication, needs for special controls or surveillance over activities, the degree to which functional compliance could be shown by inspection or test, the quality history and degree of standardization of items, and the difficulty of repair or replacement.

The inspectors reviewed a sample of N&Ds that document non-conforming conditions to determine if:

- the reports correctly and clearly identified the nonconformances (NCRs);
- the N&Ds and NCRs were adequately initiated, processed, reviewed, dispositioned, and closed in accordance with the QA program implementing procedures for the control of nonconforming material, parts, and components;
- N&Ds and NCRs were appropriately screened and trended for non-hardware related CAQs;
- reportability screening and evaluations under 10 CFR Part 21 and 10 CFR 50.55(e) were performed;
- applicability to project documents, records, and ITAAC was properly identified and documented;
- affected organizations were notified of the status of nonconforming items;
- the dispositions were properly identified and documented;
- there was adequate written technical justification for the acceptance of a nonconforming item, dispositioned repair, or use-as-is;
- nonconformances dispositioned use-as-is or repair were subjected to design control measures commensurate with those applied to the original design; and

- repaired or reworked items were re-examined in accordance with applicable procedures and with the original acceptance criteria unless the disposition had established alternate acceptance criteria.

b. Assessment

Assessment - Effectiveness of Problem Identification

The inspectors determined, based on the sample of issues reviewed, that issues were being effectively identified. The samples reviewed indicated that issues were identified in a timely manner; they were described clearly; and a systematic screening process ensured that issues were appropriately entered into the CAP.

Assessment - Effectiveness of Prioritization and Evaluation of Issues

Based on the sample of issues reviewed, the inspectors determined that the licensee was adequately evaluating and prioritizing issues. The reviewed sample of issues were screened by appropriate levels of management and they were assigned levels corresponding to their significance. No SCAQs were reviewed as none had been closed during the last 12 months.

Assessment - Effectiveness of Corrective Actions

The inspectors determined that in the selected sample, corrective actions for identified deficiencies were timely, adequate, and proportional to their safety significance. Problems found by apparent cause investigations were handled per the licensee's CAP procedures.

c. Findings

No findings were identified.

.2 Assessment Use of Construction Experience

a. Inspection Scope

The inspectors reviewed the licensee's experience database and CAP to determine if items that were classified as applicable to the site were entered into the CAP as specified by their construction experience program procedure ND-AD-VNP-004. The inspectors reviewed the licensee's experience database to determine if it added NRC related information, such as NRC Regulatory Issues Summaries and Information Notices. The inspectors reviewed a sample of CAP documents to determine if disposition and handling of applicable industry experience items met the construction experience program procedure.

b. Assessment

Based on the inspection activities described, the inspectors determined that the licensee adequately identified construction and operating experience; adequately screened and evaluated these experiences for applicability to the project; and entered issues into their CAP program for tracking and handling.

c. Findings

No findings were identified.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors reviewed a sample of documented audits, and a CAP self-assessment. The review was performed to determine whether the oversight of the CAP by the licensee was sufficient to verify the health of the program and to identify areas for improvement as needed. The inspectors also compared the results of the audits and self-assessment to the results of the inspection to determine if there were any discrepancies between the results of the inspection and the licensee's conclusions.

b. Assessment

The inspectors determined that the conduct of audits and self-assessments by the licensee was accomplished in accordance with the established plans. Corrective actions to address the identified issues were generally prioritized, evaluated, and completed within applicable procedural requirements.

c. Findings

No findings were identified.

.4 Assessment of Safety Conscious Work Environment

a. Inspection Scope

The inspectors conducted a review to provide insight into whether a safety conscious work environment (SCWE) was being maintained at the site. The inspectors assessed the site's Employee Concerns Program (ECP) effectiveness and evaluated management oversight of the corrective action process including anonymous CAP entries. These reviews were used to determine if construction personnel were willing to report safety issues via the different avenues available (CAP, ECP, management, etc.).

The team performed the following activities:

- conducted interviews;
- reviewed the ECP work instructions;
- reviewed various ECP case files and Work Environment Assessments (WEA); and
- performed a walk-down of the ECP and CAP drop boxes and office locations.

The inspectors observed activities involving licensee personnel and interviewed some construction staff to identify issues that may represent challenges to the free flow of information, such as areas where employees may be reluctant to raise concerns. The inspectors reviewed the ECP work instructions and interviewed ECP personnel to understand the current health and challenges of the site's SCWE as assessed by the ECP office. The licensee's ECP procedures and files were reviewed to determine if:

- procedures were adequate to implement a site ECP;
- files contained adequate documentation;
- issues were entered and reviewed in a timely manner;
- concerns were adequately addressed;
- corrective actions were tracked; and
- individuals were provided feedback.

ECP WEAs were reviewed to determine if identified issues were addressed and actions to prevent recurrence were put in place.

b. Assessment

Based on this review, the NRC found no evidence to indicate that there are challenges to the construction organization's SCWE. The ECP was effective in evaluating concerns that were reviewed during this inspection. Anonymous CAP entries reviewed by the inspectors were determined to be properly investigated and dispositioned. Overall, individuals were willing to raise safety concerns without fear of retaliation.

c. Findings

No findings were identified.

3. OPERATIONAL READINESS

Cornerstones: Operational Programs

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

3T01 (Unit 3) ITAAC Number 2.1.02.08d.i (32) / Family 03D

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 2.1.02.08d.i (32). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D-02.01 - Procedure Review

The inspector reviewed procedure 3-PXS-ITPP-503, to verify that the procedure would adequately accomplish the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedure to determine if it would verify important SSC performance attributes in Section 14.2.9.1.3 of the UFSAR, and that the procedure contained clearly identified acceptance criteria. In addition, the inspector reviewed the procedure to verify that it was controlled in accordance with NMP-AP-001-003.

The inspector reviewed the test procedure to verify that it was developed in accordance with B-GEN-ITPA-011, and included the following attributes:

- Appropriate staff and management approval were indicated on the document.
- Test objectives were clearly stated and any related UFSAR commitments were included.
- Testing prerequisites were identified:
  - required plant systems availability was specified,
  - associated facility procedures were specified,
  - prior completion of calibration checks of indicating and digital recording instruments, limit switch settings, ultrasonic flow meters, and protective component settings were included where applicable,
  - any special supplies and test equipment needs were specified,
  - special environmental conditions (e.g., confined spaced hazards) were identified, and
  - test precautions and limitations were specified.

The inspector reviewed the procedure acceptance criterion and compared it against the requirements in Appendix C of the COL and APP-PXS-T1-501 to verify that they were clearly identified, and the procedure required comparison of results with the acceptance criteria. Specifically, the acceptance criteria reviewed was the calculated ADS piping flow resistance from the pressurizer through the sparger with all valves of each ADS group open is less than or equal to 2.91E-6 ft/gpm^2.

The inspector reviewed operating experience items to verify that the site was appropriately using those items referenced within the test procedure to inform their staff of potential vulnerabilities. The inspector also reviewed drawings to verify that the procedures included appropriate configuration management controls.

b. Findings

No findings were identified.

3T02 (Unit 3) ITAAC Number 2.2.03.08c.i.01 (177) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 2.2.03.08c.i.01 (177). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D-02.01 - Procedure Review

The inspector reviewed procedure 3-PXS-ITPP-506, to verify that the procedure would adequately accomplish the ITAAC acceptance criteria. Specifically, the inspector reviewed the procedure to determine if it would verify important SSC performance attributes in section 14.2.9.1.3 of the UFSAR, and that the procedure contained clearly identified acceptance criteria. In addition, the inspector reviewed the procedure to verify that it was controlled in accordance with NMP-AP-001-003.

The inspector reviewed the test procedure to verify that it was developed in accordance with B-GEN-ITPA-011, and included the following attributes:

- Appropriate staff and management approval were indicated on the document.
- Test objectives were clearly stated and any related UFSAR commitments were included.
- Testing prerequisites were identified:
  - required plant systems availability was specified,
  - associated facility procedures were specified,
  - prior completion of calibration checks of indicating and digital recording instruments, limit switch settings, ultrasonic flow meters, and protective component settings were included where applicable,
  - any special supplies and test equipment needs were specified,
  - special environmental conditions (e.g., confined spaced hazards) were identified, and
  - test precautions and limitations were specified.

The inspector reviewed the procedure acceptance criterion and compared it against the requirements in Appendix C of the COL and APP-PXS-T1-501 to verify that they were clearly identified, and the procedure required comparison of results with the acceptance criteria. Specifically, the acceptance criterion reviewed were:

- narrow range and wide range level instrumentation tracked down as the CMT is drained,
- all alarms associated with CMT narrow range level instrumentation are actuated, and
- the calculated flow resistance between each CMT and the RPV is greater than or equal to 1.81E-5 ft/gpm^2 and less than or equal to 2.25E-5 ft/gpm^2.

The inspector reviewed operating experience items to verify that the site was appropriately using those items referenced within the test procedure to inform their staff of potential vulnerabilities. The inspector also reviewed drawings to verify that the procedures included appropriate configuration management controls.

b. Findings

No findings were identified.

3T03 (Unit 3) ITAAC Number 2.2.03.08c.i.02 (178) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 2.2.03.08c.i.02 (178). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D-02.01 - Procedure Review

The inspector reviewed procedure 3-PXS-ITPP-502, to verify that the procedure would adequately accomplish the ITAAC acceptance criteria. Specifically, the inspector reviewed the procedure to determine if it would verify important SSC performance attributes in section 14.2.9.1.3 of the UFSAR, and that the procedure contained clearly identified acceptance criteria. In addition, the inspector reviewed the procedure to verify that it was controlled in accordance with NMP-AP-001-003.

The inspector reviewed the test procedure to verify that it was developed in accordance with B-GEN-ITPA-011, and included the following attributes:

- Appropriate staff and management approval were indicated on the document.
- Test objectives were clearly stated and any related UFSAR commitments were included.
- Testing prerequisites were identified:
  - required plant systems availability was specified,
  - associated facility procedures were specified,
  - prior completion of calibration checks of indicating and digital recording instruments, limit switch settings, ultrasonic flow meters, and protective component settings were included where applicable,
  - any special supplies and test equipment needs were specified,
  - special environmental conditions (e.g., confined spaced hazards) were identified, and
  - test precautions and limitations were specified.

