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

August 8, 2016

Mr. Ronald A. Jones
Vice President, New Nuclear Operations
South Carolina Electric and Gas
P.O. Box 88 (Mail Code P40)
Jenkinsville, SC 29065-0088

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 – NRC INTEGRATED INSPECTION REPORTS 05200027/2016002, 05200028/2016002

Dear Mr. Jones:

On June 30, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection for Virgil C. Summer Nuclear Station Units 2 and 3. The enclosed inspection report documents the inspection results, which the inspectors discussed on July 20, 2016, with you and other members of your staff.

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.

Three NRC-identified findings of very low safety significance (Green) were identified during this inspection. These findings were determined to involve a violation of NRC requirements. However, because of the very low safety significance and because these issues were entered into your corrective action program, the NRC is treating these issues as a non-cited violations (NCVs) in accordance with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest any 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 Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector office at the V.C. Summer Nuclear Station Units 2 and 3.

If you disagree with any of the cross-cutting aspects assigned to these findings, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector office at the V.C. Summer Nuclear Station Units 2 and 3.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any), will be made available electronically for public inspection in the NRC Public Document Room or from the Publically Available Records (PARS) component of NRC's document system, Agencywide Documents Access & Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

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

Sincerely,

/RA/

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

Docket Nos.: 5200027, 5200028
License Nos: NPF-93, NPF-94

Enclosure: NRC Inspection Report (IR) 05200027/2016002, 05200028/2016002
w/attachment: Supplemental Information

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any), will be made available electronically for public inspection in the NRC Public Document Room or from the Publically Available Records (PARS) component of NRC's document system, Agencywide Documents Access & Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

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w/attachment: Supplemental Information

☒ PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE ☒ NON-SENSITIVE
ADAMS: ☒ Yes ACCESSION NUMBER: _____ ☒ SUNSI REVIEW COMPLETE ☒ FORM 665 ATTACHED

OFFICE	RII:DCP	RII:DCP	RII:DCP	RII:DCP	RII:DCP	RII:DCP	RII:DCP
SIGNATURE	/RA via email/	/RA via email/	/RA via email/	/RA via email/	/RA via email/	/RA via email/	/RA via email/
NAME	P. Heher	M. Magyar	T. Nazario	C. Read	P. Donnelly	N. Karlovich	P. Braxton
DATE	7/22/2016	7/25/2016	7/27/2016	7/25/2016	7/25/2016	7/26/2016	7/25/2016
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICE	RII:DCI	RII:DCI	RII:DCI	RII:DCI	RII:DCI	RII:NRO	RII:DCP
SIGNATURE	/RA via email/	/RA via email/	/RA via email/	/RA via email/	/RA via email/	/RA via email/	/RA/
NAME	C. Oelstrom	J. Lizardi-Barreto	J. Christensen	J. Vasquez	D. Terry-Ward	S. Downey	M. Ernstes
DATE	7/25/2016	7/26/2016	7/25/2016	7/25/2016	7/27/2016	7/25/2016	8/8/2016
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY: G/CCI/DCP/CPB4/V.C. Summer IRs 2016/V.C. Summer Units 2 & 3 Integrated IR 0500027-28/2016002

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Numbers:	5200027 5200028
License Numbers:	NPF-93 NPF-94
Report Numbers:	05200027/2016002 05200028/2016002
Facility:	Virgil C. Summer Nuclear Station Unit 2 Virgil C. Summer Nuclear Station Unit 3 WECTEC Engineering Facility
Location:	Jenkinsville, SC Charlotte, NC
Inspection Dates:	April 1, 2016 through June 30, 2016
Inspectors:	A. Artayet, Senior Construction Inspector, DCI P. Braxton, Resident Inspector, DCP J. Christensen, Construction Inspector, DCI G. Crespo, Senior Construction Inspector, DCI P. Donnelly, Resident Inspector, DCP S. Downey, Materials Engineer, DEIA B. Griman, Construction Inspector, DCI D. Harmon, Construction Inspector, DCI N. Karlovich, Resident Inspector, DCP J. Kent, Construction Project Inspector, DCP J. Lizardi-Barreto, Construction Inspector, DCI M. Magyar, Construction Project Inspector, DCP T. Nazario, Senior Construction Resident Inspector, DCP C. Oelstrom, Construction Inspector, DCI C. (Mac) Read, Resident Inspector, DCP S. Smith, Senior Construction Inspector, DCI C. Smith, Construction Inspector, DCI D. Terry-Ward, Construction Inspector, DCI J. Vasquez, Construction Inspector, DCI
Approved by:	Michael Ernstes, Chief Construction Projects Branch 4 Division of Construction Projects

SUMMARY

Inspection Report (IR) 05200027/2016002, 05200028/2016002; 04/01/2016 through 06/30/2016; Virgil C. Summer Nuclear Station Unit 2, Virgil C. Summer Nuclear Station Unit 3, routine integrated inspection report.

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

A. NRC-Identified and Self Revealed Findings

Green: The inspectors identified an ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, "Design Control" for South Carolina Electric & Gas's (SCE&G) failure, through their contractor Westinghouse Electric Company (WEC), to correctly translate regulatory requirements into documents used for construction of the containment internal basemat. The licensee entered this finding into their corrective action program as condition report (CR) CR-NND-16-00817.

The finding was associated with the Design/Engineering Cornerstone. The finding was considered more than minor because the performance deficiency represented a substantive non-conservative error in a design document used for the installation of reinforcing steel in a section of containment internal basemat. The inspectors evaluated the finding in accordance with IMC 2519, "Construction Significance Determination Process," and determined the finding was of very low safety significance because there was reasonable assurance that the structure or the applicable portion of the structure would have been able to meet its design function. The inspectors determined that the finding represented an ITAAC finding because it was material to the acceptance criteria of SCE&G Unit 2 ITAAC 760, in that, the acceptance criteria of this ITAAC required that a reconciliation report, concluding the "as-built" construction conforms to the approved design is completed for the areas associated with the ITAAC. The deviations from the design requirements would not have been reconciled by the licensee as required by the ITAAC, because the Engineering, and Design Coordination Report (E&DCR) that was approved and released did not provide assurance that deviations from quality standards were controlled. The inspectors reviewed the finding for a possible cross-cutting aspect in accordance with IMC 0613 Appendix F, "Construction Cross-Cutting Areas and Aspects," and determined the finding has a cross-cutting aspect in the Human Performance aspect of Work Management because the licensee did not adequately identify and manage risk commensurate to the work and did not adequately coordinate different groups or job activities. [H.5] (Section 1A03)

Green: The inspectors identified an ITAAC finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion X, "Inspection," for SCE&G's failure, through their contractor WEC, to identify nonconforming welds on a safety-related structure as required per quality control inspection plans. Section 3.8.3.2 of the Updated Final Safety Analysis Report (UFSAR) requires compliance with American Welding Society (AWS) D1.1:2000. The inspections were required by a contractor's quality control (QC) inspection plan F-S561-007, "AWS D1.1 – Visual Weld Inspection - Carbon Steel." The licensee entered this issue into their corrective action program as CR-NND-16-00854.

The finding was associated with the Inspection/Testing cornerstone. The inspectors determined the performance deficiency was more than minor following the guidance in IMC 0613, “Power Rector Construction Inspection Reports,” Appendix E, because the issue represented a substantive failure to implement an adequate quality oversight function. Specifically, a visual welding inspection of a safety-related structure failed to identify nonconforming welds. The inspectors evaluated the finding using the construction significance determination process and determined the finding was of very low safety significance (Green) because it was associated with a portion of a structure assigned to the intermediate risk importance column of the construction significance determination matrix. The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAAC 763 (3.3.00.02a.i.d). The acceptance criteria of this ITAAC requires the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions. This finding is associated with deviations from design requirements that would not have been reconciled by the licensee as required by the ITAAC. The inspectors screened the finding for a possible construction cross-cutting aspect in accordance with Appendix F, “Construction Cross-Cutting Components and Aspects” of IMC 0613. This finding has a cross-cutting aspect in the area of Human Performance, because the licensee’s contractor failed to identify nonconforming welds when performing an inspection using a contractor’s QC inspection plan F-S561-007, "AWS D1.1 – Visual Weld Inspection - Carbon Steel." [H.8] (Section 1A20)

Green: Two examples of a programmatic finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawing,” were identified by the inspectors for the licensee's failure to address and implement the requirements of American Society of Mechanical Engineers (ASME) Section XI, IWA-6211(e), IWA-6230, IWA-6240, and 10 CFR 50.55a in its program procedures. The licensee entered this finding into their corrective action program as CR-NND-16-00750 and CR-NND-16-00754.

The finding was associated with the Operational Readiness/Operational Programs cornerstone. The finding was considered more than minor because the performance deficiency represented a failure to adequately implement a quality process that rendered the quality process unacceptable or indeterminate. The inspectors evaluated the finding in accordance with IMC 2519, “Construction Significance Determination Process,” and determined the finding was of very low safety significance because the finding did not omit a critical attribute of an operational program requirement. The inspectors screened the finding for a possible construction cross-cutting aspect in accordance with Appendix F, “Construction Cross-Cutting Components and Aspects” of IMC 0613. This finding has a cross-cutting aspect in the area of Human Performance (Documentation) because the licensee failed to maintain complete and accurate documentation with respect to the Preservice Inspection (PSI) program. [H.7] (Section 3P01)

B. Licensee-Identified Violations

No findings were identified.

REPORT DETAILS

Summary of Plant Construction Status

During this reporting period in Unit 2, the CA20 structural module, which makes up part of the radiation controlled portion of the auxiliary building including the fuel transfer canal and the spent fuel pool, was filled with concrete from elevation 66'6" to 128'. Concrete was placed up to elevation 100' in the annulus area between the containment vessel and the shield building from 7.3-line to N-line and around the reactor vessel cavity module CA04 from elevation 87' to 98'.

For Unit 3, concrete was placed inside the containment vessel from elevation 76'6" to 80'6" followed shortly by the placement of the CA05 structural module inside containment, which is a wall section for a portion of the PXS valve room. Concrete was placed between the CA20 module and the containment vessel from elevation 66'6" to 82'6". Work began on the structural attachment of CA20 to the embed plates installed in the nuclear island basemat.

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 2 and Unit 3) ITAAC Number 2.1.02.07a.ii (25) / Family 09F
(Unit 2 and Unit 3) ITAAC Number 2.1.03.09a.ii (82) / Family 10A
(Unit 2 and Unit 3) ITAAC Number 2.2.01.06a.ii (102) / Family 09F
(Unit 2 and Unit 3) ITAAC Number 2.2.03.07a.ii (171) / Family 09F
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07aa (789) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07ab (790) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07ac (791) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07ba (792) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07bb (793) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07bc (794) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.i (799) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.ii.a (800) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.ii.b (801) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.ii.c (802) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.iii.a (803) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.iii.b (804) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.iii.c (805) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.iv.a (806) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.iv.b (807) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.iv.c (808) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.v.a (809) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.v.b (810) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07d.v.c (811) / Family 09A
(Unit 2 and Unit 3) ITAAC Number 3.3.00.07e (812) / Family 09A

a. Inspection Scope

The inspectors performed a direct inspection of the Shaw Cable Manager Program (SCM) at WECTEC LLC offices in Charlotte, NC. This inspection was associated with ITAAC Numbers: 2.1.02.07a.ii (25), 2.1.03.09a.ii (82), 2.2.01.06a.ii (102), 2.2.03.07a.ii (171), 3.3.00.07aa (789), 3.3.00.07ab (790), 3.3.00.07ac (791), 3.3.00.07ba (792), 3.3.00.07bb (793), 3.3.00.07bc (794), 3.3.00.07d.i (799), 3.3.00.07d.ii.a (800), 3.3.00.07d.ii.b (801), 3.3.00.07d.ii.c (802), 3.3.00.07d.iii.a (803), 3.3.00.07d.iii.b (804), 3.3.00.07d.iii.c (805), 3.3.00.07d.iv.a (806), 3.3.00.07d.iv.b (807), 3.3.00.07d.iv.c (808), 3.3.00.07d.v.a (809), 3.3.00.07d.v.b (810), 3.3.00.07d.v.c (811), and 3.3.00.07e (812). The inspectors used the following NRC Inspection Procedures (IPs)/sections to perform this inspection:

- 65001.09-02.01 - Physical Separation of Cables
- 65001.09-02.02 - Attributes of Electrical Cable installation
- 65001.09-02.03 - Documentation
- 65001.09-02.04 - Problem Identification and Resolution
- 65001.10-02.01 - Pre-Inspection Activities
- 65001.E-02.03 - Qualification
- 65001.F-02.04 - General QA Review

The inspectors reviewed the reports, completed wiring diagrams, and user manual from the SCM for cable routing and for raceway fills. The inspectors reviewed the routing paths for raceways to verify that only one division was in each raceway and that the cable fill percentages were in accordance with WECTEC requirements. The inspectors reviewed Nuclear Construction and Startup Procedures (NCSPs), installation specs, user guides, and design specs in order to understand how requirements would be used in the field. The inspectors also reviewed installation procedures and specifications, as well as the electrical design specifications.

ITAACs 2.1.02.07a.ii, 2.1.03.09a.ii, 2.2.01.06a.ii, 2.2.03.07a.ii

The inspectors reviewed the mark numbers and environmental qualification (EQ) reports associated with selected class 1E cables to verify whether the cables were bounded by the sample in the associated EQ report per Institute of Electrical and Electronics Engineers (IEEE) Standard 383-1974. The inspectors reviewed a sample of Class 1E division cables from different divisions associated with the following Structures, Systems, and Components (SSCs) for EQ:

- CCS-PL-V200, Component Cooling Water System (CCS) Containment Isolation Motor Operated Valve (MOV) - Inlet Line Outside Reactor Containment (ORC)
- RCS-PL-V002A, Second Stage Automatic Depressurization System (ADS) MOV
- RCS-PL-V004A, Fourth Stage ADS Squib Valve
- RCS-PL-V011A, First Stage ADS Isolation MOV
- RCS-PL-V012A, Second Stage ADS Isolation MOV
- RCS-140A, Reactor Coolant System (RCS) Wide Range Pressure Sensor
- RCS-191A, Pressurizer Pressure Sensor
- RXS-JE-NE001A, Source Range Detector
- PXS-011A, Core Makeup Tank (CMT) A Level Sensor
- PXS-PL-V014B, CMT B Discharge Isolation Valve

- PXS-PL-V101, Passive Residual Heat Removal (PRHR) Heat Exchanger (HX) Inlet Isolation MOV
- PXS-PL-V123A, In-containment Refueling Water Storage Tank (IRWST) Injection A Squib Valve
- VFS-PL-V009, Containment Purge Discharge Containment Isolation Valve – Inside Reactor Containment (IRC)

The inspectors examined vendor qualification reports associated with the sample cables to determine whether the following EQ characteristics were met:

- The qualification testing was conducted in accordance with the requirements from IEEE Standard 383-1974 as specified in NRC Regulatory Guide 1.131;
- The results for the report meet the acceptance criteria stated in the ITAAC from the AP1000 DCD; and
- The results from the report state the qualified life of the cables.

The inspectors determined that some of the EQ characteristic data for the sample of cables being reviewed was extrapolated from the vendor report related to similar cables in accordance with IEEE Standard 383-1974 as specified in NRC Regulatory Guide 1.131. The inspectors also verified that the cabling associated with the SSCs can withstand the conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function. The inspectors determined that the cables associated with the SSCs were qualified in accordance with the associated design specifications and acceptance criteria.

The inspectors reviewed a number of cables associated with electrical penetration P30, IDSB-EY-P30Z to be installed inside and outside containment. The inspectors reviewed the mark numbers and EQ reports associated with selected Class 1E cables to verify whether the cables were bounded by the sample in the associated EQ report per IEEE 383-1974.

ITAACs 3.3.00.07aa, 3.3.00.07ab, and 3.3.00.07ac

The inspectors performed a review of the SCM adequacy for ensuring that Class 1E electrical cables and communication cables located within containment and the radiologically and non-radiologically controlled areas of the auxiliary building are identified by the proper color code. The inspectors determined that the SCM does not track or require compliance with color coding. The SCM only identifies and tracks the safety-related division of Class 1E electrical and communication cables. Color coding for Class 1E cabling is defined under AP1000 cabling specifications and will be inspected for compliance under the appropriate installation procedures.

ITAACs 3.3.00.07ba, 3.3.00.07bb, and 3.3.00.07bc

The inspectors performed a review of the SCM adequacy for ensuring that Class 1E electrical cables and communication cables, located within containment and the radiologically and non-radiologically controlled areas of the auxiliary building, associated with only one division will be routed in raceways assigned to the same division. The inspectors also ensured that there will not be any other safety division electrical cables in a raceway assigned to a different division. Specifically, the inspectors reviewed a sample of drawings and documentation associated with the

following raceways: APP-1143-ER-CZT01A, APP-1133-ER-AZC12, APP-1152-ER-AYC01, APP-1133-ER-AZC22, APP-1242-ER-AZC04, APP-1231-ER-DXT01EA, APP-1123-ER-CZC09, and APP-1154-ER-BZC13.

ITAAC 3.3.00.07d.i

The inspectors performed a review of the SCM adequacy for ensuring that the Class 1E and non-Class 1E cables and raceways, located within the main control room and remote shutdown room, maintain a minimum vertical separation of 3 inches and a minimum horizontal separation of 1 inch. The inspectors also ensured that the Class 1E raceways of different divisions maintained the same minimum separation requirements. Specifically, the inspectors reviewed a sample of routing plans for Class 1E and non-Class 1E cables and raceways.

ITAACs 3.3.00.07d.ii.a, 3.3.00.07d.ii.b, and 3.3.00.07d.ii.c

The inspectors performed a review of the SCM adequacy for ensuring that the Class 1E and non-Class 1E cables and raceways, located within containment and the radiologically and non-radiologically controlled areas of the auxiliary building, maintain a minimum vertical and horizontal separation of 1 inch. The inspectors also ensured that the Class 1E raceways of different divisions maintained the same minimum separation requirements. Specifically, the inspectors interviewed engineering staff regarding the separation maintained by the SCM and verified that all safety-related Class 1E cables are routed in raceways that are indicated to be no less than 1 inch apart. The inspectors also reviewed a sample of drawings and verified that the 1 inch separation is maintained throughout the drawings.

ITAACs 3.3.00.07d.iii.a, 3.3.00.07d.iii.b, and 3.3.00.07d.iii.c

The inspectors performed a review of the SCM adequacy for ensuring that the Class 1E and non-Class 1E raceways, located within containment and the radiologically and non-radiologically controlled areas of the auxiliary building, will be enclosed or barriers provided for situations where the separation distances are not met. The inspectors also ensured that the Class 1E raceways of different divisions would meet the same requirements. Specifically, the inspectors interviewed engineering staff and reviewed documentation to verify that circuits in these areas will be enclosed in raceways.

ITAACs 3.3.00.07d.iv.a, 3.3.00.07d.iv.b, and 3.3.00.07d.iv.c

The inspectors performed a review of the SCM adequacy for ensuring that Class 1E and non-Class 1E raceways, located within containment and the radiologically and non-radiologically controlled areas of the auxiliary building, where the separation distances are not met and are not provided enclosed raceways or barriers, are analyzed. The inspectors interviewed engineering staff and reviewed documentation to verify that non-Class 1E wiring will not mix with Class 1E wiring within Class 1E designated raceways in these areas and that all Class 1E raceways will be enclosed and segregated. Therefore no analysis of separation distances or barriers for Class 1E and non-Class 1E raceways is required.

ITAACs 3.3.00.07d.v.a, 3.3.00.07d.v.b, and 3.3.00.07d.v.c

The inspectors performed a review of the SCM adequacy for ensuring that non-Class 1E wiring that is not separated from Class 1E wiring, located within containment and

the radiologically and non-radiologically controlled areas of the auxiliary building, will be treated as Class 1E wiring. The inspectors interviewed engineering staff and reviewed documentation to verify that non-Class 1E wiring will not mix with Class 1E wiring within Class 1E designated raceways in these areas.

ITAAC 3.3.00.07e

The inspectors performed a review of the SCM adequacy for ensuring that Class 1E communication cables which interconnect two divisions are routed and separated such that the Protection and Safety Monitoring System (PMS) voting logic is not defeated by the loss of any single raceway or fire area. The inspectors interviewed engineering staff regarding the separation maintained by the SCM and reviewed drawings to verify fuses and isolation devices were adequately configured to maintain the voting logic. The inspectors verified that the SCM data showed no two interconnecting cables pass through the same raceway or fire area such that the loss of any single raceway or fire area could defeat the PMS logic.

b. Findings

No findings were identified.

1A02 (Unit 2) ITAAC Number 2.5.02.11 (550) / Family 10F

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
- 35007-A13.04.02 - Inspection of QA Program Implementation

a. Inspection Scope

The inspectors walked down the storage of PMS cabinets to verify whether they were stored in accordance with technical manuals and the UFSAR. The inspectors reviewed temperature records and humidity labels in the field to verify whether storage conditions had been maintained in accordance with procedures and technical manuals. A sample of the cabinets inspected is as follows:

- VS2-PMS-JD-BCB02, BPL/LCL Cabinet B02
- VS2-PMS-JD-ILCB02, Integrated Logic Cabinet B02
- VS2-PMS-JD-NICC01, NI Cabinet Division C
- VS2-PMS-JD-ILCD01, Integrated Logic Cabinet D01
- VS2-PMS-JD-SOEA01, Sequence of Events Cabinet A

b. Findings

No findings were identified.

1A03 (Unit 2) ITAAC Number 3.3.00.02a.i.a (760) / Family 01F

a. Inspection Scope

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

- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.01 - Design Document Review
- 65001.F-02.04 - General QA Review

The inspectors performed a detailed design review for containment basemat layers 6 East and 6A. Layer 6 East is located in the eastern portion of containment between elevations 87'6" and 94' while Layer 6A is located in the center of containment between elevations 87'6" and 94'. The inspectors reviewed applicable design calculations, design drawings, design specifications, and interviewed licensee personnel to determine whether work activities were being performed in accordance with approved procedures, specifications and codes.

In addition, inspectors reviewed applicable E&DCRs and Nonconformance Reports (NCRs) associated with the containment basemat design and installation activities to determine if:

- the licensee was identifying problems at an appropriate threshold;
- nonconforming items were adequately identified, and segregated; and
- deviations from requirements were effectively dispositioned.

b. Findings

Introduction

An ITAAC finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was identified by the inspectors for South Carolina Electric and Gas' (SCE&G) failure, through their contractor Westinghouse, to correctly translate regulatory requirements into specifications, drawings, procedures, and instructions.

Description

During an inspection of reinforced concrete basemat inside containment between elevation 87’6” to 94’, also designated as Concrete Placement Layer 6/6A, the inspectors observed that the design did not conform to the requirements of American Concrete Institute (ACI) Code 349-01, a Design Certification Document Tier 2* licensing commitment for Seismic Category I structures. Specifically, E&DCR APP-1100-GEF-295 failed to translate and specify quality standards into design documents to assure that deviations from such standards were controlled. Section 12.14.3.3 of ACI 349-01 states “Except as provided in this Code, all welding shall conform to ‘Structural Welding Code – Reinforcing Steel’ (ANSI/AWS D1.4).” AWS Code D1.4: 1998 Edition, Section 4.2.6, states “Welds made on the unbent portion of cold bent

reinforcing steel shall be terminated or initiated at a minimum distance of two bar diameters from the points of tangency for the radius created by cold bending." Further, AWS D1.4, Figure 4.2, states that within this portion of the cold bent bar "No Welding Shall Be Permitted in This Portion." The NRC inspectors observed that welding material was placed within the exclusion area of several standard hook bars that were welded to structural module CA-01. QC inspection for alignment and fit-up had already accepted this as-built configuration. Final QC inspection had not been performed, however Quality Inspection Plan F-S-561-005 did not include provisions to verify compliance with Section 4.2.6 of AWS D1.4. Weld Map VS2-1120-VWK-800006 and design drawing VS2-1110-CR-103 specified the length of the weld, but failed to provide details about where to start or stop the weld.

Analysis

The inspectors determined that the licensee's failure to assure that applicable regulatory requirements were correctly translated into design specifications, drawings, procedures, and instructions as required by Criterion III of 10 CFR 50, Appendix B, was a performance deficiency. The inspectors determined the performance deficiency was more than minor because it represented a substantive non-conservative error in a design document that defines the technical requirements for the reinforced concrete in a section of containment internal basemat.

The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 2 ITAAC 3.3.00.02a.i.a (760). The acceptance criteria of this ITAAC requires that a reconciliation report, concluding the "as-built" construction conforms to the approved design is completed for the areas associated with the ITAAC. This finding is associated with deviations from design requirements that would not have been reconciled by the licensee as required by the ITAAC, because the E&DCR that was approved and released did not provide assurance that deviations from quality standards were controlled.

The inspectors concluded this finding was associated with the Design/Engineering Cornerstone. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 2519, "Construction Significance Determination Process," Appendix A, "AP1000 Construction Significance Determination Process" because the finding was not related to either a security or operational program and was determined to be a technical finding. The inspectors determined the finding was of very low safety significance (Green) because there was reasonable assurance that the structure or the applicable portion of the structure would have been able to meet its design function.

The inspectors screened the finding for a possible construction safety focus component (CSFC) aspect in accordance with Appendix F, "Construction Cross-Cutting Areas and Aspects," of IMC 0613, "Power Reactor Construction Inspection Reports." This finding has a cross-cutting aspect in the area of Human Performance, Work Management aspect, because the licensee did not adequately identify and manage risk commensurate to the work and did not adequately coordinate different groups or job activities. [H.5].

Enforcement

10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and

instructions. UFSAR Section 3.8.3.2 requires, in part, that the design and analysis for the Containment Internal Structures be in accordance with ACI 349-01 for concrete structures. Sections 12.14.3.3 of ACI 349-01 requires that all welding of reinforcing bars shall conform to 'Structural Welding Code – Reinforcing Steel' (ANSI/AWS D1.4). Section 4.2.6 of AWS 1.4D, Edition 1998, requires that "Welds made on the unbent portion of cold bent reinforcing steel shall be terminated or initiated at a minimum distance of two bar diameters from the points of tangency for the radius created by cold bending." Contrary to the above, on or before May 11, 2016, the licensee failed to correctly translate the design basis into design specifications, drawings, procedures, and instructions as required by 10 CFR Appendix B, Criterion III. Specifically, the design change documented and released for use in E&DCR APP-1100-GEF-295, did not comply with Section 12.14.3.3 of ACI 349-01 and Section 4.2.6 of AWS as required by the UFSAR. This E&DCR failed to translate and specify quality standards into design documents to assure that deviations from such standards were controlled. The E&DCR only required the length of the weld and did not provide details about where to start or stop the weld on cold bent reinforcing bars as required by Section 4.2.6 of AWS. As a result, reinforcing steel bars were welded on code prohibited areas, and this rendered the quality of their installation as indeterminate. Because this violation was of very low safety significance (Green) and it was entered into the licensee's corrective action program as CR-NND-16-00817, this violation is being treated as a non-cited violation (NCV 05200027/2016002-01, Failure to Properly Translate Design Requirements of AWS D1.4 into the Field Drawings), consistent with Section 2.3 of the NRC Enforcement Policy and EGM 11-006.

1A04 (Unit 2) ITAAC Number 3.3.00.02a.i.a (760) / Family 01F

a. Inspection Scope

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

- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements

The inspectors performed a design review for containment basemat layers A, B, and C. The inspection was focused on the area behind sub-module CA-03, which is part of the IRWST, between elevations 96'0" and 108'0". The inspectors performed an independent measurement to determine whether critical attributes of the as-built reinforcement conformed to the final design. Also, the inspectors reviewed applicable design drawings, E&DCR's, design specifications, and interviewed licensee personnel to determine whether work activities were being performed in accordance with approved procedures, specifications and codes.

b. Findings

No findings were identified.

1A05 (Unit 2) ITAAC Number 3.3.00.02a.i.a (760) / Family 01F

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.F-02.04 - General QA Review

The inspectors observed nondestructive examination for weld VS2-CA03-VWK-048-FW-15-VP-002A. This weld was located between submodules CA03-15 and CA03-16. The weld joined two A240 stainless-steel plates which form part of the IRWST. Specifically the inspectors observed portions of the Ultrasonic Testing/Examination (UT) of the weld to verify whether the technician had properly calibrated instrumentation, used the correct couplant, used the correct wedge type and geometry, and was properly identifying indications per their procedure. The inspectors also reviewed the UT report to verify whether traceability to the weld was maintained, was reviewed by an appropriate authority, and met the requirements of N690-1994. The inspectors reviewed the certifications of the persons performing the test to verify whether they were qualified per AWS D1.6.

Additionally, the inspectors observed portions of the Liquid Penetrant Testing/Examination (PT) to verify whether the QC was following proper wait times between cleanings, using the correct chemicals and properly marking indications in accordance with the PT procedure and N690-1994. The inspectors also reviewed the PT report to verify whether traceability to the weld was maintained, was reviewed by an appropriate authority, and met the requirements of the PT procedure and N690-1994. The inspectors reviewed the certifications of the persons performing the test to verify whether they were qualified per AWS D1.6.

The inspectors observed in-process Gas Metal Arc Welding (GMAW) for the fill pass of weld No. VS2-CA03-VWK-034-FW-01-VP-002A located between submodules CA03-01 and CA03-02. The weld joined two A240 stainless-steel plates which form part of the IRWST. Specifically, the inspectors reviewed drawings, welding procedures, weld records, welder qualifications and material issue records to determine if the identification of welds and welders was maintained for each weld and the welders were qualified. In addition, the inspectors verified welding parameters such as amperage, voltage, pre-heat temperature, shielding gas flow rate, travel speed, shielding gas type, and that the appropriate type of filler metal used was in accordance with welding procedure specifications.

The inspectors observed in-process GMAW for the fill pass of weld No.VS2-CA03-VWK-049-FW-16-VP-002A located between submodules CA03-016 and CA03-17. The weld joined two A240 stainless-steel plates which form part of the IRWST. Specifically, the inspectors reviewed drawings, welding procedures, weld records, welder qualifications and material issue records to determine if the identification of welds and

welders was maintained for each weld and the welders were qualified. In addition, the inspectors verified welding parameters such as amperage, voltage, pre-heat temperature, shielding gas flow rate, travel speed, shielding gas type, and that the appropriate type of filler metal used was in accordance with welding procedure specifications. The inspectors reviewed the welding machine calibration date (serial number WC-151105826), to verify whether it was calibrated. The inspectors also reviewed the PT report of the root pass to verify whether traceability to the weld was maintained, were reviewed by an appropriate authority, and met the requirements of the PT procedure and N690-1994

The inspectors observed nondestructive examination associated with weld VS2-CA03-VWK-047-FW-14-VP-002A located between submodules CA03_14 and CA03_15. The weld joined two A240 stainless-steel plates which form part of the IRWST. The inspectors specifically observed portions of the PT to verify whether QC was following proper wait times between cleanings, using the correct chemicals and properly marking indications in accordance with the liquid penetrant procedure and N690-1994. The inspectors also reviewed the PT report to verify whether traceability to the weld was maintained, were reviewed by an appropriate authority, and met the requirements of the liquid penetrant procedure and N690-1994. The inspectors reviewed the certifications of the person performing the test to verify whether they were qualified per AWS D1.6.

b. Findings

No findings were identified.

1A06 (Unit 2) 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:

- 65001.01-02.01 - Procedures
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.03 - Observation of Fabrication Activities

The inspectors reviewed quality records and performed direct inspection of construction activities associated with the radiologically controlled area of the auxiliary building for Summer Unit 2. Specifically, the inspectors observed concrete construction activities associated with the following portions of the CA20 structural module:

- wall sections along column line 2 between column lines J-1 and N between elevation 66’6” and 128’1”
- wall section along column line 3 between column lines J-1 and J-2 between elevation 98’0” and 128’1”
- wall section along column line 3 between column lines J-2 and K-2 between elevation 66’6” and 128’1”

- wall section along column line 3 between column lines K-2 and L-2 between elevation 66’6” and 92’8.5”
- wall section along column line 4 between column lines J-1 and J-2 between elevation 66’6” and 92'6”
- wall section along column line 4 between column lines J-1 and J-2 between elevation 107’2” and 128’1”
- wall section along column line 4 between column lines J-2 and K-2 between elevation 66’6” and 128’1”
- wall sections along column line J-1 between column lines 2 and 4 between elevation 66’6” and 128’1”
- wall sections along column line J-2 between column lines 2 and 4 between elevation 66’6” and 128’1”
- wall section along column line K-2 between column lines 2 and 4 between elevation 66’6” and 128’1”
- wall section along column line K-2 between column lines 3 and 4 between elevation 66’6” and 128’1”
- wall section along column line L-2 between column lines 2 and 3 between elevation 66’6” and 128’1”
- wall section along column line L-2 between column lines 3 and 4 between elevation 66’6” and 1281”

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

- accepted procedures and specifications were followed throughout the concrete placement;
- the equipment used was suitable and sized for the work;
- each batch ticket was reviewed for verification of proper mix, transport time, placement location, and amount of temper water being added at the truck delivery point;
- mixing time and rotations were adequate, including after any additions were made;
- placement drop distances did not exceed specification requirements and did not result in segregation;
- concrete was placed in lifts in accordance with the concrete placement plan;
- inspection during placement was performed as required; and
- records were produced, reviewed, and indicated mix, location, time placed, water additions, temperature of the concrete mix, and ambient conditions.

The inspectors observed concrete delivery operations and reviewed batch plant records to determine whether:

- 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;
- transporting equipment was suitable, reliable, and in an acceptable condition;
- the time limit between mixing and placement was not exceeded;
- temperature limits were not exceeded;
- water was adjusted to account for moisture content of aggregates; and
- test results were being utilized at the batch plant to adjust mix proportions, as allowed by the procedures and specifications, to optimize concrete mix characteristics for the placement.

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

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

The inspectors interviewed licensee and contractor personnel to determine whether:

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

The inspectors reviewed a sample of nonconformances to verify:

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

b. Findings

No findings were identified.

1A07 (Unit 2) 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
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.F - Inspection of the ITAAC-Related Design and Fabrication Requirements
- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.03 - Observation of Fabrication Activities
- 65001.F-02.04 - General QA Review

The inspectors observed in-process activities associated with the concrete placement at N line from column line 2 to 4 and elevation 82'6" to 100' in the Unit 2 auxiliary building. Specifically, inspectors observed the following:

- The pre-placement inspection performed by QC.
- Concrete temperature, slump, air content and unit weight tests were performed by qualified personnel per the required ASTM and at proper intervals.
- Placement drop distances did not exceed specification requirements.
- The concrete was vibrated per the Westinghouse concrete specification requirements.

The inspectors reviewed quality records and performed inspection of the procurement and storage activities associated with Room 12261 of the radiological portion of the auxiliary building for Unit 2. Room 12261 is located at elevation 82'6" between the North-South column lines J-1 & I and the East-West column lines 2 & 4.

The inspectors reviewed a sample of approved implementing procedures and specifications associated with procurement, receipt inspection, and material storage to determine whether the associated documents:

- met the requirements specified in the quality assurance program and the UFSAR, including the reconciliation of construction deviations in critical dimensions and tolerances;
- correctly translated requirements from applicable codes and standards;
- described work controls, approved work processes, and inspection requirements;
- clearly prescribed acceptable methods of quality control inspection to ensure that the as-built condition met specified design requirements, drawings and material specifications;
- included adequate provisions for traceability of items throughout fabrication, erection, installation, and use of item;
- identified required markings or other means of identification to ensure that only specified and accepted items are used and to prevent the use of incorrect or defective items;
- identified required markings to be applied to materials using methods that provide a clear and legible identification and does not adversely affect the function or service life of the item; and

- included appropriate quantitative and/or qualitative acceptance criteria for determining that the prescribed activities were accomplished satisfactorily.

The inspectors reviewed a sample of purchase orders for structural steel embed plates to determine whether they appropriately specify acceptable quality, technical, and 10 CFR Part 21 and 10 CFR 50.55(e) requirements. The inspectors reviewed a sample of certified material test reports included in the material shipment packages to verify that materials met the specified mechanical testing requirements. The inspectors reviewed a sample of material records, including purchase orders, procurement documents, fabrication records, material receiving reports, certificates of compliance, and quality inspection reports, to determine whether:

- the records were adequate to furnish evidence of activities affecting quality;
- the requisite material characteristics were documented;
- performance tests, nondestructive tests, material certification, chemical and physical tests, and other specification requirements were performed, documented, and met acceptance criteria;
- the records were reviewed and approved by the responsible organization;
- the recorded information was complete, accurate, met the licensing basis, and conformed to applicable specifications; and
- the items were correctly stored and maintained in such a manner as to demonstrate conformance with design and procedure requirements.

The inspectors inspected a sample of structural steel embed plates in various storage areas to verify:

- the items were properly identified through markings and controlled in accordance with the approved implementing documents;
- markings were in accordance with the applicable quality and technical requirements;
- traceability of the items was consistent and accurate from identification through fabrication and storage; and
- items that were indicated as incorrect, defective, or nonconforming were clearly marked, tagged, or segregated as appropriate.

b. Findings

No findings were identified.

1A08 (Unit 2) ITAAC Number 3.3.00.02a.i.d (763) / Family 01F

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records

- 65001.F-02.02 - Fabrication Records Review

The inspectors performed a record review inspection of field weld 56B which joins a beam of floor submodule CA20-31 to wall module CA20-28 at column line L-2. Specifically the inspectors reviewed:

- The welding procedure to determine if it had been written in accordance with the prequalification requirements of the AWS D1.1 Structural Steel Welding Code;
- The welders' qualification records to determine if they had been qualified to weld to the welding procedure in accordance with the requirements of the AWS D1.1;
- The Certified Material Test Reports (CMTRs) for the shielded metal arc welding electrodes used to determine if they had been manufactured and tested in accordance with the requirements of 10CFR part 50 Appendix B, Part 21, and the requirements of ASME Section II SFA 5.1;
- The work package to determine if work and associated records were completed in a manner that maintained project quality controls;
- The weld record data sheet to determine if hold points had been met and signed off, and all required information was filled out;
- The qualification record for the field welding engineer who performed the fit-up inspection to determine if he had been qualified in accordance with site procedures to inspect tack welding and fit-up; and
- The calculations for the floor module to determine if the designed size, length, and location of the weld were adequate to support the postulated seismic activity.

The inspectors additionally performed a visual examination of the weld to determine if its size, length, and location were in accordance with the design, if it was of acceptable quality, and free of rejectable defects as required by the AWS Welding Code. The inspectors also performed measurements of the beam in the area of the weld to determine if it was within the design tolerances and able to carry applicable loads. Finally, the inspectors interviewed the field engineer and quality control inspector who performed the fit-up and final visual examinations to determine if inspections had been done as necessary to verify quality of the beam and weld sizes.

b. Findings

No findings were identified.

1A09 (Unit 2) ITAAC Number 3.3.00.02a.ii.b (765) / Family 01A

a. Inspection Scope

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

- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.01-02.06 - Records

The inspectors performed an inspection of the basemat thickness beneath the V.C. Summer Unit 2 shield building. At the time of the inspection, concrete had been placed from elevation 66'0" up to 82'6". The inspectors reviewed survey data to determine if

the as-built concrete thickness was within tolerance of the requirements in Table 3.8.5-3.

b. Findings

No findings were identified.

1A10 (Unit 2) ITAAC Number 3.3.00.02a.ii.d (767) / Family 01A
(Unit 2) ITAAC Number 3.3.00.03d (780) / Family 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.ii.d (767) and 3.3.00.03d (780). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors reviewed records and observed in-process testing associated with the concrete placement inside the CA20 structural module located in the radiologically controlled area of the auxiliary building to determine if the following as-built walls met the requirements of Table 3.3-1 of Appendix C of the V.C. Summer Unit 2 COL:

- wall sections along column line 2 between column lines J-1 and N between elevation 66’6” and 128’1”
- wall section along column line 3 between column lines J-1 and J-2 between elevation 98’0” and 128’1”
- wall section along column line 3 between column lines J-2 and K-2 between elevation 66’6” and 128’1”
- wall section along column line 3 between column lines K-2 and L-2 between elevation 66’6” and 92’8.5”
- wall section along column line 4 between column lines J-1 and J-2 between elevation 66’6” and 92’6”
- wall section along column line 4 between column lines J-1 and J-2 between elevation 107’2” and 128’1”
- wall section along column line 4 between column lines J-2 and K-2 between elevation 66’6” and 128’1”
- wall sections along column line J-1 between column lines 2 and 4 between elevation 66’6” and 128’1”
- wall sections along column line J-2 between column lines 2 and 4 between elevation 66’6” and 128’1”
- wall section along column line K-2 between column lines 2 and 4 between elevation 66’6” and 128’1”
- wall section along column line K-2 between column lines 3 and 4 between elevation 66’6” and 128’1”
- wall section along column line L-2 between column lines 2 and 3 between elevation 66’6” and 128’1”
- wall section along column line L-2 between column lines 3 and 4 between elevation 66’6” and 128’1”

The inspectors reviewed nonconformance and disposition report VS2-CA20-GNR-000663, "CA20 Final Position," which contained survey data on the Unit 2 CA20 walls. The inspectors reviewed the survey data and determined that the walls were in conformance with the thickness requirements of Table 3.3-1. The inspectors also observed quality control personnel performing in-process concrete testing during the CA20 concrete placement, including obtaining wet density samples. In addition, the inspectors reviewed report number C-16-00157, "Self Consolidating Concrete Field Testing and Compressing Data Record," and determined that the wet concrete density results as-tested throughout the CA20 placement exceeded the requirement in Section 6.1.8.i of VS2-CC01-Z0-027, "Safety Related Concrete Testing Services" and of Section 12.3.2.3 of the UFSAR.

b. Findings

No findings were identified.