The inspector reviewed the procedure acceptance criterion and compared it against the requirements in Appendix C of the COL and APP-PXS-T1-501 to verify that they were clearly identified, and the procedure required comparison of results with the acceptance criteria. Specifically, the acceptance criterion reviewed were:

- the flow resistance between each accumulator and the RPV with all valves open is within the limits of the safety analysis, and
- the calculated flow resistance between each accumulator and the RPV is greater than or equal to 1.475E-5 ft/gpm^2 and less than or equal to 1.83E-5 ft/gpm^2.

The inspector reviewed operating experience items to verify that the site was appropriately using those items referenced within the test procedure to inform their staff of potential vulnerabilities. The inspector also reviewed drawings to verify that the procedures included appropriate configuration management controls.

b. Findings

No findings were identified.

3T04 (Unit 3) ITAAC Number 2.2.03.08c.i.03 (179) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 2.2.03.08c.i.03 (179). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D-02.01 - Procedure Review

The inspector reviewed procedure 3-PXS-ITPP-507, to verify that the procedure would adequately accomplish the ITAAC acceptance criteria. Specifically, the inspector reviewed the procedure to determine if it would verify important SSC performance attributes in section 14.2.9.1.3 of the UFSAR, and that the procedure contained clearly identified acceptance criteria. In addition, the inspector reviewed the procedure to verify that it was controlled in accordance with NMP-AP-001-003.

The inspector reviewed the test procedure to verify that it was developed in accordance with B-GEN-ITPA-011, and included the following attributes:

- Appropriate staff and management approval were indicated on the document.
- Test objectives were clearly stated and any related UFSAR commitments were included.
- Testing prerequisites were identified:
  - required plant systems availability was specified,
  - associated facility procedures were specified,
  - prior completion of calibration checks of indicating and digital recording instruments, limit switch settings, ultrasonic flow meters, and protective component settings were included where applicable,
  - any special supplies and test equipment needs were specified,
  - special environmental conditions (e.g., confined spaced hazards) were identified, and
  - test precautions and limitations were specified.

The inspector reviewed the procedure acceptance criterion and compared it against the requirements in Appendix C of the COL and APP-PXS-T1-501 to verify that they were clearly identified, and the procedure required comparison of results with the acceptance criteria. Specifically, the acceptance criterion reviewed was:

- Calculated flow resistance for each IRWST injection line between IRWST and RPV is greater than or equal to 5.35E-6 ft/gpm^2 and less than or equal to 9.09E-6 ft/gpm^2 for line A and greater than or equal to 6.15E-6 ft/gpm^2 and less than or equal to1.05E-5 ft/gpm^2 for line B.

The inspector reviewed operating experience items to verify that the site was appropriately using those items referenced within the test procedure to inform their staff of potential vulnerabilities. The inspector also reviewed drawings to verify that the procedures included appropriate configuration management controls.

b. Findings

No findings were identified.

3T05 (Unit 3) ITAAC Number 2.2.03.08c.i.04 (180) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 2.2.03.08c.i.04 (180). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D-02.01 - Procedure Review

The inspector reviewed procedure 3-PXS-ITPP-507, to verify that the procedure would adequately accomplish the ITAAC acceptance criteria. Specifically, the inspector reviewed the procedure to determine if it would verify important SSC performance attributes in section 14.2.9.1.3 of the UFSAR, and that the procedure contained clearly identified acceptance criteria. In addition, the inspector reviewed the procedure to verify that it was controlled in accordance with NMP-AP-001-003.

The inspector reviewed the test procedure to verify that it was developed in accordance with B-GEN-ITPA-011, and included the following attributes:

- Appropriate staff and management approval were indicated on the document.
- Test objectives were clearly stated and any related UFSAR commitments were included.
- Testing prerequisites were identified:
  - required plant systems availability was specified,
  - associated facility procedures were specified,
  - prior completion of calibration checks of indicating and digital recording instruments, limit switch settings, ultrasonic flow meters, and protective component settings were included where applicable,
  - any special supplies and test equipment needs were specified,
  - special environmental conditions (e.g., confined spaced hazards) were identified, and
  - test precautions and limitations were specified.

The inspector reviewed the procedure acceptance criterion and compared it against the requirements in Appendix C of the COL and APP-PXS-T1-501 to verify that they were clearly identified, and the procedure required comparison of results with the acceptance criteria. Specifically, the acceptance criterion reviewed was:

- Calculated flow resistance for each containment recirculation line between containment and RPV is less than or equal to 1.33E-5 ft/gpm^2 and less than or equal to 1.21E-5 ft/gpm^2 for line A and B respectively.

The inspector reviewed operating experience items to verify that the site was appropriately using those items referenced within the test procedure to inform their staff of potential vulnerabilities. The inspector also reviewed drawings to verify that the procedures included appropriate configuration management controls.

b. Findings

No findings were identified.

3T06 (Unit 3) ITAAC Number 2.2.03.08c.ii (181) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 2.2.03.08c.ii (181). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D-02.01 - Procedure Review

The inspector reviewed procedure 3-PXS-ITPP-503, to verify that the procedure would adequately accomplish the ITAAC acceptance criteria. Specifically, the inspector reviewed the procedure to determine if it would verify important SSC performance attributes in section 14.2.9.1.3 of the UFSAR, and that the procedure contained clearly identified acceptance criteria. In addition, the inspector reviewed the procedure to verify that it was controlled in accordance with NMP-AP-001-003.

The inspector reviewed the test procedure to verify that it was developed in accordance with B-GEN-ITPA-011, and included the following attributes:

- Appropriate staff and management approval were indicated on the document.
- Test objectives were clearly stated and any related UFSAR commitments were included.
- Testing prerequisites were identified:
  - required plant systems availability was specified,
  - associated facility procedures were specified,
  - prior completion of calibration checks of indicating and digital recording instruments, limit switch settings, ultrasonic flow meters, and protective component settings were included where applicable,
  - any special supplies and test equipment needs were specified,
  - special environmental conditions (e.g., confined spaced hazards) were identified, and
  - test precautions and limitations were specified.

The inspector reviewed the procedure acceptance criterion and compared it against the requirements in Appendix C of the COL and APP-PXS-T1-501 to verify that they were clearly identified, and the procedure required comparison of results with the acceptance criteria. Specifically, the acceptance criterion reviewed was:

- Flow resistance from the cold leg to the CMT is less than or equal to 7.21E-6 ft/gpm^2.

The inspector reviewed operating experience items to verify that the site was appropriately using those items referenced within the test procedure to inform their staff of potential vulnerabilities. The inspector also reviewed drawings to verify that the procedures included appropriate configuration management controls.

b. Findings

No findings were identified.

3T07 (Unit 3) ITAAC Number 2.2.03.09a.i (201) / Family 03D

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 2.2.03.09a.i (201). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D-02.01-Procedure Review

The inspector reviewed procedure 3-PXS-ITPP-507, to verify that the procedure would adequately accomplish the ITAAC acceptance criteria. Specifically, the inspector reviewed the procedure to determine if it would verify important SSC performance attributes in section 14.2.9.1.3 of the UFSAR, and that the procedure contained clearly identified acceptance criteria. In addition, the inspector reviewed the procedure to verify that it was controlled in accordance with NMP-AP-001-003.

The inspector reviewed the test procedure to verify that it was developed in accordance with B-GEN-ITPA-011, and included the following attributes:

- Appropriate staff and management approval were indicated on the document.
- Test objectives were clearly stated and any related UFSAR commitments were included.
- Testing prerequisites were identified:
  - required plant systems availability was specified,
  - associated facility procedures were specified,
  - prior completion of calibration checks of indicating and digital recording instruments, limit switch settings, ultrasonic flow meters, and protective component settings were included where applicable,
  - any special supplies and test equipment needs were specified,
  - special environmental conditions (e.g., confined spaced hazards) were identified, and
  - test precautions and limitations were specified.

The inspector reviewed the procedure acceptance criterion and compared it against the requirements in Appendix C of the COL and APP-PXS-T1-501 to verify that they were clearly identified, and the procedure required comparison of results with the acceptance criteria. Specifically, the acceptance criteria reviewed was the calculated flow resistance for each IRWST drain line between IRWST and containment is less than or equal to 4.44E-6 ft/gpm^2.

The inspector reviewed operating experience items to verify that the site was appropriately using those items referenced within the test procedure to inform their staff of potential vulnerabilities. The inspector also reviewed drawings to verify that the procedures included appropriate configuration management controls.

b. Findings

No findings were identified.

3T08 (Unit 3) ITAAC Number 2.2.03.12a.iv (216) / Family 07D

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 2.2.03.12a.iv (216). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D-02.01 - Procedure Review

The inspector reviewed procedures 3-PXS-ITPP-502, 3-PXS-ITPP-503, and 3-PXS-ITPP-507, to verify that the procedure would adequately accomplish the ITAAC acceptance criteria. Specifically, the inspector reviewed the procedures to determine if they would verify important SSC performance attributes in Section 14.2.9.1.3 of the UFSAR, and that the procedures contained clearly identified acceptance criteria. In addition, the inspector reviewed the procedures to verify that they were controlled in accordance with NMP-AP-001-003.

The inspector reviewed the test procedures to verify that they were developed in accordance with B-GEN-ITPA-011 and included the following attributes:

- Appropriate staff and management approval were indicated on the document.
- Test objectives were clearly stated and any related UFSAR commitments were included.
- Testing prerequisites were identified:
  - required plant systems availability was specified,
  - associated facility procedures were specified,
  - prior completion of calibration checks of indicating and digital recording instruments, limit switch settings, ultrasonic flow meters, and protective component settings were included where applicable,
  - any special supplies and test equipment needs were specified,
  - special environmental conditions (e.g., confined spaced hazards) were identified, and
  - test precautions and limitations were specified.

The inspector reviewed the procedures' acceptance criterion and compared it against the requirements in Appendix C of the COL and APP-PXS-T1-501 to verify that they were clearly identified, and the procedures required comparison of results with the acceptance criterion.

Specifically, the acceptance criterion reviewed was exercise testing of check valves with active safety functions in Table 2.2.3-1 will be performed under preoperational test pressure, temperature, and flow conditions.

The inspector reviewed operating experience items to verify that the site was appropriately using those items referenced within the test procedure to inform their staff of potential vulnerabilities. The inspector also reviewed drawings to verify that the procedures included appropriate configuration management controls.

b. Findings

No findings were identified.