1A11 (Unit 3) ITAAC Number 2.1.03.02c (71) / Family 05A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.03.02c (71). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.05-02.07 - Records Review
- 65001.A - As-Built Attributes for SSCs associated with ITAAC

The inspectors reviewed a portion of the Quality Verification Documentation (QVD), QVD-N08032-20101/20102, Rev. 1, Volume No. 1 of 1, for the V.C. Summer Unit 3 Reactor Vessel Assembly supplied by Doosan Heavy Industries & Construction Co. to determine whether the documentation met the requirements of the design specification and UFSAR. Specifically, the inspectors reviewed Section 6.0 of the QVD, As-Built Dimension Record, to determine whether the following as-built dimensions met the requirements of the design specification, as specified by dimensions "A" through "I" of Figure 2.1.3-3 and Table 2.1.3-1 of Appendix C of the V.C. Summer Unit 3 COL:

- Dimension "A": Reactor Vessel (RV) inside diameter at beltline (inside cladding);
- Dimension "B": RV wall thickness at beltline (without cladding);
- Dimension "C": RV wall thickness at bottom head (without cladding);
- Dimensions "D" and "E," respectively: Inside diameter of RV inlet nozzles and outlet nozzles at safe-ends;
- Dimensions "F," "G," and "H," respectively: Elevation from RV mating surface to centerline of inlet nozzles, outlet nozzles, and Direct Vessel Injection (DVI) nozzles; and
- Dimension "I": Elevation from RV mating surface to inside of RV bottom head (inside cladding).

b. Findings

No findings were identified.

1A12 (Unit 3) ITAAC Number 2.1.03.03 (72) / Family 05F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.03.03 (72). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.05-02.07 - Records Review
- 65001.05-02.08 - Problem Identification and Resolution
- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.04 - General QA Review

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

- 1998 Edition including 2000 Addenda of ASME Section III, Division 1, Subsection NB, Class 1 Components;
- WEC APP-MV01-Z0R-101, AP1000 Reactor Vessel Design Report, Rev. 4;
- WEC APP-MV01-Z0-101, Design Specification for AP1000 Reactor Vessel for System: RCS, Rev. 13, dated 7-9-2015;
- Code Case 2142-2, allows use of weld filler metal with AWS Classification ERNiCrFE-7A; and
- Unit 3 UFSAR with documents referencing applicability to 10 CFR Part 50, Appendix B, and 10 CFR Part 21.

Specifically, the inspectors reviewed ASME Form N-1 and N-2 Data Reports to verify the following items were traceable, hydrostatically tested at a pressure of 3,125 psia, and signed by the commissioned Authorized Nuclear Inspector (ANI):

- Closure head and upper shell;
- Inlet and outlet nozzles;
- Inlet and outlet safe-ends;
- Two Quickloc Instrument Nozzles (QINs); and
- Five CRDM Rod Travel Housings.

In addition, the inspectors reviewed the WEC-Newington ASME Form N-2 Data Reports to verify the latch housings and nozzles were also hydrostatically tested at a pressure of 3,125 psi, and rod travel housings for the sixty-nine Control Rod Drive Mechanisms (CRDMs) were also signed by the Commissioned ANI.

The inspectors reviewed CMTRs for a sample of nineteen base metals and six weld filler metals to determine whether the applicable melting processes, dimensions, chemical compositions, mechanical properties (tensile and yield strength, elongation and reduction of area, and fracture toughness with Charpy V-notch and drop weight impact testing), heat treatments, nondestructive examinations, and stainless steel corrosion testing were in accordance with the above referenced requirements.

The inspectors reviewed Doosan Record No. AHTR-VC Summer #3-01, Accumulated Heat Treatment Time Record for V.C. Summer Unit 3, against a sample of six heat treatment records to determine whether the total cycles of accumulated holding time at temperature performed by Doosan for the upper and lower shells, closure and lower heads, seal ledge, guide stud support blocks and brackets, transition ring, integrated head package (IHP) support and lifting lugs, and inlet, outlet, and DVI nozzles did not exceed the maximum allowable times specified in the above referenced requirements.

The inspectors reviewed five PT reports, seven magnetic particle examination reports, and twelve UT reports to determine whether methods, techniques, and acceptable results were examined, evaluated, and approved by the proper certification level of NDE personnel in accordance with the applicable requirements of ASME Section V, Nondestructive Examinations, Subsection A, Nondestructive Methods of Examination, and Subsection B, NDE standards.

The inspectors reviewed a Doosan pressure test record and test gage calibration certificates to determine whether the reactor vessel was hydrostatically tested in accordance with the requirements of ASME Section III, Article NB-6000, Testing, and WEC APP-MV01-Z0-101, Design Specification for AP1000 Reactor Vessel.

The inspectors reviewed the following two Doosan NCRs with supporting documents and WEC deviation notices (DN) to determine whether issues were identified with adequate dispositions, technical justifications, and consideration for reportability screening and evaluations under 10 CFR Part 21 and 10 CFR 50.55(e):
NCR-No. 15100442 and DN-No. VS3-MV01-GNR-039 for chemical analysis and Charpy V-notch transition curve impact testing required by a WEC forging material specification for the RV non-beltline regions, and

- NCR-No. 15100444 and DN-No. VS3-MV01-GNR-040 for drop weight impact testing to the actual nil-ductility transition temperature (Tndt) required by WEC weld filler material specifications for the RV beltline regions.

b. Findings

No findings were identified.

1A13 (Unit 3) ITAAC Number 2.1.03.04 (73) / Family 05B

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.1.03.04 (73). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed Doosan welding fabrication records for the reactor vessel and closure head to verify that applicable requirements of the codes, standards, and specifications were met, proper reviews and approvals were documented, and traceability of materials, welding/NDE procedures, welders, and welding operators were provided for welding, NDE, and postweld heat treatment (PWHT) activities in accordance with the following requirements:

- 1998 Edition including 2000 Addenda of ASME Section III, Division 1, Subsection NB, Class 1 Components;
- ASME Section V, Nondestructive Examination (applicable Articles of Subsections A and B);
- WEC APP-MV01-Z0-101, Design Specification for AP1000 Reactor Vessel, Rev. 13;
- WEC, APP-MV01-Z0-100, Fabrication Specification for AP1000 Reactor Vessel, Rev. 1; and
- Unit 3 UFSAR with documents referencing applicability to 10 CFR Part 50, Appendix B, and 10 CFR Part 21.

Specifically, the inspectors reviewed a sample of records for continuity of qualifications for welding and NDE personnel, weld maps, weld repair travelers, PWHT records, and NDE reports for the following pressure boundary welds:

- Nozzles to the upper shell welds (including internal cladding and alloy 690 end-buttering):
  - 101-21C (inlet nozzle to upper shell), and
  - 102-21B (outlet nozzle to upper shell);
- Stainless steel safe-end dissimilar metal welds (DSM) using alloy 690:
  - 201-20C (safe-end to inlet nozzle), and
  - 301-20B (safe-end to outlet nozzle);
- Seven CRDM J-groove welds 103-10-5 (G09), -12 (F06), -15 (L09), -27 (L05), -49 (D12), -51 (N11), and -62 (K14);
- Two QIN welds 101-10F (A6) and 101-10G (A7) (including internal cladding and alloy 690 end-buttering);
- Weld joint end-buttering, and internal corrosion-resistant weld metal overlay (CRWMO) cladding with thickness and delta ferrite measurements, and chemical analysis;
- Weld repairs to beltline (core) region girth weld 101-51 (radiographic testing (RT) film location marker 39-40) between the upper and lower shells; and
- NDE after hydrostatic testing.

The inspectors reviewed weld maps to determine whether previously reviewed WPSs, welders and welding operators, and NDE personnel were used during production. In addition, the inspectors reviewed continuity logs for eight welding individuals to determine whether qualifications were maintained in accordance with ASME Section IX, Article III, Welding Performance Qualifications, using dates of qualifications, ranges of essential variables, dates of last production welds, and dates of expirations for various welding processes. The inspectors reviewed two lists of certified NDE personnel with dates of certifications and expirations, and NDE reports to verify NDE was examined, evaluated, and approved by the proper certification level of NDE personnel in accordance with the applicable book sections of the ASME Code.

Specifically, the inspectors reviewed PT reports to verify there were no recordable defects on the surface of the weld. The inspectors reviewed magnetic particle

examination reports to verify proper yoke lifting power, visible light source, and surface temperature requirements were met to ensure adequate performance of the test. The inspectors reviewed radiography examination reports along with associated films to verify there were no rejectable indications in the welds. The inspectors reviewed UT reports supported by calibration records to verify adequate angles and frequencies were used to examine welds (including cladding and buttering), as well as ultrasonic measurement thickness reports to verify cladding and buttering thicknesses met the applicable design documents.

The inspectors reviewed six PWHT records with supporting thermocouple location maps to determine whether the heating/cooling rates and holding times/temperatures were performed in accordance with the requirements of ASME Section III, Subarticle NB-4600, Heat Treatment.

The inspectors reviewed Doosan NCR 14100945, Rev. 4, and WEC deviation notice VS3-MV01-GNR-033 with supporting documents for weld repairs performed on girth weld-no. 101-51 at location marker 39-40 (including use and removal of unauthorized welding material during the in-process weld repair) in the beltline (core) region of the reactor vessel pressure boundary joining the upper shell to the lower shell using subsequent radiography, and the original UT detection method to verify:

- adequate repair dispositions for weld rejects were performed, including removal of the unauthorized welding material heat affected zones;
- welding repairs (including backclad) were performed in accordance with weld repair travelers and ASME Section III, Subarticle NB-4400;
- repair location was re-examined through nondestructive examinations in accordance with applicable procedures and the original acceptance criteria;
- verification of the weld repairs were deemed acceptable; and
- reportability screening and evaluations under 10 CFR Part 21 and 10 CFR 50.55(e) were performed.

b. Findings

No findings were identified.

1A14 (Unit 3) ITAAC Number 2.2.01.03a (93) / Family 06B

a. Inspection Scope

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

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.11-02.03 - Installation and Welding
- 65001.B-02.03 - Welder Qualification
- 65001.F-02.03 - Observation of Fabrication Activities

The inspectors reviewed fit-up and welding activities associated with the attachment of the lower ring to the containment vessel bottom head in the V.C. Summer Unit 3 nuclear island. The inspectors witnessed the fit-up to verify that it was performed in

accordance with ASME Boiler and Pressure Vessel Code (BPVC) Section III and Section IX. The inspectors also witnessed in-process welding and verified that welding was performed by qualified welders using the correct filler material. The inspectors witnessed welding of both Shielded Metal Arc Welding (SMAW) and Submerged Arc Welding (SAW) weld methods. The inspectors also reviewed weld operator and welder qualification documentation to verify that the welders performing the work were qualified in accordance with ASME BPVC Section IX. Additionally, the inspectors reviewed CMTRs for filler metal used in both the SMAW and SAW weld processes to verify compliance with ASME BPVC Section III.

b. Findings

No findings were identified.

1A15 (Unit 3) ITAAC Number 3.3.00.02a.i.a (760) / Family 01F

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.B-02.03-Welder Qualification
- 65001.B-02.04-Production Controls
- 65001.B-02.05-Inspection
- 65001.B-02.06-Records
- 65001.F-02.04-General QA Review

The inspectors observed in-process machine GMAW of weld No. VS3-CA01-VWK-800011-FW-4704-01 located between submodules CA01-47 and CA01-04. The inspectors observed both the root and fill passes. The weld was between two duplex stainless steel plates. CA01-47 is a submodule that is part of the plant north refueling cavity wall. Submodule CA01-04 is a part of three different walls and the corner weld inspected was associated with the portion of the submodule that made up the west wall of the refueling cavity. Specifically, the inspectors reviewed drawings, welding procedures, weld records, welder qualifications and material issue records to determine if the identification of welds and welders was maintained for each weld and the welders were qualified. In addition, the inspectors verified welding parameters such as amperage, voltage, pre-heat temperature, shielding gas flow rate, travel speed, shielding gas type, and that the appropriate type of filler metal used was in accordance with welding procedure specifications

The inspectors observed nondestructive examination for corner weld VS3-CA01-VWK-800009-FW-4819-01. This weld was located between submodules CA01-48 and CA01-19, which are both located inside containment. The weld was between two duplex stainless steel plates. CA01-48 is a submodule that is part of the plant north refueling cavity wall. Submodule CA01-19 is a part of three different walls and the corner weld inspected was associated with the portion of the submodule that made up the west wall of the reactor vessel cavity. Specifically the inspectors observed portions of the PT to verify whether the QC was following proper wait times between cleanings, using the correct chemicals and properly marking indications in accordance with the

liquid penetrant procedure and N690-1994. The inspectors also reviewed the PT report to verify whether traceability to the weld was maintained, were reviewed by an appropriate authority, and met the requirements of the liquid penetrant procedure and N690-1994. The inspectors reviewed the certifications of the person performing the test to verify whether they were qualified per AWS D1.6.

b. Findings

No findings were identified.

1A16 (Unit 3) ITAAC Number 3.3.00.02a.i.a (760) / Family 01F

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.F-02.04 - General QA Review

The inspectors observed in-process manual GTAW for the fill pass of weld No. VS3-CA01-VWK-800057-FW-42-01 located between submodules CA01-42 and CA01-16. The weld joined two carbon steel plates. CA01-42 is in line with the west wall of the refueling cavity and is directly parallel to the east and west pressurizer walls. CA0-16 is part of three different walls, and the weld is on the north wall of the reactor vessel cavity. Specifically, the inspectors reviewed drawings, welding procedures, weld records, welder qualifications and material issue records to determine if the identification of welds and welders was maintained for each weld and the that welders were qualified. In addition, the inspectors verified welding parameters such as amperage, voltage, pre-heat temperature, shielding gas flow rate, travel speed, shielding gas type, and that the appropriate type of filler metal used was in accordance with welding procedure specifications. The inspectors reviewed the welding machine calibration date (serial number WC-151207538), to verify whether it was calibrated.

b. Findings

No findings were identified.

1A17 (Unit 3) ITAAC Number 3.3.00.02a.i.a (760) / Family 01F

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.B-02.05 - Inspection

- 65001.B-02.06 - Records
- 65001.F-02.04 - General QA Review

The inspectors observed nondestructive examination for welds VS3-CA01-VWK-800035-FW-1617-001, 002, and 003, the three welds forming the seam on one side between submodules CA01-16 and CA01-17, which are both located inside containment. All the welds were joining carbon steel plates. CA01-17 is a submodule that is part of the plant west reactor vessel cavity wall. Submodule CA01-16 is a part of three different walls, including the west reactor vessel cavity wall, the north wall of the west steam generator compartment, and the north wall of the reactor vessel cavity. The portion of the CA01-16 submodule that was associated with the weld was the west reactor vessel cavity wall. Specifically the inspectors observed portions of the magnetic particle exam to verify whether the QC had adequate lighting, was using the correct particulate, was varying the field 90 degrees to ensure full coverage of the weld, and was properly identifying indications in accordance with the procedure and N690-1994. The inspectors also reviewed the Magnetic Particle Testing (MT) report to verify whether traceability to the weld was maintained, were reviewed by an appropriate authority, and met the requirements of the magnetic particle examination procedure and N690-1994. The inspectors reviewed the certifications of the persons performing the test to verify whether they were qualified per AWS D1.1.

The inspectors also observed portions of the UT of the weld to verify whether the technician had properly calibrated instrumentation, used the correct couplant, used the correct wedge type and geometry, and was properly identifying indications per their procedure. The inspectors also reviewed the UT report to verify whether traceability to the weld was maintained, were reviewed by an appropriate authority, and met the requirements of N690-1994.

b. Findings

No findings were identified.

1A18 (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.A.02.01 - Observation of in-Process Installation Activities
- 65001.F-02.04 - General QA Review

The inspectors observed and reviewed the installation of reinforcing steel from elevation 82’6” to 90’6” between the plant east side of the containment vessel bottom head and the plant east side shield building walls from column line N to column line Q in Unit 3. The inspectors observed reinforcing steel placement and reviewed applicable design drawings and specifications to determine whether structural concrete work were being performed in accordance with design specifications and approved procedures. Specifically, the inspectors verified:

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

The inspectors observed the placement of self-consolidating concrete within the shield building area under the containment vessel bottom head from elevation 82'6" to 90'6". Specifically, the inspectors performed observations of activities in the field and determined:

- accepted procedures and specifications were followed throughout the concrete placement;
- the equipment used was suitable and sized for the work;
- placement drop distances did not exceed specification requirements and did not result in segregation;
- the licensee had adequate foreign material exclusion controls; and
- the required monitoring during placement was performed by the licensee.

The inspectors also observed concrete testing to determine if it was completed in accordance with specification VS3-CC01-Z0-026, "Safety Related Mixing and Delivering Concrete, Westinghouse Safety Class C Nuclear Safety Related," Rev. 7 and specification VS3-CC01- Z0-027, "Safety Related Concrete Testing Westinghouse Safety Class C Nuclear Safety Related," Rev. 5. Specifically, inspectors observed the following parameters for the sampled batch identified as batch ticket No. 49001 for verification of appropriate mix design, transport time, and placement location. Inspectors confirmed that no water was added at the truck delivery point. The inspectors also observed in-process concrete testing activities and determined that concrete temperature, slump, air content, and unit weight were determined at the proper locations and frequency as required by procedures, specifications, and ASTM standards. Inspectors also determined that sample collection and testing techniques conformed to the procedures, specifications, and ASTM standards.

b. Findings

No findings were identified.

1A19 (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:

- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.F-02.04-General QA Review

The inspectors observed as-built configuration of the vertical and horizontal reinforcing bars for Wall 11 between column lines I and M at elevation 82'6" through 100'0" within the non-radiologically controlled area of the Unit 3 auxiliary building. The inspectors independently measured a sample of horizontal lap splices, reinforcement spacing, shear reinforcement, clear cover dimensions, and vertical development lengths to determine if field conditions conformed to regulatory and design requirements, including ACI Code 349-01. The inspectors determined if:

- the applicable revisions of approved procedures, drawings, and instructions were being followed;
- non-conforming items were clearly identified and dispositioned;
- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program;
- any design changes or field modifications relevant to the work observed were properly controlled and processed in accordance with quality and technical requirements; and
- reinforcing steel was located properly in the structures, secured, free of excess rust, and had proper clearances.

b. Findings

No findings were identified.

1A20 (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
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records

The inspectors performed direct inspection of as-built welds on the Unit 3 CA20 module, which makes up part of the radiation controlled portion of the auxiliary building. Specifically, the inspectors performed a visual inspection of welds connecting the faceplates of modules CA20-26 to CA20-71, CA20-71 to CA20-72 and CA20-72 to CA20-73, which make up a portion of N-line from elevation 66'6" to 135'3" and of welds connecting the faceplates of modules CA20-24 to CA20-28, which make up the intersection of column line L2 to column line 3 from elevation 66'6" to

135'3". Specifically, the inspectors performed a visual inspection to the requirements of AWS D1.1:2000, section 4.8.1 and reviewed weld data sheets associated with the welds.

b. Findings

Introduction

The inspectors identified an ITAAC finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion X, "Inspection," for SCE&G's failure through a contractor, to identify nonconforming welds during safety-related, required quality control inspections. Section 3.8.3.2 of the UFSAR requires compliance with AWS D1.1:2000. The inspections were required by a contractor's QC inspection plan F-S561-007, "AWS D1.1 – Visual Weld Inspection - Carbon Steel." The licensee entered this issue into their corrective action program as CR-NND-16-00854.

Description

On May 17, 2016, the inspectors identified three nonconforming butt welds on Unit 3 CA20 Sub-assembly 3 and 4. The contractor's QC had failed to identify the nonconforming welds during visual inspections. Section 3.8.3.2 of the UFSAR requires compliance with AWS D1.1:2000. Section 5.24.4, "Groove or Butt Welds," of AWS D1.1:2000, "Structural Welding Code - Steel," requires the following: "In the case of butt or corner joints, face reinforcement shall not exceed 1/8 in. (3mm) in height." Specifically, welds VS3-CA20-VWK-220-FW-2671-006, VS3-CA20-VWK-226-FW-7273-006, and VS3-CA20-VWK-223-FW-7172-006 exceeded the allowable reinforcement height. Item number 15 (attribute code W41) of QC inspection plan F-S561-007 requires the QC inspector to verify that, "The amount of weld reinforcement for groove welds does not exceed 1/8" in height as shown on Attachment 2 (Reference AWS D.1.1, Section 5.24.4)." The inspectors determined that the failure to identify nonconforming butt welds during safety-related, required quality control inspections was contrary to the AWS D1.1:2000 Code and the contractor's inspection plan F-S561-007.