3T09 (Unit 3) ITAAC Number 2.5.02.10 (549) / Family 10F
(Unit 4) ITAAC Number 2.5.02.10 (549) / Family 10F

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 2.5.02.10 (549). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.F-02.01 - Design Document Review

The inspectors reviewed PCD 2.5.02.10 (549), "ITAAC 2.5.02.10: Protection and Safety Monitoring System Design Process Technical Report," Revision 3 and associated references, to verify if it provided a roadmap to the documentation that fulfilled the inspections, tests, analysis and acceptance criteria for the PMS setpoint methodology requirements of ITAAC 2.5.02.10. The inspectors reviewed the PCD summary report to determine if the licensee's vendor, WEC, adequately developed setpoints in accordance with the approved setpoint methodology. Specifically, the inspectors reviewed the setpoint methodology to verify that setpoints accounted for:

- loop inaccuracies,
- response testing, and
- maintenance or replacement of instrumentation.

Loop Inaccuracies

The inspectors reviewed APP-PMS-GS-001, to verify the outputs from the setpoint calculations were documented and calculated in accordance with the Vogtle 3 & 4 Technical Specifications, section 5.5.14 and WCAP-16361-P. WCAP-16361-P documents the approved methodology for determining overall loop inaccuracies and reactor trip system (RTS) and engineered safeguards features actuation system (ESFAS) setpoints.

The inspectors previously observed WEC's in-process implementation of the setpoint design calculations to determine if they were developed in accordance with the approved setpoint methodology.

The inspectors reviewed calculations to verify that the protective functions would occur before the analytical limit established by the plant safety analysis was reached, as documented in inspection report 99900404/2017-201 (ML18018A989).

Response Testing

The inspectors reviewed the PCD to verify the report documented the response testing (logic testing) of the PMS performed during factory acceptance testing (FAT). Specifically, the inspectors reviewed samples of reactor trip (RT) as well as engineered safety feature (ESF) functions response test cases. The inspectors reviewed the power range high flux reactor trip and steam dump block on RCS Tave Low-2 documented in SV3-PMS-T2R-007 and SV3-PMS-T2R-008 respectively. The inspectors reviewed the test cases to verify they were performed in accordance with the specifications defined in APP-PMS-T1-501. Specifically, the inspectors verified the PMS rack response test cases were performed from sensor input to the final logic output of the PMS in accordance with the test specification.

Maintenance or Replacement of Instrumentation

The inspectors reviewed the PCD to verify the report documented the processes that accounted for maintenance or replacement of instrumentation when setpoint values contained in APP-PMS-GS-001 fell outside the as-found tolerance (AFT) and as-left tolerance (ALT) criterion. The inspectors reviewed Vogtle 3 & 4 Technical Specifications, section 5.5.14, to verify that the setpoint controls for nominal trip setpoint, AFT and ALT for each RT and ESF function were in conformance with WCAP-16361-P. The inspectors reviewed B-ADM-WCO-001 and NMP-ES-084-001 to verify that when maintenance or replacement was required, the process accounted for impacts on setpoint calculations in accordance with the WCAP-16361-P.

b. Findings

No findings were identified.

3T10 (Unit 3) ITAAC Number 3.2.00.09 (758) / Family 16A

a. Inspection Scope

The inspectors performed a direct inspection of testing activities associated with ITAAC Number 3.2.00.09 (758). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C-02.01 - Program and Procedure Reviews
- 65001.C-02.04 - General Quality Assurance Review

The inspectors reviewed the component test instructions for the plant control system (PLS) local control stations (LCS) included in test work order SV3-OCS-T0W-SNC921215 to determine whether they contained sufficient information to verify the system met the requirements of the UFSAR and the ITAAC.

Additionally, the inspectors reviewed PLS and LCS system specifications SV3-OCS-J1-015, SV3-OCS-J4-026, and SV3-OCS-J7-001 included in the test work order to verify they correctly translated the LCS design description from UFSAR Section 18.8.3.8, UFSAR Section 7.1.1, and Vogtle Unit 3 COL, Appendix C, Section 3.2. Specifically, the inspectors reviewed the following UFSAR and COL requirements to verify they were included in the specifications:

- the system boundaries and interfaces;
- human factors engineering requirements, including the human system interface design; and
- local control station limitations and main control review requirements.

The inspectors reviewed the test work order to determine whether the test work order was approved prior to issuance in accordance with NMP-AP-002. The inspectors reviewed the test prerequisites to determine whether they contained requirements for approvals, notifications, and trained personnel in accordance with NQA-1-1994, Supplement 11S-1 and NMP-AP-002. The inspectors reviewed the test precautions and limitations to determine whether the following were in accordance with B-ADM-MNT-006:

- safety precautions were listed;
- consideration was given to effects on major components, including the safety-related system functions described in SV3-OCS-J7-001;
- potential adverse outcomes were listed; and
- provisions for notifications and how the notifications should be made were included.

The inspectors reviewed the test instructions to determine whether:

- the level of detail was sufficient to ensure the test objectives would be met in accordance with B-ADM-MNT-006 and NMP-AP-002;
- the locations for testing included all of the locations specified in SV3-OCS-J1-015 and SV3-OCS-J4-026; and
- the ITAAC was correctly referenced and ITAAC requirements were included in accordance with B-ADM-MNT-006.

The inspectors reviewed the test acceptance criteria to determine whether they included sufficient parameters against which collected data could be compared in accordance with NQA-1-1994, Basic Requirements 5; NQA-1-1994, Supplement 11S-1; B-ADM-MNT-006; and NMP-AP-002. The inspectors reviewed the data recording sheets included in the work instructions to determine whether they would allow for recording of the test results, would supply sufficient evidence of the test operation and conformance with the acceptance criteria, and allowed for documentation of nonconformances and discrepancies in accordance with NQA-1-1994, Basic Requirement 11 and NMP-AP-002. The inspectors reviewed CR 50036975 associated with the component test procedure to verify the evaluation and assigned corrective actions were in accordance with the licensee's CAP; the issue was identified and documented in a timely manner; and the issue was classified commensurate with its safety significance.

b. Findings

No findings were identified.

3P01 Motor-Operated Valves

- 73758 - Part 52, Functional Design and Qualification, and Preservice and Inservice Testing Programs for Pumps, Valves and Dynamic Restraints

a. Inspection Scope

The inspectors reviewed functional design and qualification documentation for motor-operated valves (MOVs)for VEGP Units 3 and 4 to verify if the licensee was meeting the intent of 10 CFR 50.55a(b)(3)(ii) and 10 CFR 50.55a(b)(3)(iii)(A). In addition, the inspectors reviewed applicable licensing and design documentation to determine if the licensee was meeting Section 3.9.3.2.2 of the plant-specific Design Control Document (DCD), which specifies that AP1000 valves will be qualified to perform their safety functions in accordance with the requirements of ASME Standard Qualification of Active Mechanical Equipment (QME)-1-2007.

The inspectors selected the passive containment cooling system (PCS), PXS, normal residual heat removal system (RNS), and RCS in VEGP Units 3 and 4 for a sample of valves to evaluate their functional design and qualification. From these systems, the inspectors selected a variety of safety-related power operated valves (POVs), which included 12 MOVs. The inspectors reviewed applicable design specifications, datasheets, equipment qualification summary reports, equipment qualification data packages, (QME-1) functional qualification reports, QME-1 application reports, and supporting documents for the sampled safety-related valves as specified in the documents-reviewed section of this report. The inspectors conducted interviews and provided discussion topics to the licensee as part of the inspection review of the documents supporting the functional design and qualification of the sampled safety-related valves.

The inspectors reviewed the licensee's response to sample operating experience during this inspection. The review of operating experience included the following topics:

- With respect to the operating experience with MOVs in the ADS at AP1000 nuclear power plants in China, the licensee provided documentation demonstrating that the lessons learned from the ADS MOV operating experience had been incorporated into the applicable MOVs in the ADS at VEGP Units 3 and 4 by valve and actuator modifications and setup adjustments.
- On July 11, 2017, Flowserve submitted a notification letter (ADAMS Accession No. ML17199F890) to the NRC in accordance with 10 CFR Part 21, "Reporting of Defects and Noncompliance," regarding the separation of the threaded connection of the valve stem and disc in an Anchor/Darling motor-operated double disc gate valve at a U.S. nuclear power plant.

The team reviewed licensee information demonstrating that the potential degradation of the threaded connection of the valve stem and disc in Anchor/Darling double disc gate valves is not applicable to VEGP Units 3 and 4.

The inspectors reviewed the content of the QME-1 application reports for the sampled safety-related valves as specified in Article QV-6000, "Qualification Specification," and Paragraph QV-8320, "Application Report;" in Section QV, "Functional Qualification Requirements for Active Valve Assemblies for Nuclear Power Plants;" and Mandatory Appendix QV-I, "Qualification Specification for Active Valves," of ASME Standard QME-1-2007. Based on the inspectors' review, the licensee generated CR 50035124 to verify that the production valve testing requirements for the sampled valves had been performed as required in their applicable Design Specifications.

Based on specific aspects of the functional design and qualification of pumps and valves, the team was not able to complete the review of Appendices A and B in IP 73758 during this inspection for VEGP Units 3 and 4.

b. Findings

No findings were identified.

3P02 Preservice Inspection

- 73754-02.02 - Personnel Qualification & Certification
- 73754-02.03 - Non-destructive Examination (NDE) Review
- 73754-02.05 - Effectiveness of Licensee

a. Inspection Scope

The inspectors observed the following NDE activities associated with the direct vessel injection (DVI) line and the RPV hot leg for Unit 3 to verify if these activities were performed in accordance with the ASME Code, 2007 Edition through the 2008 Addenda:

- Manual UT of SV3-RPV-25A-102-IRS, RPV Outlet Nozzle N1A Inner Radius Section, ASME Class 1, Cat. B-D, Item B3.100, and
- Manual UT of SV3-RPV-26A-103-IRS, DVI-A Nozzle N3A Inner Radius Section, ASME Class 1, Cat. B-D, Item B3.100.

The inspectors evaluated the NDE activities and reviewed the associated ultrasonic examination (UT) reports to verify compliance with the requirements in Section XI of the ASME Code. Additionally, the inspectors reviewed the applicable NDE procedures and the qualifications of the NDE technicians performing the examinations to determine if the UT examinations were performed in accordance with ASME Section XI requirements.

b. Findings

No findings were identified.

3P03 Preservice Testing

- 73758-App A.02.01 - Functional Design and Qualification
- 73758-App A.02.02 - Preservice and Inservice Testing Program
- 73758-App B.02.01 - Inspection Requirements
- 73758-App B.02.02 - Inspection Guidance

a. Inspection Scope

The inspectors reviewed functional design and qualification documentation for pumps, valves, and dynamic restraints for VEGP Units 3 and 4 to verify if the licensee was meeting the intent of 10 CFR 50.55a(b)(3)(ii) and 10 CFR 50.55a(b)(3)(iii)(A). In addition, the inspectors reviewed applicable licensing and design documentation to determine if the licensee was meeting Section 3.9.3.2.2 of the plant-specific DCD, which specifies that AP1000 valves will be qualified to perform their safety functions in accordance with the requirements of ASME Standard QME-1-2007.

The team selected the PCS, PXS, RNS, and RCS in VEGP Units 3 and 4 for a sample of pumps and valves to evaluate their functional design and qualification. From these systems, the inspectors selected a variety of safety-related POVs including 12 MOVs, seven air-operated valves (AOVs), and three pyrotechnic-actuated (squib) valves. The team selected one solenoid-operated valve (SOV) for individual review in addition to reviewing SOVs that were internal to the sampled AOVs. The valve types for the sampled safety-related POVs included gate valves, globe valves, and butterfly valves. The team also selected a sample of three safety-relief valves (SRVs), five check valves, and three manual-operated valves to evaluate their functional design and qualification. The AP1000 design does not include pumps with safety-related functional requirements.

The team reviewed applicable design specifications, datasheets, equipment qualification summary reports, equipment qualification data packages, QME-1 functional qualification reports, QME-1 application reports, and supporting documents for the sampled safety-related valves as specified in the documents reviewed section of this report. The inspectors conducted interviews and provided discussion topics to the licensee as part of the inspection review of the documents supporting the functional design and qualification of the sampled safety-related valves.

The inspectors reviewed the licensee's response to sample operating experience during this inspection. The review of operating experience included the following topics:

- With respect to the operating experience with MOVs in the ADS at AP1000 nuclear power plants in China, the licensee provided documentation demonstrating that the lessons learned from the ADS MOV operating experience has been incorporated into the applicable MOVs in the ADS at VEGP Units 3 and 4 by valve and actuator modifications and setup adjustments.
- On July 11, 2017, Flowserve submitted a notification letter (ADAMS Accession No. ML17199F890) to the NRC in accordance with 10 CFR Part 21, "Reporting of Defects and Noncompliance," regarding the separation of the threaded connection of the valve stem and disc in an Anchor/Darling motor-operated double disc gate valve at a U.S. nuclear power plant. The team reviewed licensee information demonstrating that the potential degradation of the threaded connection of the valve stem and disc in Anchor/Darling double disc gate valves is not applicable to VEGP Units 3 and 4.

The team reviewed the content of the QME-1 application reports for the sampled safety-related valves as specified in Article QV-6000, "Qualification Specification," and Paragraph QV-8320, "Application Report;" in Section QV, "Functional Qualification Requirements for Active Valve Assemblies for Nuclear Power Plants;" and Mandatory Appendix QV-I, "Qualification Specification for Active Valves," of ASME Standard QME-1-2007. Based on the inspectors' review, the licensee generated CR 50035124 to verify that the production valve testing requirements for the sampled valves had been performed as required in their applicable Design Specifications.

In addition, the team selected a sample of nonsafety-related pumps and valves within the scope of the licensee's program for the Regulatory Treatment of Non-Safety Systems (RTNSS). In particular, the team selected RTNSS pumps from the RNS, RCS, and PCS for evaluation of the licensee's documentation demonstrating the functional design and capability of those pumps. The team found that some of the valves in the RNS and PCS selected for the inspection sample for their safety-related functions also have RTNSS functions. In addition, the team sampled an MOV and a check valve in the RNS and a check valve in the PCS that have only RTNSS functional requirements. 10 CFR 50.55a(b)(3)(iii)(D), High Risk Non-Safety Systems, requires that a licensee for a new reactor (such as the AP1000 design) periodically demonstrate the operational readiness of the RTNSS pumps and valves. The team evaluated application reports and applicable procurement documentation describing flow testing of the sampled RTNSS pumps and valves to demonstrate that their performance specifications had been satisfied.

Based on specific aspects of the functional design and qualification of pumps and valves, the team was not able to complete the review of Appendices A and B in IP 73758 during this inspection for VEGP Units 3 and 4.

b. Findings

No findings were identified.

3P04 Reactor Operator Training

- 41502-02.02 - General Inspection Requirements

a. Inspection Scope

The inspectors performed a partial inspection of the Unit 3 plant reference simulator (PRS) in accordance with IP 41502, “Nuclear Power Plant Simulation Facilities.” This inspection is a continuation of an inspection conducted in February 2015 and documented in Inspection Report 05200025/2015301 AND 05200026/2015301, ML 15113A028.

The inspectors reviewed testing to verify that the simulator was operated in accordance with plant procedures from cold shutdown to rated power plant conditions and then back to cold shutdown. Additionally, two transient tests were reviewed. All data was compared to plant design data to ensure that the simulator adequately mimicked expected Base Line 8 Operating Platform design results and that all discrepancies were dispositioned in accordance with the appropriate approved plant procedures.

The inspectors evaluated five malfunction tests and three scenario-based testing evaluations. All deficiencies were reviewed to ensure that they had been dispositioned in accordance with the appropriate approved plant procedures.

The inspectors reviewed evaluated simulator fidelity by ensuring all ITAAC had been completed and by ensuring that the simulator met all the requirements of Attachment 1 to IP 41502, “Checklist for Evaluating Plant-Referenced Simulators Operating Under 10 CFR 55.46(c) and (d).” A comparison of the physical fidelity of the simulator to the actual control room has not been completed because at the time of this inspection, the actual control room construction has not yet been completed.

The inspectors reviewed the licensee’s simulator configuration control program to ensure it met the recommendations of Regulatory Guide (RG) 1.149, “Nuclear Power Plant Simulation Facilities for Use in Operator Training, License Examinations, and Applicant Experience Requirements,” and ANSI/ANS-3.5-2009, “Nuclear Power Plant Simulators for Use in Operator Training and Examination.” This had first been reviewed in February 2015 (Inspection Report 05200025/2015301 AND 05200026/2015301, ML 15113A028).

The inspectors verified that the simulator reactor core performance testing had been completed using the predicted fuel performance models and that testing was performed in accordance with Unit 3 procedures. They also verified that the simulator core response met the Unit 3 design procedure requirements and met acceptance criteria specified in the Unit 3 procedures. Furthermore, the inspectors verified that any discrepancies were dispositioned in accordance with the appropriate approved plant procedures.

The inspectors have completed all aspects of IP 41502 except for comparing the physical fidelity of the simulator to the actual control room because the actual control room construction had not yet been completed sufficiently to allow the comparison.

b. Findings

No findings were identified.

3P05 Pre-operational Testing

- 70702-02.02 - Inspection Preparation
- 70702-02.03 - Procedure Review

a. Inspection Scope

The inspectors conducted a review of procedure 3-RNS-ITPP-501, Version 2.0, to verify that the testing was performed in accordance with the UFSAR, license, and NRC requirements. Specifically, the inspectors reviewed the procedure to verify if the test adequately verified important SSC performance attributes in sections 14.2.9.2.4.c) and 14.2.9.2.4.d) of the UFSAR; and that the test contained clearly identified acceptance criteria. In addition, the inspector reviewed the procedure to verify that it was developed and controlled in accordance with NMP-AP-001-003.

The inspector reviewed the test procedure to verify that it was developed in accordance with B-GEN-ITPA-011 and included the following attributes:

- Appropriate staff and management approval were indicated on the document.
- Test objectives were clearly stated and verified that any related UFSAR commitments were included.
- Any required testing prerequisites were identified, e.g.:
  - Required plant systems availability was specified.
  - Any associated facility procedures were specified.
  - Prior completion of calibration checks of indicating and digital recording instruments, limit switch settings, ultrasonic flow meters, protective component settings were included where applicable.
  - Any special supplies and test equipment needs were specified
  - Special environmental conditions (e.g., confined spaced hazards) were identified.
  - Test precautions and limitations were specified.

The inspector reviewed the test acceptance criteria and compared it against the requirements specified in Appendix C of the COL and Preoperational Test Specification, APP-RNS-T1-501 to verify if they were clearly identified and the procedure required comparison of results with acceptance criteria. Specifically, the inspectors verified that the procedure contained the following requirements:

- Pump flow rates corresponded to the expected system alignment,
- Proper pump miniflow operation,
- Adequate net positive suction head was available for the tested configurations, and

- Pumped flow provided sufficient back pressure to maintain a water level in the CMT.

The inspector reviewed a sample of corrective action documents related to the conduct of testing and the usage of proper test equipment to verify that the licensee was promptly identifying and correcting any issues associated with the performance of the procedure in accordance with procedure ND-AD-002. In addition, the inspector reviewed the procedure to verify that provisions were made for recording details of the conduct of the test, including any test anomalies or observed deficiencies, their resolution, and any necessary retesting in accordance with B-GEN-ITPA-004.

The inspector reviewed applicable operating experience items to verify that the site was appropriately using those items referenced within the test procedure to inform their staff of potential vulnerabilities. The inspector conducted a review of applicable drawings to verify that the procedure included appropriate configuration management controls in accordance with B-GEN-ITPA-004.

b. Findings

No findings were identified.

4. OTHER INSPECTION RESULTS

4OA6 Meetings, Including Exit

.1 Exit Meeting.

On January 16, 2020, the inspectors presented the inspection results to Mr. M. Page, and Mr. P. Martino, Vogtle 3&4 Plant Managers, and other licensee and contractor staff members. Proprietary information was reviewed during the inspection period but was not included in the inspection report.

4OA7 Licensee-Identified Violations.