Analysis

The inspectors determined that the failure to identify non-conforming welds during safety-related required quality control inspections, represented a performance deficiency. The finding was determined to be more than minor because the issue represented a substantive failure to implement an adequate quality oversight function. The contractor's QC had failed to identify the nonconforming welds during visual inspections of the Unit 3 CA 20 Sub-assembly 3 and 4. The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAAC 763 (3.3.00.02a.i.d). The acceptance criteria of this ITAAC requires the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions. The welds impacted by this deficiency are included within the scope of ITAAC 763, and the excessive weld reinforcement would not have been reconciled by the licensee as required by the ITAAC.

The inspectors concluded that this finding was associated with the Inspection/Testing cornerstone. The inspectors utilized Appendix A of IMC 2519, “Construction Significance Determination Process,” to evaluate the finding. The inspectors determined that the finding was of very low safety significance (Green) because there was reasonable assurance that the CA20 module would have been able to meet its design function. The inspectors screened the finding for a possible construction cross-cutting aspect in accordance with Appendix F, “Construction Cross-Cutting Components and Aspects” of IMC 0613. This finding has a cross-cutting aspect in the area of Human Performance [H.8], Procedure Adherence, because the licensee’s contractor failed to identify nonconforming welds when performing an inspection using a contractor’s QC inspection plan F-S561-007, "AWS D1.1 – Visual Weld Inspection - Carbon Steel."

Enforcement

10 CFR Part 50, Appendix B, Criterion X, "Inspections," requires, in part, that examinations, measurements, or tests of material or products processed shall be performed for each work operation where necessary to assure quality. Item number 15 of the contractor’s inspection plan [QC inspection procedure] F-S561-007, "AWS D1.1 - Visual Weld Inspection - Carbon Steel," Rev. 10, requires QC inspectors to verify that “The amount of weld reinforcement for groove welds does not exceed 1/8” in height as shown on Attachment 2 (Reference AWS D.1.1, Section 5.24.4).” Contrary to the above, on May 17, 2016, the licensee, through its contractor, failed to identify nonconforming butt welds during safety-related, required quality control inspections in accordance with the aforementioned inspection plan and procedure. This violation was entered into the corrective action program as SCE&G Condition Report CR-NND-2016-00854. Because this violation was of very low safety significance (Green) and it was entered into the corrective action program, this violation is being treated as a non-cited violation (NCV 05200028/2016002-02), Failure to Identify Non-conforming Welds During Safety-Related, Required Quality Control Inspections, consistent with Section 2.3.2 of the NRC Enforcement Policy and EGM 11-006.

1A21 (Unit 3) ITAAC Number 3.3.00.02a.ii.a (764) / Family 01A

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures

The inspectors independently measured the thickness of submodule CA02-01 to verify whether the thickness was in accordance with Table 3.3-1 of Appendix C of the V.C. Summer Unit 3 COL. Submodule CA02-01 is a portion of the north east wall of the in-containment refueling water storage tank that goes from elevation 94’ to 134’6”.

b. Findings

No findings were identified.

1A22 (Unit 3) ITAAC Number 3.3.00.02a.ii.a (764) / Family 01A

a. Inspection Scope

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

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

The inspectors independently measured the thickness of the CA01-08 submodule to verify that it was in accordance with Table 3.3-1 of Appendix C of the V.C. Summer Unit 3 COL. The CA01-08 submodule is a corner piece that forms portions of the east and north walls of the east steam generator compartment.

b. Findings

No findings were identified.

1A23 (Unit 3) ITAAC Number 3.3.00.02a.ii.c (766) / Family 01A

a. Inspection Scope

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

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

The inspectors measured the thickness of walls on column line 11 from column line I to column line M between elevation 82'6" to elevation 100'0" to verify that it was in accordance with the requirements of Table 3.3-1 of Appendix C of the V.C. Summer Unit 3 COL. The previously mentioned wall is located in the non-radiological portion of Unit 3 auxiliary building. The thickness was measured after concrete was placed.

b. Findings

No findings were identified.

1A24 (Unit 3) ITAAC Number 3.3.00.02a.ii.c (766) / Family 01A

a. Inspection Scope

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

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

The inspectors measured the thickness of walls on column line I from column line 7.3 to column line 11 between elevation 82’6" to elevation 100’0" to verify that it was in accordance with the requirements of Table 3.3-1 of Appendix C of the V.C. Summer

Unit 3 COL. The previously mentioned wall is located in the non-radiological portion of Unit 3 auxiliary building. The thickness was measured after concrete was placed.

b. Findings

No findings were identified.

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

1P01 Construction QA Criterion 13

a. Inspection Scope

The inspectors reviewed the licensee's procedures on storage of items to determine if they adequately implemented the requirements of 10 CFR Part 50 Appendix B, the Quality Assurance Program Document (QAPD), and NQA-1 1994 edition. The inspectors also reviewed the results of the licensee's last inspection of lay down yard 14 to determine if they were regularly inspecting the area as required by their procedures and NQA-1. Lastly, the inspectors walked down lay down yard 14 to verify if:

- The area was kept clean and orderly
- The area was well drained and did not accumulate water
- Items were clearly marked or labeled for identification
- Items stored outside were stored in a way that prevents the accumulation of water
- Stainless steel items were not stored with carbon steel items
- Level C items were stored indoors and protected from moisture, dirt, and other contaminants that could cause damage or corrosion

b. Findings

No findings were identified.

1P02 Construction QA Criterion 16

a. Inspection Scope

Daily Corrective Action Program Review

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

- classification, prioritization, and evaluation for reportability (i.e., 10 CFR 50.55(e)) of conditions adverse to quality;

- complete and accurate identification of the problem in a timely manner commensurate with its significance and ease of discovery;
- screening of items entered into the corrective action program to determine the proper level of evaluation;
- identification and correction of procurement documents errors, deviations from procurement document requirements, defective items, poor workmanship, incorrect vendor instructions, significant recurring deficiencies at both vendor shops and on site, and generic procurement related deficiencies;
- identification and correction of design deficiencies;
- consideration of extent of condition, generic implications, common cause, and previous occurrences;
- classification and prioritization of the resolution of the problem commensurate with its safety significance;
- identification of corrective actions that are appropriately focused to correct the problem;
- identification of root and contributing causes, as well as actions to preclude recurrence for significant conditions adverse to quality;
- completion of corrective actions is in a timely manner commensurate with the safety significance of the issue;
- provisions for escalating to higher management those corrective actions that are not adequate or not timely; and
- conditions adverse to quality were trended to proactively identify potential adverse trends and potential common cause problems, and the trending results were reported to management.

Routine Review of Items Entered into the Corrective Action Program

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

- the licensee was identifying equipment, human performance, and program issues at an appropriate threshold and were entering the issues into the corrective action program;
- the licensee appropriately classified the issues and took appropriate short-term corrective actions;
- conditions adverse to quality were controlled in accordance with the quality assurance programs; and
- potential adverse trends were appropriately identified and corrected by the licensee.

b. Findings

No findings were identified.

3. OPERATIONAL READINESS

Cornerstones: Operational Programs

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

3P01 Preservice Inspection

a. Inspection Scope

The inspectors performed a review of the VC Summer Unit 2 PSI program plan using the following inspection procedure steps:

- 73054 - Part 52, Preservice and Inservice Inspection - Review of Program
- 73054-02.01 - Program Approval
- 73054-02.02 - Program Organization
- 73054-02.04 - Quality Assurance Program
- 73054-02.05 - Code Repair/Replacement Program Review
- 73054-02.06 - Records
- 73054-02.07 - Qualification of Personnel
- 73054-02.08 - Reporting Requirements
- 73054-02.09 - Relief Requests
- 73754 - Part 52 - Preservice Inspection - Non-Destructive Examination
- 73754-02.02 - Personnel Qualification & Certification
- 73754-02.03 - Non-destructive Examination (NDE) Review

The inspectors reviewed VS2-GW-GEI-100, “AP1000 Preservice Inspection Program Plan for V.C. Summer Unit 2,” Rev. 1 to determine the program's conformance with the regulatory requirements of Title 10 of the Code of Federal Regulations Section 50.55a, the licensee's commitments, and is ready to support the operation of the facility. Specifically, the inspectors reviewed the PSI program plan to determine if:

- Site management and the Authorized Nuclear Inservice Inspector (ANII) reviewed and approved the PSI program plan in accordance with article IWA-2120 of the ASME section XI code
- ASME code cases were in accordance with 10 CFR 50.55a and Regulatory Guide (RG) 1.147, “Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1,” Rev. 17
- Licensee commitments and regulatory requirements pertinent to PSI testing and monitoring were adequately captured and described in the PSI program plan
- The ASME code edition and addenda to be used for PSI is identified and in accordance with 10 CFR 50.55a
- Repair/Replacement activities will be performed in accordance with ASME Section XI requirements
- Submittal of written reports of PSI/Inservice Inspection (ISI) results and repairs/replacements are in accordance with ASME Section XI, IWA-6000
- Guidance regarding the identification and processing of requests for relief from, and alternatives to, ASME Code requirements is in accordance with 10 CFR 50.55a(g)(5)(iii)

The inspectors reviewed a sample of the licensee's and contractor's quality assurance program, implementing procedures, audit records, written practices, training records, and certification records to determine if the QA program and site procedures will support execution of the PSI activities. Specifically, the inspectors reviewed those documents to determine if:

- Procedures adequately defined the authority and responsibilities of persons or organizations involved with the final evaluation of PSI examination results for the licensee
- Procedures were in place and adequate for the generation and maintenance of required PSI records
- Procedures received a quality review to ensure accuracy and acceptableness prior to issuance
- Procedures had been established for corrective actions concerning flaws identified during preservice examination
- Contractor personnel had been trained on the licensee's corrective action program
- Audits and surveillances of preservice inspection activities are performed and done so by qualified auditors
- Procedures had been established to effectively oversee contractor preservice inspection activities
- Procedures had adequately implemented the requirements of ASME Section XI, IWA-6000
- Written practices had specified personnel qualification requirements consistent with the ASME Section XI, American National Standards Institute (ANSI)/American Society of Nondestructive Testing (ASNT) CP-189, and 10 CFR 50.55a

b. Findings

Introduction

Two examples of a programmatic finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawing," were identified by the inspectors for the licensee's failure to address and implement the requirements of ASME section XI, IWA-6211(e), IWA-6230, IWA-6240, and 10 CFR 50.55a in its program procedures.

Description

Example 1:

The inspectors performed a review of the VC Summer Unit 2 PSI Program Plan (VEI-GW-GEI-100), the SCE&G PSI Program Procedure (NND-AP-1000, Rev. 0), and the Westinghouse PSI Program Work Instruction (APP-GW-GAP-155, Rev. 0) to verify that the licensee's program and procedures address the ASME Section XI, IWA-6000, requirements for the submittal of written reports of PSI/ISI results and repairs/replacements. During the review, the inspectors determined that NND-AP-1000 did not adequately address the requirements of ASME Section XI, IWA-6211(e), IWA-6230, and IWA-6240.

ASME Section XI, IWA-6211(e) and IWA-6230 require the Owner to prepare Form NIS-2 (Owner's Report for Repair/Replacement Activities) prior to commercial service, and IWA-6240 requires that the preservice inspection summary report, which includes Form NIS-2, be submitted to the regulatory authority prior to the date of placement of the plant into commercial service. However, licensee procedure NND-AP-1000, Appendix A, "Section XI Owner's Responsibilities," identifies ASME Section XI, IWA-6211(e) as "N/A" and states that the Form NIS-2 (Owner's Report for Repair/Replacement Activities) will not be used.

In response to the inspectors' questions, the licensee stated that they will submit Owner's Activity Reports (Code Case N-532-5). However, the licensee was unable to provide a procedure or other documented evidence to show how ASME Section XI or Code Case N-532-4 will be met. This issue was entered into the licensee's corrective action program as CR-NND-16-00750.

Example 2:

The inspectors performed a review V.C. Summer Unit 2 PSI Program Plan (VEI-GW-GEI-100), and the SCE&G Procedure for Relief Requests and Proposed Alternatives Pursuant to 10 CFR 50.55a during Construction (NND-LIC-009, Rev. 3) to verify that the licensee's process for the submittal of relief requests and proposed alternatives complied with the requirements of 10 CFR 50.55a. During the review, the inspectors determined that licensee procedures VEI-GW-GEI-100 and NND-LIC-009 did not comply with the requirements of 10 CFR 50.55a.

Procedure VEI-GW-GEI-100 states that request for relief based on impracticality shall be submitted for NRC staff for review and approval after attempts have been made to perform the subject examinations. The document also states that these requests are to be submitted to and be approved by the NRC staff not later than 12 months after the end of the preservice examination completion, pursuant to 10 CFR 50.55a(g)(5)(iv). However, relief may not be requested during preservice inspection because the provisions of 10 CFR 50.55a(g)(5)(iv) are only applicable to the initial and subsequent 120-month inspection intervals. As written, procedure VEI-GW-GEI-100 does not comply with 10 CFR 50.55a.

Procedure NND-LIC-0009 states that its purpose is to describe all activities required to initiate and process relief requests or proposed alternatives to Code requirements requiring NRC approval in accordance with 10 CFR 50.55a. However, 10 CFR 50.55a does not allow the submittal of relief requests prior to the initial 120 month inspection interval. As written, procedure NND-LIC-009 does not comply with 10 CFR 50.55a.

In response to the inspectors' questions, the licensee stated that are aware that relief requests are not allowed during preservice inspection and that, to date, only the alternative process has been used. However, the licensee was unable to provide documented evidence that relief requests will not be submitted during preservice inspection as allowed by their program plan and procedure. This issue was entered into the licensee's corrective action program as CR-NND-16-00754.

Analysis

The inspectors determined that the licensee's failure to provide a procedure that adequately addresses the requirements of ASME Section XI, IWA-6211(e), IWA-6230, and IWA-6240 and the licensee's failure to provide a PSI program plan and procedure that complies with the requirements of 10 CFR 50.55a was contrary to Criterion V of 10 CFR Part 50, Appendix B and was a performance deficiency. The finding was determined to be more than minor because the issue was similar to the "not minor if" statement in Example 7 of IMC 0613, Appendix E. Specifically:

- NND-AP-1000 does not discuss how the licensee will prepare and submit Form NIS-2 or an Owner's Activity Report (Code Case N-532-5). Therefore, the licensee's capability to meet the requirements of ASME Section XI, IWA-6211(e), IWA-6230, and IWA-6240, was indeterminate.

- VEI-GW-GEI-100 and NND-LIC-0009 allow the submittal of relief requests prior to the initial 120 month inspection interval (i.e., during preservice inspection). Therefore, the licensee's process did not comply with 10 CFR 50.55a and was unacceptable.

The inspectors concluded this finding was associated with the Operational Readiness / Operational Programs cornerstone. The inspectors utilized IMC 2519, "Construction Significance Determination Process," to evaluate the finding. They determined that the finding was of very low safety significance (Green).

The inspectors screened the finding for a possible construction cross-cutting aspect in accordance with Appendix F, "Construction Cross-Cutting Components and Aspects" of IMC 0613. This finding has a cross-cutting aspect in the area of Human Performance (Documentation) (H.7) because the licensee failed to maintain complete and accurate documentation with respect to the PSI program. Specifically:

- The V.C. Summer Unit 2 PSI Program Plan (VEI-GW-GEI-100), the licensee had established the requirement that either a PSI summary report, in accordance with IWA-6230, or an Owner's Activity Report, in accordance with Code Case N-532-5, would be submitted prior to commercial service, but failed to ensure that this requirement was translated into the procedures.

- The V.C. Summer Unit 2 PSI Program Plan (VEI-GW-GEI-100), the licensee established a requirement for the submittal of relief requests during preservice inspection that did not comply with 10 CFR 50.55a. This requirement was also translated into procedure NND-LIC-0009.

Enforcement

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

Contrary to the above, as of 05/10/2016, two examples were identified in which activities affecting quality were not adequately prescribed by documented procedures or instructions. Specifically:

- The licensee's PSI program procedure NND-AP-1000, "Preservice Inspection (PSI) Program," did not did not adequately address the requirements of ASME Section XI, IWA-6211(e), IWA-6230, and IWA-6240. In this case, the NND-AP-1000 contained no requirement to submit a preservice inspection summary report, which includes Form NIS-2, to the regulatory authority prior to the date of placement of the plant into commercial service.

- The VEI-GW-GEI-100 "AP1000 Preservice Inspection Program Plan for V.C. Summer Unit 2" and NND-LIC-0009, "Relief Requests and Proposed Alternatives Pursuant to 10 CFR 50.55a During Construction" provided a process for submitting relief requests during preservice examination that does not comply with 10 CFR 50.55a.

Because this violation was of very low safety significance (Green) and it was entered into the licensee's corrective action program as CR-NND-16-00750 and CR-NND-16-

00754, this violation is being treated as a non-cited violation (NCV 05200027/2016002-03).

4. OTHER INSPECTION RESULTS

4OA6 Meetings, Including Exit

.1 Exit Meeting.

On July 20, 2016, the inspectors presented the inspection results to Ron Jones, Vice President of New Nuclear Operations, V.C. Summer 2 & 3, along with other licensee and WECTEC staff members. The inspectors stated that no proprietary information would be included in the inspection report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensees and Contractor Personnel

SCE&G
J. Bouknight, Licensing Manager
K. Brown, Licensing
L. Cunningham, Quality Systems Manager
M. Fanguy, Engineering Supervisor
T. Herring, Quality Control Supervisor
N. Kellenberger, ITAAC Manager
A. Rice, Licensing Manager
G. Sanders, Licensing
A. Sterdis, Plant Support Engineering Manager
B. Stokes, Engineering Services General Manager
R. Thompson, Design Engineering Supervisor

WEC/WECTEC
C. Baucom, Licensing
D. Beauchamp, Quality Director
B. Bedford, Licensing Engineer
J. Cole, Licensing Manager
B. McIntyre, Licensing and Nuclear Safety Director
K. Spinola, Procurement Engineer
P. Young, Technical Services Director

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Type	Status	Description
05200027/2016002-01	Non Cited Violation	Open	Failure to Properly Translate Design Requirements (Section 1A03)
05200028/2016002-02	Non Cited Violation	Open	Excessive Reinforcement on Unit 3 CA20 Welds (Section 1A20)
05200027/2016002-03	Non Cited Violation	Open/Closed	Unacceptable 10CFR50.55a(g)(5)(iv) interpretation (Section 3P01)

LIST OF DOCUMENTS REVIEWED

Section 1A01

Calculations:

APP-IDS-E0C-004, “IDS Power Cable Sizing and Voltage Drop Analysis,” Rev. 2
APP-G1-EWC-002, “Development of Power Cable Ampacities,” Rev. 2
APP-IDS-E0C-008, “IDS Powered Motor Operated Valve and IDS System Cable Lengths,” Rev. 2
APP-IDS-E0C-009, “IDS Powered Air and Solenoid Operated Valve, Plant Monitoring System Cabinets, and Switchgear Cable Lengths,” Rev. 2
Cabinets, and Switchgear Cable Lengths, Rev. 2

Drawings:

APP-1100-ER-200, “Containment Building Ex Core Instrumentation Embedded Conduit Plan, Sections and Details. Construction Number: VS2-1100-ER-200-R4., Rev. 5
APP-1100-ER-201, “Containment Building Ex Core Instrumentation Embedded Conduit Div. B Isometric View. Construction Number: VS2-1100-ER-201-R5., Rev. 6
10077D05, “AP1000 Reactor Coolant Pump Switchgear Wiring Schematic,” Rev. 3
APP-IDS-E3-011, “Class 1E UPS System One Line Meter & Relay Diagram Division A,” Rev. 1
APP-RCS-E5-PLV011A01, “Combined Wiring Diagram APP-RCS-PL-V011A First Stage ADS Isolation Valve A SH 1 of 4, Rev. 2
APP-RCS-E5-PLV011A02, “Combined Wiring Diagram APP-RCS-PL-V011A First Stage ADS Isolation Valve A SH 2 of 4, Rev. 2
APP-IDSB-E3-DD101, “Panel Schedule IDSB-DD-1 250 VDC Distribution Panel Auxiliary Bldg, Rev. 3
APP-RCS-E5-PLV004A01, “Combined Wiring Diagram APP-RCS-PL-V004A Class 1E Squib Valve SH 1 of 2, Rev. 0
APP-RCS-E5-PLV004A02, “Combined Wiring Diagram APP-RCS-PL-V004A Class 1E Squib Valve SH 2 of 2, Rev. 1
APP-1231-ER-101, “Auxiliary Building Area 1 Conduit Arrangement Plan at Elevation 100’-0,” Rev. 11
APP-1231-ER-104, “Auxiliary Building Area 1 Conduit Arrangement Plan at Elevation 100’-0” Room 12305 & 12300 (Partial), Rev. 2
APP-RCS-E5-PLV002A02, “Combined Wiring Diagram APP-RCS-PL-V002A Second Stage ADS Isolation Valve A SH 2 of 4,” Rev. 1
APP-RCS-E5-PLV003A03, “Combined Wiring Diagram APP-RCS-PL-V002A Second Stage ADS Isolation Valve A SH 3 of 4,” Rev. 1
APP-RCS-J5-100201, “Inst Loop Wiring Diag RCS System 2-Wire-PMS PWRD Class 1E Instrs-Inside Containment to Outside CAB Junction Box,” Rev. 1
APP-RCS-E5-PLV011A03, “Combined Wiring Diagram APP-RCS-PL-V011A First Stage ADS Isolation Valve A Sh 3 of 4,” Rev. 1
APP-RCS-E5-PLV011A02, “Combined Wiring Diagram APP-RCS-PL-V011A First Stage ADS Isolation Valve A Sh 2 of 4,” Rev. 1
APP-RXS-E5-JENE0002, “Combined Wiring Diagram APP-RXS-JE-NE NIC Power Range Neutron Detector SH 2 of 2,” Rev. 1
APP-PXS-E5-PLV014B01, “Combined Wiring Diagram APP-PXS-PL-V014B CMT Discharge Isolation Valve Sh 1 of 2,” Rev. 1
APP-PXS-E5-PLV014B02, “Combined Wiring Diagram APP-PXS-L-V014B CMT Discharge Isolation Valve Sh 2 of 2,” Rev. 1