.1 (Closed) LIV 05200025/2016007-01, 05200026/2016007-01, "Failure to Provide Adequate Procurement Specifications for Coatings"

The inspectors performed a review of the licensee's corrective actions specifically related to licensee-identified violation (LIV) 05200025/2016007-01, 05200026/2016007-01, "Failure to Provide Adequate Procurement Specifications for Coatings." This LIV was documented in inspection report 05200025 & 05200026/2016007 (ML16245A895) and was material to the acceptance criteria for ITAAC 2.2.03.08c.x. This condition was documented in the licensee's corrective action program as corrective action record (CAR) 2014-0372. The inspectors reviewed the associated CAR and N&Ds to determine if the issue was corrected in accordance with the corrective action program; if the scope of corrective actions was sufficient to capture the entire issue; and if the actions themselves were sufficient to ensure that the acceptance criterion of ITAAC 2.2.03.08c.x was met.

The inspectors determined the licensee took adequate corrective actions to address the ITAAC aspects of this violation. No additional findings were identified. LIV 05200025/2016007-01, 05200026/2016007-01 is closed.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensees and Contractor Personnel
R. Beilke, ITAAC Project Manager
C. Calia, SNC PI-CAP Manager
C. Castell, SNC Licensing Engineer
J. Ealick, SNC CAP supervisor
S. Gambill, SNC Electrical Test Engineer
D. Gray, SNC Electrical ITAAC
B. Hirmanpour, SNC I&C Manager
J. Hurst, WEC ASME
S. Leighty, SNC Licensing Supervisor
D. Martrano, WEC Test Coordinator
E. Odem, SNC Supervisor, Maintenance Preservation
K. Phelps, SNC ECP Manager
L. Pritchett, SNC Licensing Engineer
K. Roberts, SNC, Licensing Manager
G. Scott, SNC Licensing Engineer
N. Wetherell, SNC Electrical Test Manager
M. Wilson, SNC Electrical Test Engineer
M. Yox, SNC Regulatory Affairs Director

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Type	Status	Description
99901467/2016-201-01	NON	Closed	Failure to verify the interrupting current rating of the breakers as part of its commercial grade dedication (Section 1A12)
05200025/2019004-01	NCV	Open/Closed	Failure to Meet ITAAC Requirement for Installation (Section 1A07)
05200025/2019004-02 05200026/2019004-02	NCV	Open/Closed	Non-Conservative Rounding of Conversion Factor Use (Section 1A06)
05200025/2016007-01 05200026/2016007-01	LIV	Closed	Failure to Provide Adequate Procurement Specifications for Coatings (Section 4OA7)

LIST OF DOCUMENTS REVIEWED

Section 1

[2503 Documents]

Section 1A01

APP-GW-GEE-5479, WEC AP1000 Design Change Proposal "Hot Leg 2 ADS Stage 4 Branch Nozzle Modification and use of ASME NB-3200 for Piping" (137 pages), Revision 0

LDCR-2017-125, Licensing Document Change Request for VEGP Units 3&4, "Use of ASME NB-3200 for Piping Component Analysis" (119 pages), Revision 0

APP-PL01-T1-002, "AP1000 RCL Pipe Grain Size Monitor for Production Pieces," Revision 0

APP-PL01-T1-010, "AP1000 SA-376 TP316LN Hot Leg L001B ADS-4 Branch Nozzle Interior Radius Grinding Technical Requirements Specification," Revision 0

APP-PL01-Z0-200, "Reactor Coolant Loop Seamless Forged and Formed Pipe Fabrication Specification," Revision 7

APP-PL02-Z0-101, "AP1000 Class 1 Piping and Non-Class 1 Extension Design Specification" signed by Registered Professional Engineer (142 pages), Revision 5

S&W 132175-2554-055-088-00014, SNC SV0-RCS-VQQ-800013, PCI Energy Services SV3-ADS-4_Modification, "PCI Quality Assurance Data Package, Vogtle Unit 3 AP1000 Electrical Discharge Machining (EDM) of Reactor Coolant Loop (RCL) Hot Leg L001B Piping to ADS-4 Branch Nozzle Radius" (243 pages), Revision 0, 08/12/2019

PCI 914262-001, Certification of Conformance, 07/24/2019

PCI N-3174, NPT Certificate of Authorization (Corporate), August 28, 2017 (Expires September 2, 2020)

PCI N-3174-3, ASME NPT Certificate of Authorization, August 19, 2016 (Expires August 19, 2019)

PCI 914262-EQ-001, Qualification Procedure for Vogtle 3 & 4 ADS-4 Branch Nozzle Modification Tooling (49 pages for mock-up and personnel training), Revision 0, 01/16/2019

PCI 914262-EQ-001, Qualification Procedure for Vogtle 3 & 4 ADS-4 Branch Nozzle Modification Tooling (49 pages), Revision 1, 01/16/2019

PCI 914262-001, Quality Assurance Traveler for Vogtle Unit 3 ADS-4 Branch Nozzle Modification (50 pages), Revision 0, 02/18/2019

PCI 914262-001, Attachment 01 - EDM Parameter Limits (page 47 of 50), Revision 0, 02/18/2019

PCI NDE-914262-001, Inspection Report (surface roughness), 04/02/2019

PCI NDE-914262-002, Report of Nondestructive Examination Visible, Solvent Removable Liquid Penetrant Examination, 04/08/2019

PCI/WEC 914262-RPT-005 Vogtle Unit 3 Final Report ADS-4 Branch Nozzle Modification A s-Built Engineering Report with Modification Measurements, Revision 0, 04/16/2019

Section 1A02

<u>Welds SV3-SFS-PLW-511-1 and -6</u>

SV3-SFS-PLW-511, "Spent Fuel Pool Cooling System Auxiliary Building Room 12254 Return from Containment Area," Revision 3

890300-40-00133, "Radiographic Examination Report," Spool No. SV3-SFS-PLW-511-1, 7/14/2017

Weld SV3-SFS-PLW-521-1
SV3-SFS-PLW-521, "Spent Fuel Pool Cooling System Auxiliary Building Room 12454 Supply from SFS Pumps," Revision 3
890300-40-00137, "Radiographic Examination Report," Spool No. SV3-SFS-PLW-521-1, 9/22/2014

Section 1A03
APP-IDS-E0C-015, IDS MCC PWER FUSE RG1.106 Compliance, Revision 0
APP-IDSA-E5-EA501, Wiring Diagram Class 1E Fuse Panel IDSA-EA-5 Sheet 1 of 2, Revision 1
APP-IDSA-E5-EA502, Wiring Diagram Class 1E Fuse Panel IDSA-EA-5 Sheet 2 of 2, Revision 1

Section 1A04
SV3-P06Y-EWW-1035074, Revision 0
SV3-P31Y-EWW-1033892, Revision 0
E-SV3-IDSA-EY-P12Y-201636, "EPCR for CMT Electrical Pen P12, 9/6/16
E-SV3-IDSA-EY-P12Y-201648, "EPCR for CMT Electrical Pen P12, 11/29/16
E-SV3-IDSA-EY-P12Y-201708, "EPCR for CMT Electrical Pen P12, 2/21/17
E-SV3-IDSA-EY-P12Y-201720, "EPCR for CMT Electrical Pen P12, 5/17/17
E-SV3-IDSA-EY-P12Y-201732, "EPCR for CMT Electrical Pen P12, 8/11/17
C-SV3-IDSA-EY-P12Y-201744, "EPCR for CMT Electrical Pen P12, 11/1/17
C-SV3-IDSA-EY-P12Y-201744, "EPCR for CMT Electrical Pen P12, 11/2/17
C-SV3-IDSA-EY-P12Y-201804, "EPCR for CMT Electrical Pen P12, 1/22/18
C-SV3-IDSA-EY-P12Y-201816, "EPCR for CMT Electrical Pen P12, 5/16/18
C-SV3-IDSA-EY-P12Y-201828, "EPCR for CMT Electrical Pen P12, 7/10/18
C-SV3-IDSA-EY-P12Y-201840, "EPCR for CMT Electrical Pen P12, 10/3/18
C-SV3-IDSA-EY-P12Y-201909-1075463, "EPCR for CMT Electrical Pen P12, 3/1/19
C-SV3-IDSA-EY-P12Y-201921-1096665, "EPCR for CMT Electrical Pen P12, 5/22/19
C-SV3-IDSA-EY-P12Y-201921-1097088, "EPCR for CMT Electrical Pen P12, 5/22/19
C-SV3-IDSD-EY-P14Z-201825, "EPCR for CMT Electrical Pen P14, 6/29/18
C-SV3-IDSD-EY-P14Z-201837, "EPCR for CMT Electrical Pen P14, 9/13/18
C-SV3-IDSD-EY-P14Z-201849, "EPCR for CMT Electrical Pen P14, 12/4/18
C-SV3-IDSD-EY-P14Z-201909-1071218, "EPCR for CMT Electrical Pen P14, 2/26/19
C-SV3-IDSD-EY-P14Z-201909-1075467, "EPCR for CMT Electrical Pen P14, 3/1/19
C-SV3-IDSD-EY-P14Z-201921-1096742, "EPCR for CMT Electrical Pen P14, 5/22/19
E-SV3-IDSD-EY-P16-201636, "EPCR for CMT Electrical Pen P16, 9/6/16
E-SV3-IDSD-EY-P16-201648, "EPCR for CMT Electrical Pen P16, 11/28/16
E-SV3-IDSD-EY-P16-201708, "EPCR for CMT Electrical Pen P16, 2/21/17
E-SV3-IDSD-EY-P16-201720, "EPCR for CMT Electrical Pen P16, 5/16/17
E-SV3-IDSD-EY-P16-201732, "EPCR for CMT Electrical Pen P16, 8/11/17
E-SV3-IDSD-EY-P16-201744, "EPCR for CMT Electrical Pen P16, 11/1/17
C-SV3-IDSD-EY-P16Y-201744, "EPCR for CMT Electrical Pen P16, 11/2/17
C-SV3-IDSD-EY-P16Y-201804, "EPCR for CMT Electrical Pen P16, 1/22/18
C-SV3-IDSD-EY-P16Y-201816, "EPCR for CMT Electrical Pen P16, 5/16/18
C-SV3-IDSD-EY-P16Y-201828, "EPCR for CMT Electrical Pen P16, 7/10/18
C-SV3-IDSD-EY-P16Y-201840, "EPCR for CMT Electrical Pen P16, 10/9/18
C-SV3-IDSD-EY-P16Y-201909-1070348, "EPCR for CMT Electrical Pen P16, 2/26/19
C-SV3-IDSC-EY-P28Y-201744, "EPCR for CMT Electrical Pen P28, 11/2/17
C-SV3-IDSC-EY-P28Y-201804, "EPCR for CMT Electrical Pen P28, 1/22/18