APP-CCS-E5-PLV20003, “Combined Wiring Diagram APP-CCS-PL-V200 CCS Supply Containment Isolation Valve-ORC Sheet 3 of 4,” Rev. 2
APP-CCS-E5-PLV20002, “Combined Wiring Diagram APP-CCS-PL-V200 CCS Supply Containment Isolation Valve- ORC Sheets 2 of 4,” Rev. 2
APP-PXS-E5-PLV123A01, “Combined Wiring Diagram APP-PXS-PL-V123A IRWST Injection Isol. Valve SH 1 of 2,” Rev. 1
APP-PXS-E5-PLV123A02, “Combined Wiring Diagram APP-PXS-PL-V123A IRWST Injection Isol. Valve Sh 2 of 2,” Rev. 1
APP-PMS-E5-JDILCB0401, “Combined Wiring Diagram Integrated Logic Cabinet 04 Div. B APP-PMS-JD-ILCB04,” Rev. 0
APP-PMS-E5-JDILCAB0101, “Combined Wiring Diagram Integrated Logic Cabinet 01 Div. B APP-PMS-JD-ILCB01,” Rev. 0
APP-RCS-E5-PLV011A1, “Combined Wiring Diagram APP-RCS-PL-V011A Fist Stage ADS Isolation Valve A Sh1 of 4,” Rev. 2
APP-CSS-E5-PLV20001, Combined Wiring Diagram APP-CCS-PL-V200, CCS Supply Containment, Isolation Valve - ORC, Sheet 1of 4, Rev. 1
APP-CSS-E5-PLV20002, Combined Wiring Diagram APP-CCS-PL-V200, CCS Supply Containment, Isolation Valve - ORC, Sheet 2 of 4, Rev. 2
APP-CSS-E5-PLV20003, Combined Wiring Diagram APP-CCS-PL-V200, CCS Supply Containment Isolation Valve - ORC, Sheet 3 of 4, Rev. 2
APP-CSS-E5-PLV20003, Combined Wiring Diagram APP-CCS-PL-V200, CCS Supply Containment Isolation Valve - ORC, Sheet 4 of 4, Rev. 1
APP-ECS-E9-030, Conduit Notes and Details, Sheet 1, Rev. 6
APP-ECS-E9-031, Conduit Notes and Details, Sheet 2, Rev. 8
APP-ECS-E9-040, Electrical Raceway and Cable Identification Markers, Rev. 0
APP-PXS-E5-PLV014B01, Combined Wiring Diagram APP-PXS-PL-V014B, CMT Discharge Isolation Valve, Sheet 1 of 2, Rev. 1
APP-PXS-E5-PLV014B02, Combined Wiring Diagram APP-PXS-PL-V014B, CMT Discharge Isolation Valve, Sheet 2 of 2, Rev. 1
APP-PXS-E5-PLV123A01, Combined Wiring Diagram APP-PXS-PL-V123A, IRWST Injection Isol. Valve, Sheet 1 of 2, Rev. 1
APP-PXS-E5-PLV123A02, Combined Wiring Diagram APP-PXS-PL-V123A, IRWST Injection Isol. Valve, Sheet 2 of 2, Rev. 1
APP-RCS-E5-PLV81C01, Combined Wiring Diagram APP-RCS-PLV, Solenoid Operated Valve, Sheet 1 of 3, Rev. 1
APP-RCS-E5-PLV81C02, Combined Wiring Diagram APP-RCS-PLV, Class 1E, Solenoid Operated Valve, Sheet 2 of 3, Rev. 0
APP-RCS-E5-PLV81C03, Combined Wiring Diagram APP-RCS-PLV, Class 1E, Solenoid Operated Valve, Sheet 3 of 3, Rev. 0
APP-RCS-J5-100201, Inst Loop Wiring Diagram, RCS System, 2-Wire-PMS PWRD Class 1E, Instrs-Inside Containment to outside CAB Junction Box, Rev. 1
APP-RCS-J5-100601, Inst Loop Wiring Diagram, RCS System, 8-Wire-PMS PWRD Class 1E, Instrs-Inside Containment to outside CAB Junction Box, Rev. 0
APP-RCS-E5-PLV004A01, Combined Wiring Diagram, APP-RCS-PL-V004A, Class 1E, Squib Valve, Sheet 1 of 2, Rev. 0
APP-RCS-E5-PLV004A02, Combined Wiring Diagram, APP-RCS-PL-V004A, Class 1E, Squib Valve, Sheet 2 of 2, Rev. 1
APP-RCS-RXS-E5-JENE002, Combined Wiring Diagram, APP-RXS-JE-NE, NIC Power Range, Neutron Detector, Sheet 2 of 2, Rev. 1

APP-RCS-E5-JEST0202, Combined Wiring Diagram, APP-RCS-JE-ST, NIC Reactor Cooling Pumps, Speed Reference Sensors, Sheet 2 of 2, Rev. 1
APP-RXS-E5-JENE002A01, Combined Wiring Diagram APP-RXS-JE-NE002A, NIC Intermediate Range Neutron Detector, Division "A," Rev. 1
APP-1100-ER-200, Containment Building Ex Core Instrumentation Embedded Conduit, Plan, Sections and Details, Rev. 5
APP-1100-ER-201, Containment Building Ex Core Instrumentation Embedded Conduit Div. B Isometric View, Rev. 6
VS2-1110-CEK-001, Leg support for EX-Core, Instrumentation Embedded Conduits, El. 71'-6" Inside Containment, Rev. B
APP-1130-ER-101, Conduit Layout Containment Building, SG West Compartment, El. 107'-2"-116'-0," Rev. 4
VS2-ECS-E9-040, Electrical Raceway and Cable Identification Markers, Rev. 0
APP-1030-AF-001, Fire Area Drawing Nuclear Island, Plan Elevation 100'-0" & 107' 2," Rev. 6
APP-1040-AF-001, Fire Area Drawing Nuclear Island, Plan Elevation 117'6', Rev. 5
APP-1230-P3-001, Auxiliary Building Equipment Location Plan Elevation 100'-0" Areas 1& 2, Rev. 2
APP-1232-ER-101, Auxiliary Building Area 2 Conduit Arrangement Plan Elevation 100'-0', Rev. 11
APP-1240-P3-002, Auxiliary Building Equipment Location Plan Elevation 117'-6" Areas 3 & 4, Rev. 2
APP-1242-ER-101, Auxiliary Building Area 2 Conduit Arrangement Plan At Elevation 117'-6', Rev 9
APP-1243-ER-103, Auxiliary Building Area 3 Class 1E Conduit Arrangement Plan at Elevation 117'-6," Rev. 2
APP-GW-N4R-003, Fire Protection Analysis Report, Rev. H
NCSP03-02, Electrical Raceway Installation, Rev. 3.01

Raceway Drawings:
APP-1123-ER-102, "Conduit Layout Containment Building 11207 PXS-B Room EL 98'0" to 107'-2"," Rev. 6
APP-1154-ER-101, "Conduit Layout Containment Building Area 4 EL 135'-3"-180'-0"," Rev. 9
APP-1231-ER-001, "Auxiliary Building Area 1 Class 1E Cable Tray Arrangement Plan at Elevation 100'-0"," Rev. 10
APP-1242-ER-101, "Auxiliary Building Area 2 Conduit Arrangement Plan At Elevation 117'-6"," Rev. 9
APP-1152-ER-803, "Conduit Layout Sections Containment Building Area 2 EL 135'-3"-180'-0"," Rev. 6
APP-1133-ER-103, "Conduit Layout Containment Building Area 3 EL 107'2"-118'-6"," Rev.7
APP-1133-ER-013, "Tray Layout Containment Building Area 3 EL 107'2"-118'-6" Div C Trays," Rev. 3
APP-1143-ER-007, "Tray Layout Containment Area 3 EL 118'-6"-135'-3"," Rev. 3

Specifications:
APP-EA03-Z0-001, Design Specification – Appendix F "Fuse Panel Layout" and "Appendix F.2 APP for Interface with DV01," Rev. 6
APP-EW60-Z0-001, "Class 1E Control Cables," Rev. 1
APP-EW50-Z0-001, "Class 1E Low Voltage 600V Power Cables," Rev. 1
APP-EW21-ZO0-002, "Instrumentation and Thermocouple Extension Cables," Rev. 1
APP-EW21-ZOD-002, "Instrumentation and Thermocouple Extension Cables (Class 1E) Data sheet, Rev. 1

APP-EW25-Z0-002, “AP1000 Design Specification for the In-core Instrument System (IIS) Mineral Insulated Cable Assemblies,” Rev. 1
APP-G1-V8-001, “AP1000 Electrical Installation Specification,” Rev. 4
APP-GW-E1-001, “Electrical Systems Design Criteria,” Rev. 0
APP-G1-E1-003, “Raceway Design, Discipline Design Criteria,” Rev. 3
APP-EW50-ZOD-001, Westinghouse, Class 1E Low Voltage 600V Cables Data Sheet, Rev. 1
APP-EW70-ZO-001, Westinghouse, Non-Class 1E Control Cables, Rev. 1
APP-EW21-Z0-005, AP1000 Instrumentation Cable Design Specification for Instrumentation & Control System Use Outside of Containment, Class 1E Applications, Rev. 1
APP-EW21-Z0-006, AP1000 Instrumentation Cable Design Specification for Instrumentation & Control System Use Outside of Containment, Non-Class Class 1E Applications, Rev. 1
APP-ECS-GEF-875000, Changes to Cable Specification, Rev. 0
APP-EW31-Z0-001, Fiber Optic Cables, Rev. 0
APP-EW31-Z0-002, AP1000 Fiber-Optic Design Specification for Instrumentation & Control System Use Outside of Containment, Non-Class 1E Application, Rev. 2
APP-EW31-Z0-003, AP1000 Fiber Optic Design Specification for Instrumentation & Control System Use Outside of Containment, Non-Class 1E Application, Rev. 0
APP-EW31-Z0-004, AP1000 Fiber Optic Design Specification for Instrumentation & Control Use Outside of Containment, Non-Class 1E Application, Rev. 0
APP-EW50-ZOD-001, Class 1E Low Voltage 600V Cables Data Sheet, Rev. 1
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VS2-G1-V8-001: AP1000 Electrical Installation Specification, Rev. 4
APP-EW50-ZO-001, Class 1E Low Voltage 600V Cables, Rev.1
APP-EW60-Z0-001, Class 1E Control Cables, Rev. 1
APP-GW-E1R-003-RA, IEEE 384 Compliance Report of Class 1E Raceway Design- Exception to Fully Enclosed Raceway Criteria, Rev. A
APP-EW21-E1-001, AP1000 Standard Raceway and Cable Separation and Segregation, Rev.3

Procedures:
Domestic AP1000 Project Procedure, DAPP 05-21, AP1000 PROJECT IMPLEMENTATION PLAN OF CABLE MANAGER, Rev. 1
Nuclear Construction and Startup Procedure – NCSP 02-25, “Construction Developed Inspection Planning,” Rev. 0
APP-GW-GAP-420, “Engineering and Design Coordination Reports,” Rev. 10
Nuclear Construction and Startup Procedure – NCSP 02-12, “Construction Quality Completion Program,” Rev. 5.04
Nuclear Quality Standard – QS 14.02, “Inspection Report System,” Rev. 6
Nuclear Construction and Startup Procedure – NCSP 03-82, “Electrical Raceway Installation,” Rev. 03.01
Nuclear Construction and Startup Procedure – NCSP 03-83, “Insulated Cable Installation,” Rev. 01.01
Nuclear Construction and Startup Procedure – NCSP 03-81, “Shaw Cable Manager (SCM) Database System Implementation,” Rev. 01.01
Nuclear Construction and Startup Procedure – NCSP 03-84, “Cable Splices, Connections, and Terminations,” Rev. 01.01
APP-GW-GMP-006, “AP1000 Component Numbering Procedure,” Rev. 9
APP-G1-E1-003, Raceway Design, Discipline Design Criteria, Rev. 3
DTP-E-N-50007-02, Electrical Drawing Review Procedure, Rev. 02
NPP 10-01, Material Receipt, Storage, and Control, Rev. 05.00
QS 02.07, CBI User’s Manual (UM), Shaw Cable Manager EL-111, Rev. 03
QS 17.01, WECTEC, Quality Assurance Records System, Rev. 04.01

132175-516-003-00001, WECTEC, Record & Information Management, Rev. 02

Performance and Documentation Plans:

APP-RCS-ITH-013, “Standard Plant ITAAC 2.1 02.07a.ii Performance and Documentation Plan,” Rev. 0
APP-RXS-ITH-022, “Standard Plant ITAAC 2.1 03.09a.ii Performance and Documentation Plan,” Rev. 0
APP-CNS-ITH-006, “Standard Plant ITAAC 2.2 01.06a.ii Performance and Documentation Plan,” Rev. 0
APP-PXS-ITH-023, “Standard Plant ITAAC 2.2 03.07a.ii Performance and Documentation Plan,” Rev. 0
APP-11 OO-ITH-014, “Standard Plant ITAAC 3.3 00.07a.a Performance and Documentation Plan,” Rev. 0
APP-1200-ITH-011, “Standard Plant ITAAC 3.3 00.07a.b Performance and Documentation Plan,” Rev. 0
APP-1200-ITH-012, “Standard Plant ITAAC 3.3 00.07a.c Performance and Documentation Plan,” Rev. 0
APP-11 OO-ITH-002, “Standard Plant ITAAC 3.3 00.07b.a Performance and Documentation Plan,” Rev. 0
APP-1200-ITH-004, “Standard Plant ITAAC 3.3 00.07b.b Performance and Documentation Plan,” Rev. 0
APP-1200-ITH-005, “Standard Plant IT AAC 3.3 00.07b.c Performance and Documentation Plan,” Rev. 0
APP-1200-ITH-008, “Standard Plant ITAAC 3.3 00.07d.i Performance and Documentation Plan,” Rev. 0
APP-1100-ITH-003, “Standard Plant ITAAC 3.3.00.07d.ii.a, 3.3.00.07d.iii.a, 3.3.00.07d.iv.a, 3.3.00.07d.v.a Performance and Documentation Plan,” Rev. 1
APP-1200-ITH-009, “Standard Plant ITAAC 3.3.00.07d.ii.b, 3.3.00.07d.iii.b, 3.3.00.07d.iv.b, 3.3.00.07d.v.b Performance and Documentation Plan,” Rev. 1
APP-1200-ITH-010, “Standard Plant ITAACs 3.3 00.07d.ii.c, 3.3 00.07d.iii.c, 3.3 00.07d.iv.c, 3.3 00.07d.v.c Performance and Documentation Plan,” Rev. 0
APP-EFS-ITH-003, “Standard Plant ITAAC 3.3 00.07e Performance and Documentation Plan,” Rev. 0
APP-1200-ITH-006, Westinghouse, Standard Plant ITAAC 3.3.00.07c.i.a Performance and Documentation Plan, Rev. 0

Shaw Cable Management Cable Routing Reports:

Associated with RCS-PL-V002A
- Filtered by Equipment ID Contains IDSC-DK-1, dated by May 25, 2016
- Filtered by Equipment ID Contains PMS-JD-ILCC02, dated by May 25, 2016
- Filtered by Equipment ID Contains APP-RCS-EJ-PLV002A, dated by May 3, 2016

Associated with RCS-JE-PT191A, RCS-JE-PT140A
- Filtered by Equipment ID contains IDSA-EY-P11Z-ORC, dated May 25, 2016
- Filtered by Equipment ID contains APP-RCS-EJ-PT140A, dated May 3, 2016
- Filtered by Equipment ID contains APP-RCS-EJ-PT191A, dated May 3, 2016

Associated with RCS-PL-V011A
- Filtered by Equipment ID contains APP-RCS-EJ-PLV011A, dated May 3, 2016
- Filtered by Equipment ID contains IDSA-DK-1, dated May 25, 2016
- Filtered by Equipment ID contains PMS-JD-ILCA03, dated May 25, 2016

Associated with Intermediate Range Neutron Detector
- Filtered by Equipment ID contains PMS-EJ-002A, dated May 25, 2016

Filtered by Equipment ID contains PMS-JD-NICA01, dated May 25, 2016
Filtered by Equipment ID contains IDSA-EY-P11Z-ORC, dated May 25, 2016
Associated with PXS-PL-V014B
Filtered by Equipment ID contains IDSC-DD-1 dated May 25, 2016
Filtered by Equipment ID contains PMS-JD-ILCC01 dated May 25 2016
Associated with CCS-PL-V200
Filtered by Equipment ID contains APP-CCS-EJ-PLV200 dated May 3, 2016
Associated with PXS-PL-V123A
Filtered by Equipment ID contains PMS-JD-SVCB01
Filtered by Equipment ID contains APP-PXS-EJ-PLV123a (Note: Also P30 Penetration associated with this)
Associated by P30
Filtered by Equipment ID contains APP-IDSB-Ey-P30Z
Filtered by Equipment ID contains APP-PMS-JD-BCCC02

Shaw Cable Manager Cable in Raceway Reports:
Associated with PXS-PL-V123A Filtered by Raceway ID Contains 1154-er-bzc13 dated May 26, 2016
Associated with P30 Filtered by Raceway ID Contains 1133-er-czt01b dated May 26, 2016
Associated with RCS-PL-V002A, Filtered by Raceway ID Contains 1143-er-czt01a dated May 26, 2016
Associated with RCS-PL-V011A Filtered by Raceway ID Contains 1152-ER-AYC01 dated May 26, 2016
Associated with RCS-PT-140A Filtered by Raceway ID Contains 1133-er-azc22 dated May 26, 2016
Associated with RCS-PT-191A Filtered by Raceway ID Contains 1133-ER-AZC12 dated May 26, 2016
Associated with RXS-JE-NE002A Filtered by Raceway ID Contains 1242-er-azc04 dated May 26, 2016
Associated with CCS-PL-V200 Filtered by Raceway ID Contains 1231-ER-Dxt01EA
Associated with PXS-PL-V014B Filtered By Raceway ID Contains 1123-ER-CZC09

Miscellaneous:
General Cable Memorandum - Report # W05162016 “Qualification Sample Correlation for ULTROL 60+ Cables for CB&I, dated: May 16, 2016.
Report W05162016, Qualification Sample Correlation for UTROL 60+ Cables for CB&I, Rev. 1, dated May 25, 2016
Westinghouse Memo dated: 9/8/2015, Reference: DCP_SHW_003321, Subject: Bounding Values with Respect to the Domestic AP1000 IDS Powered Motor Operated Valves and IDS System Cable Lengths.
NCTR 11-014, “Technical Manual for NY-10866 – Intermediate Range Detectors Assembly Fission Chamber” (cable: RXS-JE-NE-002A / W-10ZTR1AX-NIS-MI), Rev. 04
APP-JE92-J0M-002, “AP1000 Protection and Safety Monitoring System Nuclear Instrumentation System Intermediate Range Detector Technical Manual,” Rev. 3
E&DCR No. APP-ER02-GEF-850015, “Electrical Raceway Spacing,” Rev. 0
CAPAL – 100170963 Coordination of Fuses for RCP Switchgear. Based on Non-conformance vendor inspection.
EL-111, “User’s Manual for the SCM,” Rev. 1
W05162016, General Cable Report, Memorandum Qualification Sample Correlation for ULTROL 60+ Cables for CB&I, Rev. 0

Shaw Cable Manager - EL-113, Cable Routing, Job order number 1268970400, Equipment ID APP-RCS-EJ-PLV150A, print date 03-May-2016
Shaw Cable Manager - EL-113, Cable Routing, Job order number 1268970400, Equipment ID APP-RCS-JE-ST281, print date 03-May-2016
Shaw Cable Manager - EL-113, Cable Routing, Job order number 1268970400, Equipment ID APP-PXS-EJ-PLV014B, print date 03-May-2016
Shaw Cable Manager - EL-113, Cable Routing, Job order number 1268970400, Equipment ID APP-PXS-EJ-PLV123A, print date 03-May-2016
Shaw Cable Manager - EL-113, Cable Routing, Job order number 1268970400, Equipment ID APP-RXS-JE-NE002A, print date 03-May-2016
Shaw Cable Manager - EL-113, Cable Routing, Job order number 1268970400, Equipment ID APP-RCS-EJ-PLV004A, print date 03-May-2016
Shaw Cable Manager - EL-113, Cable Routing, Job order number 1268970400, Equipment ID APP-CCS-EJ-PLV200, print date 03-May-2016
02-3256, General Cable drawing, Shaw Mark Number S-6Z1TWSPR-16, Rev. 1
Shaw Cable Manager - EL-113, Cable Termination Ticket, Job order number 1268970400, Document No. APP-RCS-EW-PLV004ARZC (TTF), Cable Mark No. S-6Z1TWSPR-16print date 23-May-2016
APP-EW50-VTR-850004, HELB (Zone 5 & 10) Environmental Qualification Report for 60 Year Service Life Class 1E; Ultrol 60+ Low Voltage Insulated Single Conductor Cables, Low Voltage Jacketed Cables and Non-Class 1E Medium Voltage Cables for AP1000 Nuclear Plants, Rev. 2
APP-EW50-VTR-85005, Environmental Qualification Report for 60 Year Normal Service Life Non-Class 1E and Class 1E Outside Containment, Rev. 2
APP-EW50-VTR-850014, LOCA/MSLB (Zone 1) Environmental Qualification Operability Report for 60 Year Service Life Class 1E ULTROL 60+ Low Voltage Jacketed Cables and Non-Class 1E Medium Voltage Cables Submersed in Hot Boric Acid Solution for AP1000 Nuclear Plants, Rev. 1

Work Package:
VS2-1100-ERW-017-ITAAC, Install -Embedded Raceway In Containment\Building Ex Core Instrumentation DIV. 8 Inside CVBH Elev. 79ft To 107ft, Safety Class: C, Seismic Category: NS, Rev. 0

Qualification Reports:
K-W2014-AP1000-2, LOCA/MSLB (Zone 1) Environmental Qualification Report for 60 year Service Life Class 1E, Ultrol 60+ Low Voltage Insulated single conductor cables, low voltage Jacketed Cables and Non-Class 1E Medium Voltage Cables for AP1000 Nuclear Plants, Rev. 2

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QS 13.11, Material Equipment Storage, Rev. 1
APP-PMS-J0M-003, Protection and Safety Monitoring System - Technical Manual, Rev. 0
APP-PMS-J0M-005, Protection and Safety Monitoring System Nuclear Instrumentation System - Technical Manual, Rev. 1
VS2-15-793, Bill of Lading for Unit 2 PMS cabinets, 12/16/2015
VS2-15-813&793, Bill of Lading for Unit 2 PMS cabinets, 12/16/2015
221356-WHSE20B, Farienhart, DewPoint, and Humidity Charts, from 12/14/2015 through 4/18/2016
132177-MTR-10075, Material Transfer report for PMS Cabinets, 4/12/2016

132177-MTR-10076, Material Transfer report for PMS Cabinets, 4/12/2016
235813-WHSE57, Farienhart, DewPoint, and Humdity Charts from 4/11/2016 to 5/19/2016

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VS2-1130-C0W-001-ITAAC, Installation of Rebar and Embeds and Placement of Concrete for Layer 6, EL 87'-6" to 94'-0"
VS2 -1130-COW-850003, Installation of Rebar, Embeds, Formwork and Placement of Concrete for Layer 6 East
Miscellaneous Documents Associated with TDL VS2-1130-C0W-001-ITAAC, 3/23/2016
Miscellaneous Documents Associated with TDL VS2 -1130-COW-850003, 3/23/2016
APP-CE01-GEF-039, Straightening of Tested Deformed Wire Anchors, Rev. 0
APP-ML05-GEF-850007, Material Substitution CA01 Sleeves, Rev. 0
VSG-CE01-GEF-000038, Straightening of Tested DWA, Rev. 0
VS2-CE01-GNR-000244, NCR 1399 VC Summer 2, Rev. 0
APP-1100-GEF-306, E&DCR for Removing the CA04 Top Flange, Rev. 0
APP-1100-GEF-295, “CA01 B Plates, B-59 Through B-64, Interfere with Top Mat Reinforcement Bars,” Revision (Rev.) 0
APP-1100GEF-312, “Reinforcement Interferences with Pipe Line SFS-PL-L033,” Rev. 0
APP-1110-GEF-106, “Concrete Reinforcement Layer 5 through 7 Inside Containment to detail Type 1MRC bars and solve interferences with CA01 channels,” Rev. 0
VS2-1110-CR-103, “Containment Concrete Reinforcement from El. 83’-0” Up to El. 96’-0” Type 1/5/6 Details,” Rev. 0
VS2-1120-VWK-800006, “VS2-1130-C0W-850003, Type 5CR/5CP Installation to CA01 Module Weld Map,” Rev. A

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Specifications:
VS2-CC01-Z0-031, Safety Related Placement of Concrete and Reinforcing Steel, Westinghouse Seismic Category I and II, Safety Class C "Nuclear Safety,” Westinghouse Seismic Category III, Safety Class E, Rev. 8

Drawings:
VS2-1120-CR-578-R2, Containment Concrete Reinforcement Drawing Section VA EL. 103'-0"
VS2-1120-CR-003, Concrete reinforcement Drawing Layer B, Radial Bar Arrangement Elevation 87'-6" to 109'-10,” Rev. 0
VS2-1120-CR-004, Concrete Reinforcement Layer A & C Circumferential Bar Arrangement EL. 83'-0" to 109'-10,” Rev. 0
VS2-1110-CR-108, Containment Concrete Reinforcement from EL. 96'-0" up to EL. 103'-0" Type Details (sheet 4), Rev. 0

E&DCR:
VS2-1120-GEF-000018

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Associated with Weld VS2-CA03-VWK-048-FW-15-VP-002A:
V2-16-W-U-0320, Ultrasonic Examination Report of VS2-CA03-VWK-048-FW-15-VP-002A Rev.0, dated 4/21/2016
VS2-CA03-VWK-048, VS2-CA03-S4W-00002 CA03 Assembly Seam 15 Weld Map Sheet 2, Rev. D

100-UT-311, UT Procedure Rev. 1
Mistras Certification Summary for Technician of Examination Report V2-16-W-U-0320, verified on 12/16/2015
WO VS2-CA03-S4W-00002
Weld Doc 142723
V2-16-W-P-0511, Record of Liquid Penetrant Examination, dated 4/20/2016
Certification of Qualification for the Responsible Certified Personnel of Examination Report V2-16-W-P-0511, dated 2/4/14 (qualified 2/4/14-1/14/17)
Eye Test Certification the Responsible Certified Personnel of Examination Report V2-16-W-P-0511, dated 11/11/15
QAD 09.32, Liquid Penetrant Examination AWS Structural Welding Code D1.1, D1.6 and D1.4, Rev. 3

Associated with Weld VS2-CA03-VWK-034-FW-01-VP-002A:
5SS-13, Record of Welder Performance Qualification Test AWS D1.6 for Groove Weld GMAW, Welder JLS6470, 4/17/2015
Weld Doc 142634
MIR 142634-014
WPS5-10H.10HM70, ASTM A240 UNS S32101 To ASTM A240 UNS S32101; Semi-Automatic And Machine GMAW; ER2209, Rev. 14
VS2-CA03-VWK-034, VS2-CA03-S4W-00002 CA03 Assembly Seam 01 Weld Map Sheet 2, Rev. F

Associated with Weld VS2-CA03-VWK-049-FW-16-VP-002A:
5SS-13 Record of Welder Performance Qualification Test AWS D1.6 for Groove Weld GMAW, Welder VRT0542, 1/4/2016
MIR 142725-007
Weld Doc 142725
VS2-CA03-VWK-049, VS2-CA03-S4W-00002, CA03 Assembly Seam 16 Weld Map Sheet 2, Rev. D
WPS5-10H.10HM70, ASTM A240 UNS S32101 To ASTM A240 UNS S32101; Semi-Automatic And Machine GMAW; ER2209, Rev. 14
V2-16-W-P-0633, Liquid Penetrant Examination Report of the Root of VS2-CA03-VWK-049-FW-16-VP-002A, 5/10/2016

Associated with Weld VS2-CA03-VWK-047-FW-14-VP-002A:
Certification of Qualification for the Responsible Certified Personnel of Examination Report V2-16-W-P-0513 and V3-16-W-P-0110, dated 9/9/15 (qualified 9/9/15-8/25/18)
Eye Test Certification the Responsible Certified Personnel of Examination Report V2-16-W-P-0513 and V3-16-W-P-0110, dated 8/25/15
VS2-CA03-VWK-047, VS2-CA03-S4W-00002 CA03 Assembly Seam 14 Weld Map Sheet 2, Rev. D
QAD 09.32, Liquid Penetrant Examination AWS Structural Welding Code D1.1, D1.6 and D1.4, Rev. 3
V2-16-W-P-0513, Record of Liquid Penetrant Examination for Weld VS2-CA03-VWK-047-FW-14-VP-002A, dated 4/22/2016

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Concrete Data:

C-16-00157, "Self Consolidating Concrete Field Testing and Compressing Data Record," Revision 0

Nonconformance & Disposition Reports:

VS2-CA20-GNR-000663, "CA20 Final Position," Revision 0
VS2-CC01-GNR-000372, "Rate of Placement for CA20 Concrete Placement," Revision 0
VS2-CC01-GNR-000374, "Drop Height/Vibration/Consolidation Nonconformances," Revision 0
VS2-CC01-GNR-000375, "Unit 2 CA20 Concrete Test Failures," Revision 0

Procedures and Specifications:

VS2-CC01-Z0-026, "Safety Related Mixing and Delivering Concrete," Rev. 6
VS2-CC01-Z0-027, "Safety Related Concrete Testing Services," Rev. 4
VS2-CC01-Z0-031, "Safety Related Placing Concrete and Reinforcing Steel," Rev. 7

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Design Specifications:

APP-SS01-Z0-003, Embedment and Miscellaneous Steel, Westinghouse Safety Class C, Rev. 4
VS2-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel, Rev. 7
VS2-CC01-Z0-027, Safety Related Concrete Testing Services, Rev. 5

Drawings:

VS2-CE01-CE-001, Standard Embed Plate Headed Anchor, Rev. 4
VS2-CE01-CE-002, Standard Embedment Plates Deformed Wire Anchor9 (DWA) Type, Rev. 3
VS2-1225-CE-001, Auxiliary Building Area 5 Embedded Plate Layout Stairwell S04 Plan at EL 82'6," Rev. 1
SD-HA-B2, B2 Embeds, Rev. 3
SD-DWA-DDA2, Embeds type DDA2, Rev. 2
SD-LP-013-2, Non-Standard Landing Plate P12P17, Rev. 0

Procedures:

QAD 15.01, Non-conformance & Disposition Tagging, Rev. 2
NPP 10-01, Material Receipt, Storage, and Control, Rev. 5
QAD 07.14, Receiving Inspection, Rev, 3.01

Inspection Reports:

S540-14-0166, Inspection of Vendor Supplied Stud Welded Embed Plates, APP-12161-CE-PD012
132177-CE01.02-405-004-022, Special Maintenance & Construction (SMCI)

Inspection Plans:

F-S540-002, Inspection of Vendor Supplied Stud Welded Embed Plates, Rev. 1.08
F-C112-003, Concrete Pre-Placement Inspection, Rev. 12.04
F-C112-005, Inspection of Embed Plates, Rev. 2
F-Q445-001, Receipt Inspection, Rev. 6.11

Materials Receipt Report:

132178-MRR-05901

Certified Material Test Report:

CSC018-12-08-30411-2

RFI's:
APP-CE01-GF-850739, Date 11-17-2015
APP-CE01-GF-850720, Date 10-13-2015
APP-CE01-GF-850690, Date 08-10-2015
APP-CE01-GF-850679, Date 07-02-2015
APP-CE01-GF-850682, Date 07-07-2015
APP-CE01-GF-850757, Date 01-21-2016

NND's:
VS2-CE01-GNR-000244, Rev. 0
APP-CE01-GNR-850070, Rev. 0

E&DCR's:
APP-1100-GEF-292, Rev. 0
APP-1100-GEF-202, Rev.0
APP-1100-GEF-217, Rev. 0
APP-1200-GEF-545, Rev. 0
APP-CE01-GEF060, Rev. 0
APP-1244-GEF-057, Rev. 0
APP-1244-GEF-060, Rev. 0
APP-1231-GEF-066, Rev. 0

Work Package:
VS2-1220- C0W-006. Rev. 0

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Records:
Shaw Weld record Document No. 140499
Lincoln Electric CMTR for Lot No. 1188H, Dated 2/26/15
Lincoln Electric CMTR for Lot No. 1164T, Dated 12/31/14
CB&I Welder Qualification Records for Welders CM9845 dated 11/20/15, KHD5326 dated 8/4/15, and BHP5227 dated 8/19/15
CB&I Work Package VS2-CA20-S4W-04001
CB&I Certification of Qualification for Structural Welding Inspection for employee number 1367476, Dated 7/31/15
CB&I Inspection Report S561-16-12472, Dated 4/14/16

Procedures:
CB&I Welding Procedure WPS2-1.1S01 Rev. 2
CB&I NCSP02-08, "Nonconformance Reporting and Control," Rev. 02.01
WECTEC NCSP02-19, "Work Package Planning, Development, Approval and Closure," Rev. 7.01
CB&I NCSP02-12, "Construction Quality Completion Program," Rev. 5.04
CB&I CWP-1, "Construction Welding Program," Rev. 3
CB&I QAD 2.15, "Qualification and Certification of Inspection and Test Personnel," Rev. 7.00
CB&I F-S561-001, "Structural Weld Inspection- Visual- AWS D1.1 & AWS D1.6," Rev. 5
CB&I F-S561-007, "AWS D1.1 - Visual Weld Inspection - Carbon Steel," Rev. 0.10
CB&I F-S561-007, "AWS D1.1 - Visual Weld Inspection - Carbon Steel," Rev. 0.09
WECTEC GWS-2, "AWS D1.1 - Structural Steel General Welding Specification," Rev. 5

Calculations:
APP-CA20-S3C-016, "AP1000 CA20 Structural Module Design Evaluation," Rev. 2

CRs and CAPALs:
CR-NND-16-01052 Created 6/16/16
CR-NND-16-00960 Created 6/2/16
CAPAL 100390550 Dated 6/15/16
CAPAL 100390734 Dated 6/16/16

Drawings:
Westinghouse APP-1000-P2-904, "Nuclear Island General Arrangement Section H-H," Rev. 4
Westinghouse APP-1000-P2-905, "Nuclear Island General Arrangement Section I-I," Rev. 4
Westinghouse APP-1020-P2-001, "Nuclear Island General Arrangement Plan at EL 82'-6"
Westinghouse APP-CA20-S5Y-00202, "Auxiliary Building Areas 5 & 6 Module CA20 Standard Welding Details," Rev. 4
CB&I VS2-CA20-VWK-283, "VS2-CA20-SW4-04001 Installation of CA20 SA4 Floors (CA20_31)," Rev. H

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VS2-1010-CCK-009, Unit 2 Shield Building Basemat Thickness As-Built from Elevations 60'-6" to 82'-6," Rev. C

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Specifications:
VS2-CC01-Z0-027, "Safety Related Concrete Testing Services," Revision 5

N&Ds:
VS2-CA20-GNR-000663, "CA20 Final Position," Revision 0

Records:
C-16-00157, "Self Consolidating Concrete Field Testing and Compressing Data Record," Revision 0

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Doosan CMTR - Dimensional Inspection Records:
CN2011080007, Upper Shell for U3 RPV, LSS-20110721-001, dated 7/21/2011, (VS3-MV01-VQQ-001 Rev. 1, page 734 of 6403)
CN2012030059, Lower Shell for U3 RPV, MIJOO-1203-007, dated 3/22/2012, (VS3-MV01-VQQ-001 Rev. 1, pages 748-749)
CN2011060014, Lower Head for U3 RPV, F09158030-6054, dated 6/28/2011, (VS3-MV01-VQQ-001 Rev.1, page 1053)

Doosan Drawings:
D-AC-11104-M06, -M07, and -M09, V.C. Summer #3 Vessel As-Built, Rev. 3

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WEC ASME Code Data Reports:
N-1 Form for the Reactor Vessel, Serial Number VS3-RCS-MV-01, and National Board No. 141
N-2 Forms for each Latch Housings and Nozzles, Part Serial Numbers 5308-5445
N-2 Forms for the Rod Travel Housings, Part Serial Numbers 5464-5475, 5477-5532, and 5749

Doosan ASME Code Data Reports:
N-2 Form for the Reactor Vessel Assembly, Part Serial Number N08032-20101, Doosan No. DN-3245
N-2 Form for the Closure Head Assembly, Part Serial Number N08032-20102, Doosan No. DN-3246

Doosan CMTRs for the CH and RV (includes NDE reports, dimensional records, specimen removal drawings):
CN2012010057 for Closure Head, dated Jan. 18, 2012, Heat-Nos. 2B19374 and 2B19375, Serial/I.D. No. F08697 030
CN2011080007 for Upper Shell, Rev. 2, dated 2/22/2010, Heat-Nos. 2C18799, 2C18800, and 2818801, Serial/I.D. No. F09156 030
CN2011050034 for Inlet Nozzle, dated Oct. 14, 2011, Heat-No. 2C08697, Serial/I.D. Nos. F09161 090
CN2011050035 for Inlet Nozzle, dated Oct. 14, 2011, Heat-No. 2C08697, Serial/I.D. Nos. F09161 100
CN2011050036 for Inlet Nozzle, dated Oct. 14, 2011, Heat-No. 2C08697, Serial/I.D. Nos. F09161 110
CN2011050037 for Inlet Nozzle, dated Oct. 14, 2011, Heat-No. 2C08697, Serial/I.D. Nos. F09161 120
CN2010020006 for Outlet Nozzles, dated Jan. 18, 2012, Heat-No. 2C95782, Serial/I.D. Nos. F09160 050 and 060

CMTRs for QINs and safe-ends (includes NDE reports and ASTM A262 Practice A & E stainless corrosion tests):
HK Metal Co., Ltd., HKQ-090630-013 for Quickloc Instrument Nozzles (QINs), Rev. 3, dated 2/7/12, Heat & Lot-No. E90130 & AYFY
Lenape Forged Products Corporation, CMTR 4881 for inlet safe-ends, dated 5/26/2011, Melter Heat-No. G15834 (Lenape heat code PLN1), Serial No. 4881-3
Lenape Forged Products Corporation, CMTR 4881 for inlet safe-ends, dated 5/26/2011, Melter Heat-No. G15834 (Lenape heat code PLN1), Serial No. 4881-5
Lenape Forged Products Corporation, CMTR 4882 for outlet safe-ends, dated 2/13/2012, Melter Heat-No. G15834 (Lenape heat code PLN1), Serial No. 4882-6

CMTR for CRDM Rod Travel Housings:
Scot Forge Inc., Material Certification Number 817491 ES250R5, Heat-No. 54385, Part Number APPMV11V6012, S/N's: 1605 thru 1609, ASME SA-182 Grade F304LN, dated 03/16/2015

CMTRs for Weld Filler Metals:
Doosan, CMTR NQC-12-135, dated 7/17/2012, with Special Metals Welding Products Company, CMTR 08511380001, Rev. 2, September, 2009, Heat-No. NX78W5TK, SFA-5.14, AWS Class. ERNiCrFe-7A (Filler Metal 52M), 0.035" (0.9 mm) diameter
Doosan, CMTR TR-P1026-1 for Chosun Welding Co., Ltd. electrodes, dated 8/9/2010, Heat/Lot-No. SA06378/P243978, SFA-5.5, AWS Class. E8016-G (LC-400G), 4 mm diameter

Doosan, CMTR TR-P1026-2 for Chosun Welding Co., Ltd. electrodes, dated 8/9/2010, Heat/Lot-No. SA06378/P253478, SFA-5.5, AWS Class. E8016-G (LC-400G), 5 mm diameter
Kiswel Ltd, CMTR-T14-DS14, Rev. 1, April 16, 2014, Heat-No. L1618, SFA-5.14, AWS Class. ERNiCrFe-7A (KW-T690A), 2.4 mm diameter
Special Metals Welding Products Company, CMTR 098517-005, Rev. 5, January, 2011, Heat-No. NX8255TK, SFA-5.14, AWS Class. ERNiCrFe-7A (Filler Metal 52M), 0.035" (0.9 mm) diameter
Special Metals Welding Products Company, CMTR 098517002, Rev. 4, January, 2011, Heat-No. NX8255TK, SFA-5.14, AWS Class. ERNiCrFe-7A (Filler Metal 52M), 0.047" (1.2 mm) diameter