C-SV3-IDSC-EY-P28Y-201816, "EPCR for CMT Electrical Pen P28, 5/16/18
C-SV3-IDSC-EY-P28Y-201828, "EPCR for CMT Electrical Pen P28, 7/10/18
C-SV3-IDSC-EY-P28Y-201840, "EPCR for CMT Electrical Pen P28, 10/4/18
C-SV3-IDSC-EY-P28Y-201909-1071208, "EPCR for CMT Electrical Pen P28, 2/26/19
C-SV3-IDSC-EY-P28Y-201909-1075457, "EPCR for CMT Electrical Pen P28, 3/1/19
C-SV3-IDSB-EY-P30Z-201825, "EPCR for CMT Electrical Pen P30, 6/29/18
C-SV3-IDSB-EY-P30Z-201837, "EPCR for CMT Electrical Pen P30, 9/12/18
C-SV3-IDSB-EY-P30Z-201849, "EPCR for CMT Electrical Pen P30, 12/5/18
C-SV3-IDSB-EY-P30Z-201909-1071222, "EPCR for CMT Electrical Pen P30, 2/26/19
C-SV3-IDSB-EY-P30Z-201909-1075475, "EPCR for CMT Electrical Pen P30, 2/28/19
C-SV3-IDSB-EY-P30Z-201921-1096746, "EPCR for CMT Electrical Pen P30, 5/22/19

Section 1A05
SV3-PXS-FSK-800191, "ITAAC Verification Volume of the IRWST," Revision 0
SV3-1000-P2-935, "Nuclear Island General Arrangement Section W1-W1," Revision 1
SV3-1030-P2-001, "Nuclear Island General Arrangement Plan at EL 100'-0" & 107'-2"," Revision 3
SV3-MW01-VOK-891550, "Unit 3 ADS Sparger As-Built Elevation Verification," Revision 1
U3-CV-IRWST-SWR1137276, "Unit 3 IRWST ITAAC Volume," 10/29/19
APP-PXS-M3C-081, "In-Containment Refueling Water Storage Tank (IRWST) Surface Area and Volume Height," Revision 0

Section 1A06
Receipt Inspection Reports (RIR) Package
RIR 3090-418, Amerlock 400NT, Purchase Order Number 3090-03-2431
RIR 3094-078, Carbozinc 11 HSN, Purchase Order Number 3094-00-0470
RIR 3094-148, Amerlock 400NT, Purchase Order Number 3094-02-0103
RIR 3094-088, A'LOCK 400NT BAS WHITE, Purchase Order Number 3094-02-0009

Procedure
WSS-3094-QWI-07-02-05, Receiving Coatings & Materials, Revision 0

Miscellaneous
ITR-3090-265-023, dated September 14, 2018
Coating Applicator Certification from 2 coatings applicators
Quality Control Inspector Certification from 2 inspectors
Drake Industries Quality Assurance Letter About Tags and Label Coatings in Containment, dated September 6, 2019
Approved Supplier List, 1000000089416-000000000131614, Drake Industries, Inc.
SV3-AX01-GEC-000001, unqualified Coatings Log for Vogtle Unit 3, Revision 0
NUPIC Audit/Survey Number 24440, Westinghouse-Mega Audit Coordinator, dated September 13, 2017
NUPIC Audit/Survey Number 24440, Westinghouse-Mega Audit Coordinator, dated September 30, 2017

E&DCRs
APP-AX01-GEF-013, Unqualified Coatings on Q240 Module, Revision 0
APP-AX01-GEF-015, Unqualified Coatings on Q233 and Q223 Module, Revision 0
APP-AX01-GEF-018, Unqualified coatings due to cold galvanizing material on cable trays, Revision 0
APP-AX01-GEF-133, Unqualified Coatings on Containment Lighting, Revision 0
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Williams Receiving Inspection Report 3094-137, 8/7/19
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PCI Procedure QCP-0052-TOGTLE, "Installation Inspection of High-Density Silicone Elastomer (HDSE or P-90), Issue A
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DCP APP-GW-GEE-4516, "Redesign the CMT Level Instrument Layout due to Overstress in Instrument Related Pipe and Nozzles of the Tap Lines," Revision 1.0
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APP-PXS-PLW-255, "Passive Core Cooling System Containment Bldg. Room 11400 CMT A Lvl Instrument Tap LT011B/D," Revision 3
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APP-PXS-PLW-705, "Passive Core Cooling System Containment Bldg. Room 11300 CMT B Lvl Instrument Tap LT014A/C," Revision 3
APP-PXS-PLW-735, "Passive Core Cooling System Containment Bldg. Room 11300 CMT B Lvl Instrument Tap LT014B/D," Revision 3
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Bechtel ASME Section IX Welding Procedure Specification P1-A-Lh for SMAW of carbon steel (supporting PQRs 695, 1173A, 1310), Revision 1
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APP-IDS-E0C-004, IDS Power Cable Sizing and Voltage Drop Analysis, Revision 5
APP-IDS-E0C-011, Class 1E (IDS) 250V DC System Coordination Study, Revision 4
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SV3-ZAS-EOC-800001, Vogtle Unit 3 AC Electrical System Load Flow, Short Circuit and Motor Starting Calculation, Revision 1
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IEEE Standard 946, "IEEE Recommended Practice for the Design of dc Auxiliary Power Systems for Generating Stations," 1992.

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CAP IR 2019-16309

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APP-IDS-E0C-020, Analysis/Compliance of the IDS with Respect to the Specific Electrical Isolation Criteria in IEEE 384-1981, Rev, 2.
APP-IDS-VTR-001, Isolation Barrier Maximum Credible Fault Test Report (For WEC-NPO Supplied Equipment), Revision 0
APP-IDS-VTR-002, Isolation Barrier Short Circuit / Open Circuit / Grounded Circuit Test Report (For WEC-NPO Supplied Equipment), Revision 0
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2.6.03.04j-U0-PRF-Rev0, ITAAC Principal Closure Document Review Form (ND-RA-001-008-F01 Ver. 9.0), dated: 12/6/2019

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APP-IDSB-E5-DV104, Wiring Diagram Non-Class 1E IDS Battery Monitoring APP-IDSB-DV-1 Sheet 4 of 4, Revision 1.
APP-IDSB-E5-DV201, Wiring Diagram Non-Class 1E IDS Battery Monitoring IDSB-DV-2 Sheet 1 of 4, Revision 1.
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APP-IDSB-E5-EA702, Wiring Diagram Class 1E Fuse Panel IDSB-EA-7 Sheet 2 of 2, Revision 1.
APP-IDSB-E3-006, Class 1E DC System One Line Meter & Relay Diagram Div. B-24 Hour Battery Bank, Revision 2.

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IR-2019-10977, Missing IEEE 384 interface between fused transfer switch box and battery monitor current measurement shunt connection.

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SV3-IDS-E0C-004, IDS Power Cable Sizing and Voltage Drop Analysis, Revision 5
SV3-IDS-E0C-011, Class 1E (IDS) 250V DC System Coordination Study, Revision 4
APP-IDS-E0C-009, Cable Lengths for Equipment Powered from IDS DC and AC Distribution Panels, Revision 3
APP-IDS-E0C-017, IDS MCC TOL Requirements per IEEE 741, Revision 1

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APP-PMS-VBR-015, AP1000 Protection and Safety Monitoring System Isolation Summary Report for Use in the AP1000 Plant, Revision 2
CAPAL 100411210, AP1000 Fault Isolation Hardware Changes Necessary, dated: 9/6/2016
CAPAL 100430258, Interrupt rating assessment, 11/17/2016
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CDI-4784, Current Limiting Fuses for use in Class 1E to Non-Class 1E Isolation Barriers, 09/07/17
EMPE-EV-97-APP, Isolation Barrier Maximum Credible Fault Test Report, Revision 0
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Corrective Action generated from this inspection

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CAP IR-2019-16309 Update data tables in APP-EA03-Z0-001 when incorporating APP-EA03-GEF-005, dated: 10/31/2019
CR 50033199, Documentation Error in Electrical Panel Specification, dated: 10/31/2019
CR 50033635, IOC 19-043 NRC Observation during IDS Design Inspection regarding Open Item Tracking for Calcs, dated: 11/6/2019

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SV3-DU01-Z0-001, Design Specification for Class 1E Inverters, Static Transfer and Manual Bypass Switches for IDS system, Revision 7
SV3-EA01-Z0-001, Specification for Class 1E AC Distribution Panels for IDS System, Revision 8
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SV0-DU01-V4-003, AS-BUILT-Vogtle Units 3 & 4 Class 1E Inverter Wiring Drawing: Drawing Wiring Diagram DU, Revision 1
SV0-DT01-V1-001, AS-BUILT-Vogtle Units 3 & 4 Class 1E Regulating Transformer Outline Drawing: Drawing General Arrangement, Socket Details DT, Revision 0
SV0-DT01-V4-001, AS-BUILT-Vogtle Units 3 & 4 Class 1E Regulating Transformer Wiring Drawing: Drawing Single Line DT, Revision 0
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SV3-IDS-E3-002, Class 1E DC System Station One Line Diagram Divisions B, D & Spare, Revision 3
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SV3-IDS-E3-004, One Line Meter & Relay Diagram/Spare Class 1E Battery Bank & Charger, Revision 1
SV3-IDS-E3-006, Class 1E DC System One Line Meter & Relay Diagram Div. B-24 Hour Battery Bank, Revision 2
SV3-IDS-E3-007, Class 1E DC System One Line Meter & Relay Diagram Div. B-72 Hour Battery Bank, Revision 1
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2019SCC1301, "Wood Self Consolidating Concrete Card," 10/3/19
2019SCC1313, "Wood Report of Concrete Compression Test Results," 11/18/19
2019SCC1314, "Wood Report of Concrete Compression Test Results," 11/18/19
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SV3-1208-SC-032, "Shield Building Steel Wall Panels El. 100'-0" to El. 248'-6 1/2" Aux Building Roof Connection Plates, Area 2," Revision 0
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3. OPERATIONAL READINESS

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Corrective Actions
CR 50038231
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3A-OPS-006, Plant Shutdown from 100% RTP to Mode 5 to 100% RTP (A Simulator), May 25, 2019
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4. OTHER INSPECTION RESULTS

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LIST OF ACRONYMS

ACI	American Concrete Institute
ADS	Automatic Depressurization System
AFT	As-found Tolerance
AISC	American Institute of Steel Construction
ALT	As-left Tolerance
ANI	Authorized Nuclear Inspector
AOV	Air-Operated Valve
ASL	Approved Suppliers List
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BPV	Boiler and Pressure Vessel
CAQ	Condition Adverse to Quality
CAR	Corrective Action Record
CB&I	Chicago Bridge and Iron
CFR	Code of Federal Regulations
CMT	Core Makeup Tank
CMTR	Certified Material Test Report
COL	Combined License
CR	Condition Report
DBE	Design Basis Earthquake
DCD	Design Control Document
DCP	Design Change Proposal
DR	Deficiency Report
DVI	Direct Vessel Injection
E&DCR	Engineering & Design Coordination Report
ECP	Employee Concerns Program
ECS	Main AC Power System
EDM	Electrical Discharge Machine
EPA	Electrical Penetration Assemblies
ESF	Engineered Safety Feature
ESFAS	Engineered Safeguards Features Actuation System
FAT	Factory Acceptance Testing
FLA	Full Load Amperes
FSAR	Final Safety Analysis Report
GTAW	Gas Tungsten Arc Welding
IDS	Class 1E DC and UPS System
IEEE	Institute of Electrical and Electronic Engineers
IMC	Inspection Manual Chapter
IR	Inspection Report
IRWST	In-containment Refueling Water Storage Tank
ISI	Inservice Inspection
ITAAC	Inspections, Tests, Analysis, and Inspection Criteria
LCS	Local Control Stations
LIV	Licensee-Identified Violation
LRA	Locked Rotor Amperes
MCC	Motor Control Centers

MOV	Motor-Operated Valves
N&D	Nonconformance and Disposition Reports
NCR	Nonconformances
NCV	Non-Cited Violation
NDE	Nondestructive Examination
NEC	National Electrical Code
NFPA	National Fire Protection Association
NON	Notice of Nonconformance
NQA	Nuclear Quality Assurance
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PCD	Principal Closure Document
PCI	PCI Energy Services
PCI	Product Identify Certification
PCS	Passive Containment Cooling System
PJP	Partial Joint Penetration
PLS	Plant Control System
PMS	Protection and Safety Monitoring System
PNQCM	Project Nuclear Quality Control Manual
POV	Power-Operated Valves
PRS	Plant Reference Simulator
PT	Liquid Penetrant Examination
PXS	Passive Core Cooling System
QA	Quality Assurance
QAPD	Quality Assurance Data Packages
QC	Quality Control
QME	Qualification of Active Mechanical Equipment
RC	Reinforced Concrete
RCS	Reactor Coolant System
RG	Regulatory Guide
RIR	Receipt Inspection Report
RMS	Root Mean Square
RNS	Normal Residual Heat Removal System
RPV	Reactor Pressure Vessel
RT	Reactor Trip
RTNSS	Regulatory Treatment of Non-Safety Systems
RTS	Reactor Trip System
S&W	Stone & Webster
SC	Steel Composite
SCAQ	Significant Condition Adverse to Quality
SCWE	Safety Conscious Work Environment
SFS	Spent Fuel Pool
SL	Service Level
SMAW	Shielded Metal Arc Welding
SOV	Solenoid-Operated Valve
SRV	Safety-Relief Valve
SSC	Structures, Systems, and Components
SSE	Safe Shutdown Earthquake
TE	Technical Evaluations

TNA	Training Needs Analysis
TSC	Technical Support Center
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Examination
VEGP	Vogtle Electric Generating Plant
VT	Visual Examination
WDS	Weld Data Sheet
WEA	Work Environment Assessments
WEC	Westinghouse Electric Company
WMR	Welding Material Requisitions
WPS	Welding Procedure Specification

. **ITAAC INSPECTED**

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
13	2.1.02.02a	2.a) The components identified in Table 2.1.2-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements. 2.b) The piping identified in Table 2.1.2-2 as ASME Code Section III is designed and constructed in accordance with ASME Code Section III requirements. 3.a) Pressure boundary welds in components identified in Table 2.1.2-1 as ASME Code Section III meet ASME Code Section III requirements. 3.b) Pressure boundary welds in piping identified in Table 2.1.2-2 as ASME Code Section III meet ASME Code Section III requirements. 4.a) The components identified in Table 2.1.2-1 as ASME Code Section III retain their pressure boundary integrity at their design pressure. 4.b) The piping identified in Table 2.1.2-2 as ASME Code Section	Inspection will be conducted of the as-built components and piping as documented in the ASME design reports. Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III. A hydrostatic test will be performed on the components and piping required by the ASME Code Section III to be hydrostatically tested. Inspection will be performed for the existence of a report verifying that the as-built piping meets the requirements for functional capability. Inspection will be performed for the existence of an LBB evaluation report or an evaluation report on the protection from dynamic effects of a pipe break. Section 3.3, Nuclear Island Buildings, contains the design descriptions and inspections, tests, analyses, and acceptance criteria for protection from the dynamic effects of pipe rupture.	The ASME Code Section III design reports exist for the as-built components and piping identified in Tables 2.1.2-1 and 2.1.2-2 as 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. A report exists and concludes that the results of the hydrostatic test of the components and piping identified in Table 2.1.2-1 and Table 2.1.2-2 as ASME Code Section III conform with the requirements of the ASME Code Section III. A report exists and concludes that each of the as-built lines identified in Table 2.1.2-2 for which functional capability is required meets the requirements for functional capability. An LBB evaluation report exists and concludes that the LBB acceptance criteria are met by the as-built RCS

		III retains its pressure boundary integrity at its design pressure. 5.b) Each of the lines identified in Table 2.1.2-2 for which functional capability is required is designed to withstand combined normal and seismic design basis loads without a loss of its functional capability. 6. Each of the as-built lines identified in Table 2.1.2-2 as designed for LBB meets the LBB criteria, or an evaluation is performed of the protection from the dynamic effects of a rupture of the line.		piping and piping materials, or a pipe break evaluation report exists and concludes that protection from the dynamic effects of a line break is provided.
32	2.1.02.08d.i	8.d) The RCS provides automatic depressurization during design basis events.	i) A low pressure flow test and associated analysis will be conducted to determine the total piping flow resistance of each ADS valve group connected to the pressurizer (i.e., ADS Stages 1-3) from the pressurizer through the outlet of the downstream ADS control valves. The reactor coolant system will be at cold conditions with the pressurizer full of water. The normal residual heat removal pumps will be used to provide injection flow into the RCS discharging through the ADS valves. Inspections and	i) The calculated ADS piping flow resistance from the pressurizer through the sparger with all valves of each ADS group open is < 2.91E-6 ft/gpm2.

			associated analysis of the piping flow paths from the discharge of the ADS valve groups connected to the pressurizer (i.e., ADS Stages 1-3) to the spargers will be conducted to verify the line routings are consistent with the line routings used for design flow resistance calculations.	
91	2.2.01.02a	2.a) The components identified in Table 2.2.1-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements. 2.b) The piping identified in Table 2.2.1-2 as ASME Code Section III is designed and constructed in accordance with ASME Code Section III requirements. 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. 3.b) Pressure boundary welds in piping identified in Table 2.2.1-2 as ASME Code Section III meet ASME Code Section III requirements. 4.a) The components identified in Table 2.2.1-1 as ASME	Inspection will be conducted of the as-built components and piping as documented in the ASME design reports. Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III. i) A hydrostatic or pressure test will be performed on the components required by the ASME Code Section III to be tested. A hydrostatic or pressure test will be performed on the piping required by the ASME Code Section III to be pressure tested.	The ASME Code Section III design reports exist for the as-built components and piping identified in Table 2.2.1-1 and 2.2.1-2 as 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. i) A report exists and concludes that the results of the pressure test of the components identified in Table 2.2.1-1 as ASME Code Section III conform with the requirements of the ASME Code Section III. A report exists and concludes that the results of the pressure test of the piping identified in Table 2.2.1-2 as ASME Code Section III conform with the requirements of the

		Code Section III retain their pressure boundary integrity at their design pressure. 4.b) The piping identified in Table 2.2.1-2 as ASME Code Section III retains its pressure boundary integrity at its design pressure.		ASME Code Section III.
109	2.2.01.08	8. Containment electrical penetration assemblies are protected against currents that are greater than the continuous ratings.	An analysis for the as-built containment electrical penetration assemblies will be performed to demonstrate (1) that the maximum current of the circuits does not exceed the continuous rating of the containment electrical penetration assembly, or (2) that the circuits have redundant protection devices in series and that the redundant current protection devices are coordinated with the containment electrical penetration assembly's rated short circuit thermal capacity data and prevent current from exceeding the continuous current rating of the containment electrical penetration assembly.	Analysis exists for the as-built containment electrical penetration assemblies and concludes that the penetrations are protected against currents which are greater than their continuous ratings.
177	2.2.03.08c.i.01	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each	i) The injection line flow resistance from each source is as follows: 1. CMTs: The calculated flow resistance between each CMT and the reactor vessel is ≥ 1.81 x 10-5 ft/gpm2

			test is initiated by opening isolation valve(s) in the line being tested. Test fixtures may be used to simulate squib valves. 1. CMTs: Each CMT will be initially filled with water. All valves in these lines will be open during the test.	and ≤ 2.25 x 10-5 ft/gpm2.
178	2.2.03.08c.i.02	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each test is initiated by opening isolation valve(s) in the line being tested. Test fixtures may be used to simulate squib valves. 2. Accumulators: Each accumulator will be partially filled with water and pressurized with nitrogen. All valves in these lines will be open during the test. Sufficient flow will be provided to fully open the check valves.	i) The injection line flow resistance from each source is as follows: 2. Accumulators: The calculated flow resistance between each accumulator and the reactor vessel is ≥ 1.47 x 10-5 ft/gpm2 and ≤ 1.83 x 10-5 ft/gpm2.
179	2.2.03.08c.i.03	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each test is initiated by opening isolation valve(s) in the line	i) The injection line flow resistance from each source is as follows: 3. IRWST Injection: The calculated flow resistance for each IRWST injection line between the IRWST and the reactor vessel is: Line A: ≥ 5.35 x 10-6 ft/gpm2

			being tested. Test fixtures may be used to simulate squib valves. 3. IRWST Injection: The IRWST will be partially filled with water. All valves in these lines will be open during the test. Sufficient flow will be provided to open the check valves.	and ≤ 9.09 x 10-6 ft/gpm2 and Line B: ≥ 6.15 x 10-6 ft/gpm2 and ≤ 1.05 x 10-5 ft/gpm2.
180	2.2.03.08c.i.04	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each test is initiated by opening isolation valve(s) in the line being tested. Test fixtures may be used to simulate squib valves. 4. Containment Recirculation: A temporary water supply will be connected to the recirculation lines. All valves in these lines will be open during the test. Sufficient flow will be provided to open the check valves.	i) The injection line flow resistance from each source is as follows: 4. Containment Recirculation: The calculated flow resistance for each containment recirculation line between the containment and the reactor vessel is: Line A: ≤ 1.33 x 10-5 ft/gpm2 and Line B: ≤ 1.21 x 10-5 ft/gpm2.
181	2.2.03.08c.ii	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	ii) A low-pressure test and analysis will be conducted for each CMT to determine piping flow resistance from the cold leg to the CMT. The test will be performed by filling the CMT via the cold leg balance line by operating the	ii) The flow resistance from the cold leg to the CMT is ≤ 7.21 x 10-6 ft/gpm2.