Doosan Nondestructive Examination Reports (Closure Head):
U111217-005-001, Report of Ultrasonic Examination (internal surface), dated 12/21/2011
U111230-019-001, Report of Ultrasonic Examination (external surface), dated 1/5/2012
M111217-016-001, Report of Magnetic Particle Examination (internal surface), dated 12/21/2011
M111230-039-001, Report of Magnetic Particle Examination (external surface), dated 1/5/2012

Doosan Nondestructive Examination Reports (Upper Shell):
U110720-017-001, Report of Ultrasonic Examination (entire volume), dated 7/27/2011
M110725-071-001, Report of Magnetic Particle Examination (all surfaces), dated 7/25/2011

Doosan Nondestructive Examination Reports (Inlet Nozzles):
U110718-076-001, Report of Ultrasonic Examination (entire volume), dated 7/21/2011 (F09161 090)
M110818-059-001, Report of Magnetic Particle Examination (all surfaces), dated 7/25/2011 (F09161 090)
U110718-078-001, Report of Ultrasonic Examination (entire volume), dated 7/21/2011 (F09161 100)
M110818-060-001, Report of Magnetic Particle Examination (all surfaces), dated 8/22/2011 (F09161 100)
U110718-079-001, Report of Ultrasonic Examination (entire volume), dated 7/21/2011 (F09161 110)
M110818-061-001, Report of Magnetic Particle Examination (all surfaces), dated 8/22/2011 (F09161 110)

Doosan Nondestructive Examination Reports (Outlet Nozzles):
U091223-029-002, Report of Ultrasonic Examination (entire volume), dated 1/22/2010 (F09160 050, 060)
M091223-022-002, Report of Magnetic Particle Examination (all surfaces), dated 8/22/2011 (F09160 050, 060)

Doosan and Lenape Nondestructive Examination Reports (Inlet safe-ends):
Lenape Liquid Penetrant Inspection Record, Serial No. 4881-3, dated 12/23/2009
Lenape Ultrasonic Inspection Record, Serial No. 4881-3, dated 12/22/2009
Lenape Liquid Penetrant Inspection Record, Serial No. 4881-5, dated 2/24/2010
Lenape Ultrasonic Inspection Record, Serial No. 4881-5, dated 3/01/2010
Doosan, P150211-016-001, Report of Liquid Penetrant Examination, dated 2/13/2015

Doosan and Lenape Nondestructive Examination Reports (Outlet safe-ends):
Lenape Liquid Penetrant Inspection Record, Serial No. 4882-6, dated 3/08/2010

Lenape Ultrasonic Inspection Record, Serial No. 4882-6, dated 3/8-12/2010
Doosan, P150211-016-001, Report of Liquid Penetrant Examination, dated 2/13/2015
Korea NDE Co., Ltd., Nondestructive Examination Reports (QINs):
KNDE-KH-HK-U09-158, Report of Ultrasonic Examination, dated 6/27-28/2009
KNDE-KH-HK-PT09-159, Report of Liquid Penetrant Examination, dated 6/27-28/2009

Scot Forge Nondestructive Examination Reports (Rod Travel Housings):
20-001, Liquid Penetrant Testing, 5 tested, S/N's: 1605 thru 1609, dated 07/29/2014
22-001, Ultrasonic Testing, 5 tested, S/N's: 1605 thru 1609, dated 07/29/2014

Doosan Pressure Test Records:
101058935-390A RV vessel Final Assy (Hydro Test), dated 3-11-15 (witnessed by Commissioned ANI)
101054713-190A CH CRDM nozzle (Joint-No. 104-10-12), dated 4-2-15 (witnessed by ANI)
101054713-190B CH CRDM nozzle (Joint-No. 104-10-15 & -51), dated 4-2-15 (witnessed by ANI)
101054713-190C CH CRDM nozzle (Joint-No. 104-10-05), dated 4-3-15 (witnessed by ANI)
101054713-190F CH CRDM nozzle (Joint-No. 104-10-27 & -62), dated 4-6-15 (witnessed by ANI)
101054713-190i CH CRDM nozzle (Joint-No. 104-10-49), dated 4-8-15 (witnessed by ANI)
Pressure Gage Calibration Certificate, Z150304006, I.D. No. 08D7A0694-0007, dated 03/04/2015
Pressure Gage Calibration Certificate, Z150304006, I.D. No. 08D7A0694-0003, dated 03/04/2015

Other WEC and Doosan Records:
WEC, Dwg.-No. APP-MV01-V6-128, Rev. 5
WEC, Dwg.-No. APP-MV01-V6-151, Rev. 5
Doosan, Dwg-No. D-AC-11103-M07, V.C. Summer #3 Closure Head As-Built, Rev. 2
Doosan, Dwg-No. D-AA-11121-M01, Upper Vessel Assembly Nozzle Installation, Rev. 1
Doosan, Tabulation of Material, Record No. VC3-RV-VSL-001 (8 pages)
Doosan, Record No. WJL-VC Summer #3-01, Weld Status/Location of Weld Filler Metal (14 pages)
WEC-Newington, Cross Index of Material Test Reports and Material, CRDM Rod Travel Housing
Doosan, Traveler No. 100933189, Verification of Material ID & Certification for inlet nozzles, Oper. No. A thru D (Part No. 24-201-01, -02, -03, 04, respectively)
Doosan, Traveler No. 100932111, Verification of Material ID & Certification for outlet nozzles, Oper. No. A and B (Part No. 25-201-01 and -02, respectively)
Doosan, Traveler No. 101150600, Verification of Material ID & Certification for 4 inlet & 2 outlet safe-ends, Oper. No. D and E (Part No. 30-101 & -102, respectively)
Doosan, Traveler No. VS3-NCR-14100283-W01, Verification of Material ID & Certification (Repair) for 201-20B & -20C inlet safe-ends (S/N 4881-5)
WEC, VS3-MV01-GNR-039, Charpy V-notch Transition Curves and Forging Product Analyses for the V.C. Summer #3 Reactor Vessel (NCR-15100442), Rev. 0 (12 pages)
WEC, VS3-MV01-GNR-040, Actual Tndt Determination for Beltline Region Weld Filler Metal for the V.C. Summer #3 Reactor Vessel (NCR-15100444), Rev. 0 (45 pages)

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NDE Reports of Upper Shell to Inlet Nozzle Weld-No. 101-21C:
P140102-002-001, Report of Liquid Penetrant Examination (weld 104-21C backclad areas after PWHT), dated 1/03/2014
M140102-002-001, Report of Magnetic Particle Examination, dated 1/3/2014
U140102-005-001, Report of Ultrasonic Examination (outside & inside surfaces), dated 1/7/2014
R140107-033-001, Report of Radiographic Examination, dated 01/16/2014

NDE Reports of Upper Shell to Outlet Nozzle Weld-No. 102-21B:
M130311-018-001, Report of Magnetic Particle Examination, dated 3/12/2013
R130410-059-001, Report of Radiographic Examination, dated 04/11/2013

NDE Reports of Inlet Nozzle to Safe-End Weld-No. 201-20C:
U140701-004-001, Report of Ultrasonic Examination (from outside & inside surfaces after weld), dated 7/3/2014
R140704-031-001, Report of Radiographic Examination, dated 07/05/2014
P141205-033-001, Report of Liquid Penetrant Examination, dated 12/9/2014
U141205-029-001, Report of Ultrasonic Examination (from outside & inside surfaces after machined), dated 12/11/2014 (68 pages)

NDE Reports of Outlet Nozzle to Safe-End Weld-No. 301-20B:
R141124-050-001, Report of Radiographic Examination, dated 11/20/14
P141205-033-001, Report of Liquid Penetrant Examination, dated 12/9/2014
U141205-029-001, Report of Ultrasonic Examination (from outside & inside surfaces of safe-end weld after machined), dated 12/11/2014 (68 pages)

NDE Reports of Internal Closure Head J-groove Weld-Nos. 103-10-5, -12, -15, -27, -49, -51, and -62:
P140324-019-001, Report of Liquid Penetrant Examination (301-11 and 302-11 J-groove all internal buttering surfaces after PWHT), dated 3/25/2014
U140325-011-001, Report of Ultrasonic Examination (302-11, Nozzle-Nos. 2 thru 69 CEDM hole buttering), dated 3/26/2014
P141022-025-001, Report of Liquid Penetrant Examination (-5 & -12, root layer), dated 10/23/2014
P141106-025-001, Report of Liquid Penetrant Examination (-5 & -12, 1st 1/4" level), dated 11/7/2014
P141118-021-001, Report of Liquid Penetrant Examination (-5 & -12, 2nd 1/4" level), dated 11/19/2014
P141127-010-001, Report of Liquid Penetrant Examination (-5 & -12, 3rd 1/4" level), dated 11/28/2014
P141208-005-001, Report of Liquid Penetrant Examination (-5 & -12, 4th 1/4" level), dated 12/8/2014
P141022-027-001, Report of Liquid Penetrant Examination (-15 & -27, root layer), dated 10/23/2014
P141106-026-001, Report of Liquid Penetrant Examination (-15 & -27, 1st 1/4" level), dated 11/7/2014
P141118-024-001, Report of Liquid Penetrant Examination (-15 & -27, 2nd 1/4" level), dated 11/19/2014
P141127-012-001, Report of Liquid Penetrant Examination (-15 & -27, 3rd 1/4" level), dated 11/28/2014

P141208-006-001, Report of Liquid Penetrant Examination (-15 & -27, 4th 1/4" level), dated 12/8/2014
P141215-007-001, Report of Liquid Penetrant Examination (-15 & -27, 5th 1/4" level), dated 12/16/2014

P141022-028-001, Report of Liquid Penetrant Examination (-49, root layer), dated 10/23/2014
P141106-027-001, Report of Liquid Penetrant Examination (-49, 1st 1/4" level), dated 11/7/2014
P141118-027-001, Report of Liquid Penetrant Examination (-49, 2nd 1/4" level), dated 11/19/2014
P141127-013-001, Report of Liquid Penetrant Examination (-49, 3rd 1/4" level), dated 11/28/2014
P141208-007-001, Report of Liquid Penetrant Examination (-49, 4th 1/4" level), dated 12/8/2014
P141215-008-001, Report of Liquid Penetrant Examination (-49, 5th 1/4" level), dated 12/16/2014
P141217-017-001, Report of Liquid Penetrant Examination (-49, 6th 1/4" level), dated 12/19/2014
P141022-029-001, Report of Liquid Penetrant Examination (-51 & -62, root layer), dated 10/23/2014
P141106-029-001, Report of Liquid Penetrant Examination (-51 & -62, 1st 1/4" level), dated 11/7/2014
P141118-028-001, Report of Liquid Penetrant Examination (-51 & -62, 2nd 1/4" level), dated 11/19/2014
P141127-015-001, Report of Liquid Penetrant Examination (-51 & -62, 3rd 1/4" level), dated 11/28/2014
P141208-009-001, Report of Liquid Penetrant Examination (-51 & -62, 4th 1/4" level), dated 12/8/2014
P141215-009-001, Report of Liquid Penetrant Examination (-51 & -62, 5th 1/4" level), dated 12/16/2014
P141217-021-001, Report of Liquid Penetrant Examination (-51 & -62, 6th 1/4" level), dated 12/19/2014
P141222-020-001, Report of Liquid Penetrant Examination (-51 & -62, 7th 1/4" level), dated 12/24/2014
P150213-032-001, Report of Liquid Penetrant Examination (final surface 103-10-01 thru 69 with 30 rejects), 12 pgs, dated 2/16/2015
P150224-028-001, Report of Liquid Penetrant Examination (after repair of all 30 surface weld rejects), dated 2/26/2015

NDE Reports of Quickloc Instrument Nozzle (QIN) Weld-Nos. 101-10F and 101-10G:
U130826-020-001, Report of Ultrasonic Examination (403-11A thru H from build-up end surfaces after PWHT), dated 8/28/2013
U140325-011-001, Report of Ultrasonic Examination (404-11A thru H cladding, and 405-11A thru H buttering), dated 3/26/2014
P140819-014-001, Report of Liquid Penetrant Examination Joint-No. 101-10A thru H, dated 8/20/2014
R150227-017-001, Report of Radiographic Examination after machined 101-10F (006-007 accepted - suspect film mark) and 101-10G, dated 3/3/2015, 5 pages
R150312-007-001, Report of Radiographic Examination after Hydro [101-10F (Location-No. 006-007 accepted)], dated 3/13/2015
U150319-041-001, Report of Ultrasonic Examination after Hydro from outside surface (101-10A thru H butt joints, and 403-11A thru H build-ups), dated 4/3/2015, 14 pages

NDE Reports of CRWMO cladding, and buttering:
U110708-011-001, Report of Ultrasonic Examination (welds 101/102/103/104-25B for outlet nozzle build-up/inside cladding/buttering, dated 7/11/2011
U110908-020-001, Report of Ultrasonic Examination (weld 102-25B outlet nozzle cladding surface - UT dead zone only), dated 9/10/11
U120615-022-001, Report of Ultrasonic Examination (for closure head inside surface and flange), dated 6/18/2012
U130305-026-001, Report of Ultrasonic Examination (welds 101/102/103-24C for build-up/nozzle cladding & buttering surfaces of inlet nozzle after PWHT), dated 3/8/2013
U131008-021-001, Report of Ultrasonic Examination (welds 102/103-24C for nozzle cladding & buttering surfaces of inlet nozzle after PWHT), dated 10/17/2013
U140102-003-001, Report of Ultrasonic Examination (weld 104-21C for cladding surface upper shell to inlet nozzle), dated 1/5/2014

Report of Ultrasonic Thickness Measurement for CRWMO cladding, and buttering:
U110908-021-001, Report of Ultrasonic Thickness Measurement (welds 102/103-25B, on cladding and buttering), dated 9/10/2011
U120726-041-001, weld-nos. 102-12, 103-12A thru D, 104-/105-/106-/107-12 closure head flange cladding after PWHT, dated 8/6/12
U130305-025-001, Report of Ultrasonic Thickness Measurement (welds 101/102/103-24C, on cladding and buttering), dated 3/6/2013
U130328-058-001, weld-no. 101-23, lower shell inside cladding after PWHT, dated 4/2/2013
U140627-040-001, weld-no. 404-11 (QIN Nozzle A thru H inside cladding), dated 6/30/2014

Ferrite Number (FN) Inspection Records and Chemical Analysis Report:
100932111-160BB, Joint 104-25B Outlet Nozzle Cladding - FN for FCAW final layer, dated 1/19/2011
100932111-160BA, Joint-No. 102-25B Outlet Nozzle Cladding - FN for SAW final layer, dated 1/19/2011
100933189-200C, Joint-No. 101-24C Inlet Nozzle Cladding - FN for FCAW final layer, dated 1/3/12
100933189-160C, Joint-No. 102-24C Inlet Nozzle Cladding - FN for SAW final layer, dated 1/3/12
101121167-70F, Joint-No. 404-11F (QIN # A6), FN of cladding with ER308L, dated 1/7/14
101121167-70G, Joint-No. 404-11G (QIN # A7), FN of cladding with ER308L, dated 1/7/14
IW-11-06-0901, Joint-No. 102-25B, Chemical Analysis of Outlet Nozzle, dated 6/9/2011
IW-12-04-0622, Joint-No. 102-24C, Chemical Analysis of Inlet Nozzle, dated 4/19/2012

NDE Reports and PWHT for Repair of Weld-No. 101-51:
P141218-019-01, Report of Liquid Penetrant Examination [after excavation and removal of defects at 101-51(39-40)], dated 12/19/2014
P141231-003-001, Report of Liquid Penetrant Examination on the surface to be backclad [101-51(39-40)], dated 1/2/2015
P141231-004-001, Report of Liquid Penetrant Examination on the backclad after repair welding [102-51(39-40)], dated 1/5/2015
U141231-011-001, Report of Ultrasonic Thickness Measurement from the cladding surface [102-51(39-40)], dated 1/5/2015
U141231-012-001, Report of Ultrasonic Examination conducted from cladding surface [102-51(39-40)], dated 1/5/2015
U141231-013-001, Report of Ultrasonic Examination conducted from outside & inside surfaces [101-51(39-40)], dated 1/5/2015

R141231-009-001, Report of Radiographic Examination (after weld repair at location marker 39-40), dated 01/06/15
15GS-VC Summer-001, Heat Treatment Record for Unit 3 Part-No. 51-101 with map of thermocouple locations, dated 1/09-11/2015
U150112-021-001, Report of Ultrasonic Examination for weld joint-no. 102-51 (39-40) after PWHT from cladding surface, dated 1/13/2015
U150112-022-001, Report of Ultrasonic Examination for weld joint-no. 101-51 (39-40) after PWHT outside & inside surfaces, dated 1/13/2015
U150330-030-001, Report of Ultrasonic Examination (after hydrostatic testing), dated 4/7/2015

Postweld Heat Treatment Records:
PWHT-13-112, Lower Head Assembly with map of thermocouple locations (FT051), dated 12/30/2013
PWHT-14-009A, Upper Vessel Final Assembly with map of thermocouple locations (FT04), dated 2/13/2014
PWHT-14-009B, Upper Shell/Inlet Nozzle Assembly with map of thermocouple locations (FT04), dated 2/13/2014
PWHT-14-021, Lower Vessel Assembly with map of thermocouple locations (FT04), dated 3/31/2014
14GS-VC Summer-02, Final Vessel Assembly (upper vessel to lower vessel) with map of thermocouple locations, dated 12/08/2014
15GS-VC Summer-01, Final Vessel Assembly (upper vessel to lower vessel) with map of thermocouple locations, dated 1/12/2015
AHTR-VC Summer #3-01, Accumulated Heat Treatment Time Record for VC Summer (#3), AHTR-VC Summer#3-01, 12 pages

NDE after Hydrostatic Testing:
M150319-027-001, Report of Magnetic Particle Examination (outside surface of closure head), dated 3/20/2015
U150330-030-001, Report of Ultrasonic Examination, (girth weld 101-51, and upper shell to outlet/inlet nozzle weld 101-21B/102-21C), dated 4/7/2015 (58 pages)
U150330-032-001, Report of Ultrasonic Examination, safe-ends to outlet/inlet nozzle weld 301-20B/201-20C), dated 4/7/2015 (64 pages)

Other Doosan and WEC Records:
WM-VC23AP1000-201RV, Weld Map of Closure Head (6 pages)
WM-VC23AP1000-202RV, Weld Map of Upper Vessel Assembly (13 pages)
Record No. WJL-VC Summer #3-01, Weld Status/Location of Weld Filler Metal (14 pages)
Continuity log tables of welding individuals (ADM, BOC, BTU, BUX, BWR, BXE, BXH, and SYG)
CNPL(a)-after hydro, Certified NDE Personnel List (SNT-TC-1A) of eleven NDE-UT Levels II and III with expiration date, dated 4/1/2015
CNPL(a)-001, Certified NDE Personnel List (SNT-TC-1A), dated 3/11/2016 (21 pages)
WEC, VS3-MV01-GNR-033, Upper to Lower Vessel Assembly Girth Seam Weld UT Indication for the V.C. Summer #3 Reactor Vessel, Rev. 0 (24 pages)

Section 1A14

Welder/Welding Operator Performance Qualifications:
WPQ F4 2G4G-3/4, welder 63024003 dated 07/25/2013
WPQ F43G DN, welder 63024003 dated 07/25/2013
WPQ F43GU-3/4, welder 63024003 dated 04/10/2013

WPQ SAW 2G MACH, welder 63088012 dated 03/21/2016
WPQ F4 3G DN, welder 63088182 dated 07/13/2015
WPQ F4 2G3GU4G-3/4, welder 63088182 dated 06/25/2015

Certified Material Test Reports:
Lot No. 2C531T04, E9018M-H4R 1/8" x 14" Nuclear No. 000052 dated 06/23/2015
Lot No. 2S312P01, E9018M-H4R 5/32" x 14" Nuclear No. 000018 dated 10/02/2013
Heat No. 093AK2599, ENi4 3/32" Diameter dated 10/02/2014
Heat No. 093AK2599 Lot No. ME310012 of ESAB OK Flux 10.72, F9P2, F9A4-ENi4-G, dated 09/29/2014

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Associated with weld VS3-CA01-VWK-800011-FW-4704-01:
5SS-04-O, Record of Welder Performance Qualification Test AWS D1.6 for Groove Weld GMAW, Welder TDS3568, 8/17/2015
5SS-03, Record of Welder Performance Qualification Test AWS D1.6 for Groove Weld GMAW, Welder SSP0575, 11/5/2013
WPS5-10H.10HM70, ASTM A240 UNS S32101 To ASTM A240 UNS S32101; Semi-Automatic And Machine GMAW; ER2209, Rev. 14
VS3-CA01-VWK-800011, VS3-CA01-S4W-800447 Leak Chase No. # 33 Seam 4704 Weld Map, Rev. A
Weld Doc 161552
MIR 161552-003