			normal residual heat removal pumps.	
191	2.2.03.08c.vi.03	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	vi) Inspections of each of the following tanks will be conducted: 3.– IRWST	vi) The calculated volume of each of the following tanks is as follows: 3. IRWST > 73,100 ft^3 between the tank outlet connection and the tank overflow
195	2.2.03.08c.x	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	x) Inspections will be conducted of the as-built nonsafety-related coatings or of plant records of the nonsafety-related coatings used inside containment on walls, floors, ceilings, and structural steel except in the CVS room. Inspections will be conducted of the as-built non-safety-related coatings or of plant records of the non-safety-related coatings used on components below the maximum flood level of a design basis LOCA or located above the maximum flood level and not inside cabinets or enclosures. Inspections will be conducted on caulking, tags, and signs used inside containment below the maximum flood level of a design basis LOCA or located above the maximum flood level and not inside cabinets or enclosures. Inspections will be conducted of	x) A report exists and concludes that the coatings used on these surfaces have a dry film density of ≥ 100 lb/ft^3. If a coating is used that has a lower dry film density, a report must exist and conclude that the coating will not transport. A report exists and concludes that inorganic zinc coatings used on these surfaces are Safety – Service Level I or have been quantified and justified in a program for management of unqualified coatings to demonstrate the unqualified coatings are acceptable for use. A report exists and concludes that tags and signs used in these locations are made of steel or another metal with a density ≥ 100 lb/ft^3. In addition, a report exists and concludes that caulking used in these locations or coatings used on these signs or tags have a dry film

			ventilation filters and fiber-producing fire barriers used inside containment within the ZOI or below the maximum flood level of a design basis LOCA.	density of ≥ 100 lb/ft^3. If a material is used that has a lower density, a report must exist and conclude that there is insufficient water flow to transport lightweight caulking, signs, or tags. A report exists and concludes that the ventilation filters and fire barriers in these locations have a density of ≥ 100 lb/ft^3.
197	2.2.03.08c.xii	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	xii) Inspections will be conducted of the CMT level sensors (PXS-11A/B/D/C, -12A/B/C/D, -13A/B/C/D, -14A/B/C/D) upper level tap lines.	xii) Each upper level tap line has a downward slope of ≥ 2.4 degrees from the centerline of the connection to the CMT to the centerline of the connection to the standpipe.
201	2.2.03.09a.i	9.a) The PXS provides a function to cool the outside of the reactor vessel during a severe accident.	i) A flow test and analysis for each IRWST drain line to the containment will be conducted. The test is initiated by opening isolation valves in each line. Test fixtures may be used to simulate squib valves.	i) The calculated flow resistance for each IRWST drain line between the IRWST and the containment is ≤ 4.44 x 10-6 ft/gpm2.
216	2.2.03.12a.iv	12.a) The squib valves and check valves identified in Table 2.2.3-1 perform an active safety-related function to change position as indicated in the table.	iv) Exercise testing of the check valves with active safety functions identified in Table 2.2.3-1 will be performed under preoperational test pressure, temperature, and fluid flow conditions.	iv) Each check valve changes position as indicated in Table 2.2.3-1
542	2.5.02.08b.i	8.b) The PMS provides for the	i) An inspection will be performed to verify	i) A transfer switch exists for each

		transfer of control capability from the MCR to the RSW using multiple transfer switches. Each individual transfer switch is associated with only a single safety-related group or with nonsafety-related control capability.	that a transfer switch exists for each safety-related division and the nonsafety-related control capability.	safety-related division and the nonsafety-related control capability.
549	2.5.02.10	10. Setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.	Inspection will be performed for a document that describes the methodology and input parameters used to determine the PMS setpoints.	A report exists and concludes that the PMS setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.
550	2.5.02.11	11. The PMS hardware and software is developed using a planned design process which provides for specific design documentation and reviews during the following life cycle stages: a) Not used b) System definition phase c) Hardware and software development phase, consisting of hardware and software design and implementation d) System integration and test phase e) Installation phase	Inspection will be performed of the process used to design the hardware and software.	A report exists and concludes that the process defines the organizational responsibilities, activities, and configuration management controls for the following: a) Not used. b) Specification of functional requirements. c) Documentation and review of hardware and software. d) Performance of system tests and the documentation of system test results, including a response time test performed under maximum CPU loading to demonstrate that the PMS can fulfill its response time

				criteria. e) Performance of installation tests and inspections.
602	2.6.03.04b	4.b) The IDS provides electrical isolation between itself and the non-Class 1E ac power system and the non-Class 1E lighting in the MCR.	Type tests, analyses, or a combination of type tests and analyses of the isolation devices will be performed.	A report exists and concludes that the battery chargers, regulating transformers, and isolation fuses prevent credible faults from propagating into the IDS.
616	2.6.03.07	7. The IDS dc battery fuses and battery charger circuit breakers, and dc distribution panels, MCCs, and their circuit breakers and fuses, are sized to supply their load requirements. 8. Circuit breakers and fuses in IDS battery, battery charger, dc distribution panel, and MCC circuits are rated to interrupt fault currents. 9. The IDS batteries, battery chargers, dc distribution panels, and MCCs are rated to withstand fault currents for the time required to clear the fault from its power source. 10. The IDS electrical distribution system cables are rated to withstand fault currents for the time required to clear the fault from its power source.	Analyses for the as-built IDS dc electrical distribution system to determine the capacities of the battery fuses and battery charger circuit breakers, and dc distribution panels, MCCs, and their circuit breakers and fuses, will be performed. Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed. Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed. Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed.	Analyses for the as-built IDS dc electrical distribution system exist and conclude that the capacities of as-built IDS battery fuses and battery charger circuit breakers, and dc distribution panels, MCCs, and their circuit breakers and fuses, as determined by their nameplate ratings, exceed their analyzed load requirements. Analyses for the as-built IDS dc electrical distribution system exist and conclude that the analyzed fault currents do not exceed the interrupt capacity of circuit breakers and fuses in the battery, battery charger, dc distribution panel, and MCC circuits, as determined by their nameplate ratings. Analyses for the as-built IDS dc electrical distribution system exist and conclude that the IDS dc

				electrical distribution system cables will withstand the analyzed fault currents, as determined by manufacturer's ratings, for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses. Analyses for the as-built IDS dc electrical distribution system exist and conclude that the IDS dc electrical distribution system cables will withstand the analyzed fault currents, as determined by manufacturer's ratings, for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses.
758	3.2.00.09	9. The capability to access displays and controls is provided (controls as assigned by the MCR operators) for local control and monitoring from selected locations throughout the plant.	An inspection of the local control and monitoring capability is provided.	The capability for local control and monitoring from selected locations throughout the plant exists.
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	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions	i.b) A report exists which reconciles deviations during construction, including Table 3.3-1 wall and floor

		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. 3.) Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations, provide shielding during normal operations.	will be analyzed for the design basis loads, and for radiation shielding.	thicknesses, 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, and without impacting compliance with the radiation protection licensing basis.
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. 3.) Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations, provide shielding during normal operations.	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, and for radiation shielding.	i.c) A report exists which reconciles deviations during construction, including Table 3.3-1 wall and floor thicknesses, 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, and without impacting compliance with the radiation protection licensing basis.
763	3.3.00.02a.i.d	2.a) The nuclear island structures, including the critical sections listed in	i) An inspection of the nuclear island structures will be performed. Deviations	i.d) A report exists which reconciles deviations during construction,

		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. 3.) Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations, provide shielding during normal operations.	from the design due to as-built conditions will be analyzed for the design basis loads, and for radiation shielding.	including Table 3.3-1 wall and floor thicknesses, 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, and without impacting compliance with the radiation protection licensing basis.
782	3.3.00.04b	4.b) Walls of the waste accumulation room in the radwaste building except for designed openings or penetrations provide shielding during normal operations.	Inspection of the as-built radwaste building wall thicknesses will be performed.	A report exists and concludes that the shield walls of the waste accumulation room in the radwaste building except for designed openings or penetrations are consistent with the minimum concrete wall thicknesses of 1'-4", and a minimum concrete wall thickness of 1'-8" near the radwaste bunkers.
793	3.3.00.07bb	7.b) Class 1E divisional electrical cables and communication cables associated with only one division are routed in their respective divisional raceways.	Inspections of the as-built Class 1E divisional cables and the as-built raceways that route the Class 1E cables will be conducted.	b) Class 1E electrical cables and communication cables in the non-radiologically controlled area of the auxiliary building associated with only one division are routed in raceways assigned to the same division. There

				are no other safety division electrical cables in a raceway assigned to a different division.
855	E.3.9.05.01.07	5.1 The licensee has established a technical support center (TSC) and an onsite operations support center (OSC). [H.1]	5.1 An inspection of the as-built TSC and OSC will be performed, including a test of the capabilities.	5.1.7 A reliable and backup electrical power supply is available for the TSC.
876	2.6.03.04j	4.j) The IDS provides electrical isolation between the non-Class 1E battery monitors and the Class 1E battery banks.	Type tests, analyses, or a combination of type tests and analyses of the isolation devices will be performed.	A report exists and concludes that the battery monitor fuse isolation panels prevent credible faults from propagating into the Class 1E portions of the IDS.