Associated with weld VS3-CA01-VWK-800009-FW-4819-01:
WO VS3-CA01-S4W-01948
V3-16-W-P-0110, Record of Liquid Penetrant Examination, dated 4/18/2016
Weld Doc 154365
QAD 09.32, Liquid Penetrant Examination AWS Structural Welding Code D1.1, D1.6 and D1.4, Rev. 3
VS3-CA01-VWK-800009, VS3-CA01-S4W-01948 Leak Chase No. # 35 Seam 4819 Weld Map, Rev. A
Certification of Qualification for the Responsible Certified Personnel of Examination Report V3-16-W-P-0110, dated 9/9/15 (qualified 9/9/15-8/25/18)
Eye Test Certification the Responsible Certified Personnel of Examination Report V3-16-W-P-0110, dated 8/25/15

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VS3-CA01-VWK-800057, VS3-CA01-S4W-801642 Seam Welds for Sub-Module 42 Weld Map, Rev. B
WPS2-1.1T30, Manual/Semi-Automatic/Machine GTAW Of Group I, II & ASTM A572-60 Materials, With Impacts, Rev. 4
2CS-15 Record of Welder Performance Qualification Test AWS D1.1 for Groove Weld GTAW, Welder MSF8440, 7/6/2015
MIR 161788-007

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V3-16-W-M-0175 (VCS-16-MT-302-0410), Magnetic Particle Examination Report of VS3-CA01-VWK-800035-FW-1617-001, 002, and 003; dated 4/21/2016
Mistras Certification Summary for Technician of Examination Report V3-16-W-M-0175 and V3-16-W-U-0123, verified on 4/06/2016
VS3-CA01-VWK-800035, VS3-CA01-S4W-801617 Seam 1617 Weld Map, Rev. B
100-MT-302, Magnetic Particle Examination Procedure, Rev. 3
WO VS3-CA01-S4W-801617
Weld Doc 160056
100-UT-310, Ultrasonic Examination, Rev. 6
V3-16-W-U-0123 (VCS-16-UT-310-0300), Ultrasonic Examination Report of CA01-VWK-8500035-FW-1617-001, 002, and 003; dated 4/28/2016

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Drawings:
VS3-1020-CR-001, “Nuclear Island Basemat Concrete Reinforcement Lower Annulus Floor El 82’-6” Plan View, Rev.3
VS3-1020-CR-901, “Nuclear Island Basemat Concrete Reinforcement Lower Annulus Section (Sheet 1), Rev.3
VS3-1020-CR-903, “Nuclear Island Basemat Concrete Reinforcement Lower Annulus Details (Sheet 1), Rev.3
VS3-1020-CR-904, “Nuclear Island Basemat Concrete Reinforcement Lower Annulus Details (Sheet 2), Rev.3
VS3-1020-CR-905, “Nuclear Island Basemat Concrete Reinforcement Lower Annulus Details (Sheet 3), Rev.2
VS3-1020-CR-908, “Nuclear Island Basemat Concrete Reinforcement Lower Annulus Details (Sheet 4), Rev.1

Pour Card:
3584-04-2016

Batch Ticket:
49001

Specifications:
VS3-CC01-Z0-026, "Safety Related Mixing and Delivering Concrete, Westinghouse Safety Class C ‘Nuclear Safety Related’,” Rev. 7
VS3-CC01-Z0-027, “Safety Related Concrete Testing Services, Westinghouse Safety Class C ‘Nuclear Safety Related’,” Rev. 5
VS3-CC01-Z0-031, “Safety Related Placing Concrete and Reinforcing Steel, Westinghouse Seismic Category I and II, Safety Class C “NUCLEAR SAFETY,” Westinghouse Seismic Category III, Safety Class E,” Rev. 8

Procedures:
NCSP03-31, “Concrete Mixing and Delivery,” Rev. 2
NCSP03-31, “Concrete Placement,” Rev. 4
QS 10.11, “Structural Concrete Inspection and Testing,” Rev. 00.01
QS 10.67, “Concrete Placement Inspection,” Rev. 5

Section 1A19

Design Changes:
APP-CR01-GEF-850002, "Couplers on #9 and Larger U-Bars," Rev. 0
VS3-CC01-GEF-000045, "U3 NI Wall 11 CJ Relocation," Rev. 0
VSG-CC01-GEF-000271, "Approval for Sikaflex-1C SL," Rev. 0

N&D:
VS3-CE01-GNR-000006, "Embed plate weld porosity," Rev. 0
VS3-CE01-GNR-000093, "Indeterminate Quality of Stud Welds - VS3 – Shipped," Rev. 0
VS3-CE01-GNR-000105, "Cives NCR 1396 VC Summer 3," Rev. 0

Drawings:
VS3-1200-CR-1200, "Auxiliary Building Areas 1&2 Concrete Reinforcement Wall 11 Elevation," Rev. 14
APP-1220-CR-910, "Auxiliary Building Areas 1&2 Concrete Reinforcement Wall 11 Sections & Details EL. 82'-6," Rev. 5

Section 1A20

Weld Data Sheets:
152258, Weld No. VS3-CA20-VWK-122-FW-2428-001
152433, Weld No. VS3-CA20-VWK-220-FW-2671-006
152824, Weld No. VS3-CA20-VWK-223-FW-7172-006
152810, Weld No. VS3-CA20-VWK-226-FW-7273-006

Other:
AWS D1.1:2000, Structural Welding Code - Steel

Section 1A21

VS3-CA02-S5-01003-R0, Containment Building Area 2 Module CA02 – Submodule CA02_01 Structural Outline Vertical Sections /Views, Rev. 0

Section 1A22

VS3-CA01-S5-08006-R0, Containment Building Area 3 Module CA01 Submodule CA01_08 Structural Outline – Horizontal Sections/ Views I, Rev. 0
VS3-CA01-S5-08010-R0, Containment Building Area 3 Module CA01 Submodule CA01_08 Structural Outline – Horizontal Sections/ Views II, Rev. 0
VS3-CA01-S5-08011-R0, Containment Building Area 3 Module CA01 Submodule CA01_08 Structural Outline – Horizontal Sections/ Views III, Rev. 0

Section 1A23

VS3-12220-CR-910, Auxiliary Building Areas 1 & 2 Concrete Reinforcement Wall 11, Rev. 1

Section 1A24

VS3-12220-CR-911, Auxiliary Building Area 2 Concrete reinforcement Wall I, Rev. 2

Section 1P01

QS 13.11, "Material, Equipment Storage," Rev. 3.0
NPP 10-01, "Material Receipt, Storage, and Control," Rev. 5.0
VSPP 02-01-02.02, "VCSummer Material Handling," Rev 2.02
"In-Storage Inspection Checklist," Lay-down Yard 14, dated 5/6/16
CAR 2016-0460 dated 2/3/16
CR-NND-16-00958 dated 6/2/16

Section 3P01

PSI program plan:
VS2-GW-GEI-100, "AP1000 Preservice Inspection Program Plan for V.C. Summer Unit 2," Rev 1

Procedures:
Westinghouse QA-2.13, "Vision Acuity Examination," Rev 0.1
SCE&G NND-AP-1000, "Preservice Inspection (PSI) Program," Rev 0
Westinghouse APP-GW-GAP-155, "AP1000 Preservice Inspection (PSI) Implementation Work Instruction," Rev 0
Wesdyne WDP-2.10, "Qualification and Certification of Personnel in Nondestructive Examination," Rev 5
Westinghouse APP-GW-GAP-428, "Nonconformance and Disposition Report (N&D)," Rev 7
SCE&G NND-LIC-0009, "Relief Requests and Proposed Alternatives Pursuant to 10CFR50.55a During Construction," Rev 3
SCE&G NND-AP-0007, Interface with Regulatory Agencies, Rev 11
Wesdyne WDI-SS9-1308, "Preservice Material Thickness and Contour Acquisition-AP1000," Rev 0
Wesdyne WDI-STD-1092, "Ultrasonic Through-Wall Sizing of Flaws in Pipe Welds in Accordance with PDI-UT-3 for Pre-Service Inspections," Rev 0
Westinghouse QS-14.02, "Inspection Reporting System," Rev. 6
NCSP-03-05, "Control of Site Activities for ASME Section III Construction," Rev 4
NCSP-02-19, "Work Package Planning, Development, Approval, and Closure," Rev 07.01
Westinghouse W2-6.2-100, "Quality Assurance Records" Rev. 0.0
WesDyne WDP-17.1.1, "Control of Quality Records" Rev. 8.0
Westinghouse APP-GW-GAP-155, "AP1000 Preservice Inspection (PSI) Implementation Work Instruction" Rev. 0
SCE&G NND-AP-0001, "Document Review and Approval" Rev. 22
Westinghouse APP-GW-GAP-444, "AP1000 Level 3 Procedures" Rev. 4
Westinghouse W2-5.1-101, "Corrective Action Program" Rev. 0.0
Westinghouse QA-2.8, "Qualification of Audit Personnel" Rev. 0.0
SCE&G NND-QS-0005, "Surveillances" Rev. 4
Westinghouse W2-5.1-301, "Self-Assessments" Rev. 0.0
Westinghouse W2-4.2-101, "Internal Quality Assurance Audits" Rev. 0.0
Westinghouse APP-GW-GAP-341, "AP1000 Plant Program Design Change Control" Rev. 0
Westinghouse APP-GW-GAP-341-1, "AP1000 Design Change Proposal form" Rev. 0
Westinghouse APP-GW-GAP-428 "Nonconformance and Disposition Report" Rev. 7

Miscellaneous:
NU-02NN744783, "Purchase order for AIA services," Rev 2
M335-16-10001, "CBI Nuclear Quality Assurance Inspection Report – Type A"
VS3-WLS-GNR-000005, "AP1000 Nonconformance and Condition Report," Rev. 0

Engineering, Procurement and Construction Agreement (EPC Contract) between South Carolina Electric & Gas Company, for itself and as agent for the South Carolina Public Service Authority, as Owner and Westinghouse Electric Company LLC as Contractor for AP1000 Nuclear Power Plants dated May 23, 2008
Training history for user ID 00083471 as of 5/4/2016
WEC-15-28, Westinghouse Audit of WesDyne, 8/24/15
Record of Lead Auditor Qualification for auditor 18616, 1/20/16
Westinghouse "Work Authorization for WesDyne's Scope of Work for Pre-Service Inspections for V.C. Summer 2 & 3" dated 2/29/12
NDE certifications for lead auditor SAP Employee No. 18616

ITAAC INSPECTED

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
25	2.1.02.07a.ii	7.a) The Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	ii) Inspection will be performed of the as-built Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.	ii) A report exists and concludes that the as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.
71	2.1.03.02c	2.c) The reactor vessel arrangement is as shown in Figure 2.1.3-3.	Inspection of the as-built system will be performed.	The as-built RXS will accommodate the reactor vessel arrangement shown in Figure 2.1.3-3.
72	2.1.03.03	3. The components identified in Table 2.1.3-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built components as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built components identified in Table 2.1.3-1 as ASME Code Section III.
73	2.1.03.04	4. Pressure boundary welds in components identified in Table 2.1.3-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
82	2.1.03.09a.ii	9.a) The Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	ii) Inspection will be performed of the as-built Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.	ii) A report exists and concludes that the as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.
93	2.2.01.03a	3.a) Pressure boundary welds in components identified in Table 2.2.1-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.
102	2.2.01.06a.ii	6.a) The Class 1E equipment identified in Table 2.2.1-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	ii) Inspection will be performed of the as-built Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.	ii) A report exists and concludes that the as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.2.1-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
171	2.2.03.07a.ii	7.a) The Class 1E equipment identified in Table 2.2.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	ii) Inspection will be performed of the as-built Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.	ii) A report exists and concludes that the as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.2.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.
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.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
760	3.3.00.02a.i.a	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.a) A report exists which reconciles deviations during construction and concludes that the as-built containment internal structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.
761	3.3.00.02a.i.b	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.b) A report exists which reconciles deviations during construction and concludes that the as-built shield building structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
762	3.3.00.02a.i.c	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.c) A report exists which reconciles deviations during construction and concludes that the as-built structures in the non-radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.
763	3.3.00.02a.i.d	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.	i.d) A report exists which reconciles deviations during construction and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
764	3.3.00.02a.ii.a	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as-built concrete thickness will be performed.	ii.a) A report exists that concludes that the containment internal structures as-built concrete thicknesses conform to the building sections defined in Table 3.3-1.
765	3.3.00.02a.ii.b	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as-built concrete thickness will be performed.	ii.b) A report exists that concludes that the as-built concrete thicknesses of the shield building sections conform to the building sections defined in Table 3.3-1.
766	3.3.00.02a.ii.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.	ii) An inspection of the as-built concrete thickness will be performed.	ii.c) A report exists that concludes that as-built concrete thicknesses of the non-radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
767	3.3.00.02a.ii.d	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as-built concrete thickness will be performed.	ii.d) A report exists that concludes that the as-built concrete thicknesses of the radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.
780	3.3.00.03d	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.	Inspection of the as-built nuclear island structures wall and floor thicknesses will be performed.	d) A report exists and concludes that the shield walls and floors of the radiologically controlled area of the auxiliary building as defined in Table 3.3-1 except for designed openings or penetrations are consistent with the concrete wall thicknesses provided in Table 3.3-1.
789	3.3.00.07aa	7.a) Class 1E electrical cables, communication cables associated with only one division, and raceways are identified according to applicable color-coded Class 1E divisions.	Inspections of the as-built Class 1E cables and raceways will be conducted.	a) Class 1E electrical cables, and communication cables inside containment associated with only one division, and raceways are identified by the appropriate color code.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
790	3.3.00.07ab	7.a) Class 1E electrical cables, communication cables associated with only one division, and raceways are identified according to applicable color-coded Class 1E divisions.	Inspections of the as-built Class 1E cables and raceways 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, and raceways are identified by the appropriate color code.
791	3.3.00.07ac	7.a) Class 1E electrical cables, communication cables associated with only one division, and raceways are identified according to applicable color-coded Class 1E divisions.	Inspections of the as-built Class 1E cables and raceways will be conducted.	c) Class 1E electrical cables, and communication cables in the radiologically controlled area of the auxiliary building associated with only one division, and raceways are identified by the appropriate color code.
792	3.3.00.07ba	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 raceways will be conducted.	a) Class 1E electrical cables and communication cables inside containment 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.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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 raceways 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.
794	3.3.00.07bc	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 raceways will be conducted.	c) Class 1E electrical cables and communication cables in the 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.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
799	3.3.00.07d.i	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: i) Within the main control room and remote shutdown room, the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: i) Within the main control room and remote shutdown room, the vertical separation is 3 inches or more and the horizontal separation is 1 inch or more.

800	3.3.00.07d.ii.a	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: ii) Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following: 1) The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet. 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG. 3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch. 4) For configurations involving an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: ii.a) Within other plant areas inside containment (limited hazard areas), the separation meets one of the following: 1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except. 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG. 3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch. 4) For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway. 5) For configurations that involve enclosed raceways, the minimum

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
			the enclosed raceway is below the open raceway. 5) For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.	vertical and horizontal separation is 1 inch.

801	3.3.00.07d.ii.b	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: ii) Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following: 1) The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet. 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG. 3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch. 4) For configurations involving an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: ii.b) Within other plant areas inside the non-radiologically controlled area of the auxiliary building (limited hazard areas), the separation meets one of the following: 1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except. 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables < 2/0 AWG. 3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch. 4) For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway. 5) For configurations that

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
			the enclosed raceway is below the open raceway. 5) For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.	involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.

802	3.3.00.07d.ii.c	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: ii) Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following: 1) The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet. 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG. 3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch. 4) For configurations involving an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non Class 1E raceways is consistent with the following: ii.c) Within other plant areas inside the radiologically controlled area of the auxiliary building (limited hazard areas), the separation meets one of the following: 1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except. 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables < 2/0 AWG. 3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch. 4) For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway. 5) For configurations that

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
			the enclosed raceway is below the open raceway. 5) For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.	involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.
803	3.3.00.07d.iii.a	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: iii) Where minimum separation distances are not maintained, the circuits are run in enclosed raceways or barriers are provided.	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: iii.a) Where minimum separation distances are not met inside containment, the circuits are run in enclosed raceways or barriers are provided.
804	3.3.00.07d.iii.b	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: iii) Where minimum separation distances are not maintained, the circuits are run in enclosed raceways or barriers are provided.	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: iii.b) Where minimum separation distances are not met inside the non-radiologically controlled area of the auxiliary building, the circuits are run in enclosed raceways or barriers are provided.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
805	3.3.00.07d.iii.c	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: iii) Where minimum separation distances are not maintained, the circuits are run in enclosed raceways or barriers are provided.	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: iii.c) Where minimum separation distances are not met inside the radiologically controlled area of the auxiliary building, the circuits are run in enclosed raceways or barriers are provided.
806	3.3.00.07d.iv.a	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: iv) Separation distances less than those specified above and not run in enclosed raceways or provided with barriers are based on analysis	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non Class 1E raceways is consistent with the following: iv.a) For areas inside containment, a report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
807	3.3.00.07d.iv.b	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: iv) Separation distances less than those specified above and not run in enclosed raceways or provided with barriers are based on analysis	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non Class 1E raceways is consistent with the following: iv.b) For areas inside the non radiologically controlled area of the auxiliary building, a report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.
808	3.3.00.07d.iv.c	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: iv) Separation distances less than those specified above and not run in enclosed raceways or provided with barriers are based on analysis	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non Class 1E raceways is consistent with the following: iv.c) For areas inside the radiologically controlled area of the auxiliary building, a report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
809	3.3.00.07d.v.a	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: v) Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is considered as associated circuits and subject to Class 1E requirements.	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non Class 1E raceways is consistent with the following: v.a) For areas inside containment, non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
810	3.3.00.07d.v.b	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: v) Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is considered as associated circuits and subject to Class 1E requirements.	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non Class 1E raceways is consistent with the following: v.b) For areas inside the non radiologically controlled area of the auxiliary building, non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
811	3.3.00.07d.v.c	7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: v) Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is considered as associated circuits and subject to Class 1E requirements.	Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non Class 1E raceways is consistent with the following: v.c) For areas inside the radiologically controlled area of the auxiliary building, non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.
812	3.3.00.07e	7.e) Class 1E communication cables which interconnect two divisions are routed and separated such that the Protection and Safety Monitoring System voting logic is not defeated by the loss of any single raceway or fire area.	Inspections of the as-built Class 1E communication cables will be conducted.	Class 1E communication cables which interconnect two divisions are routed and separated such that the Protection and Safety Monitoring System voting logic is not defeated by the loss of any single raceway or fire area.

LIST OF ACRONYMS

10 CFR	Title 10 of the Code of Federal Regulations
ACI	American Concrete Institute
ADAMS	Agencywide Documents Access & Management System
ADS	Automatic Depressurization System
ANI	American Nuclear Inspector
ANII	Authorized Nuclear Inservice Inspector
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASNT	American Society of Nondestructive Testing
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BPVC	Boiler and Pressure Vessel Code
CCS	Component Cooling Water System
CH	Closure Head
CMT	Core Makeup Tank
CMTR	Certified Material Test Report
COL	Combined License
CR	Condition Report
CRDM	Control Rod Drive Mechanism
CRWMO	Corrosion-Resistant Weld Metal Overlay
CSFC	Construction Safety Focus Component
DN	Deviation Notices
DSM	Dissimilar Metal Welds
DVI	Direct Vessel Injection
E&DCR	Engineering and Design Coordination Report
EQ	Environmental Qualification
GMAW	Gas Metal Arc Welding
GTAW	Gas Tungsten Arc Welding
HX	Heat Exchanger
IEEE	Institute of Electrical and Electronics Engineers
IHP	Integrated Head Package
IR	Inspection Report
IRC	Inside Reactor Containment
IRWST	In-containment Refueling Water Storage Tank
ISI	Inservice Inspection
ITAAC	Inspections, Tests, Analyses, and Acceptance Criteria
MOV	Motor Operated Value
MT	Magnetic Particle Testing
NCR	Nonconformance Report
NCSP	Nuclear Construction and Startup Procedure
NCV	Non-cited Violation
NDE	Nondestructive Examination
NRC	Nuclear Regulatory Commission
ORC	Outside Reactor Containment
PARS	Publically Available Records
PMS	Protection and Safety Monitoring System
PRHR	Passive Residual Heat Removal
PSI	Preservice Inspection
PT	Liquid Penetrant Testing/Examination

PWHT	Postweld Heat Treatment
QAPD	Quality Assurance Program Document
QC	Quality Control
QIN	Quickloc Instrument Nozzle
QVD	Quality Verification Documentation
RCS	Reactor Coolant System
Rev.	Revision
RG	Regulatory Guide
RT	Radiographic Testing
RV	Reactor Vessel
SAW	Submerged Arc Welding
SCE&G	South Carolina Electric and Gas
SCM	Shaw Cable Manager
SMAW	Shielded Metal Arc Welding
SSC	Structures, Systems, and Components
Tndt	Nil-Ductile Transition Temperature
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Testing/Examination
WEC	Westinghouse Electric Company

Letter to R. Jones from Michael Ernstes dated August 8, 2016

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 – NRC INTEGRATED INSPECTION REPORTS 05200027/2016002, 05200028/2016002

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