



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

February 4, 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 05200027/2015004,  
05200028/2015004**

Dear Mr. Jones:

On, December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Virgil C. Summer Nuclear Station Units 2 and 3. The enclosed inspection report documents the inspection results, which the inspectors discussed on January 28, 2016, with Alan Torres, General Manager of Nuclear Plant Construction, along with other members of your staff and consortium staff members.

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

No findings were identified during this inspection.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

R. Jones

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

Sincerely,

/RA/

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

Docket Nos.: 5200027, 5200028

License Nos: NPF-93, NPF-94

Enclosure: NRC Inspection Report (IR) 05200027/2015004  
and 05200028/2015004  
w/attachment: Supplemental Information

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

Sincerely,

**/RA/**

Michael Ernstes, Chief  
Construction Projects Branch 4  
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w/attachment: Supplemental Information

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Letter to Ronald Jones from Michael Ernstes dated February 4, 2016

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 – NRC  
INTEGRATED INSPECTION REPORTS 05200027/2015004,  
05200028/2015004

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

Docket Numbers: 5200027  
5200028

License Numbers: NPF-93  
NPF-94

Report Numbers: 05200027/2015004  
05200028/2015004

Licensee: South Carolina Electric & Gas

Facility: Virgil C. Summer Nuclear Station Unit 2  
Virgil C. Summer Nuclear Station Unit 3

Location: Jenkinsville, SC

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

Inspectors: A. Artayet, Senior Construction Inspector, DCI  
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B. Davis, Senior Construction Inspector, DCI  
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Approved by: Michael Ernstes, Chief  
Construction Projects Branch 4  
Division of Construction Projects

Enclosure



## **SUMMARY OF FINDINGS**

Inspection Report (IR) 05200027/2015004, 05200028/2015004; 10/01/2015 through 12/31/2015; 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**

No findings were identified.

### **B. Licensee-Identified Violations**

No findings were identified.

## REPORT DETAILS

### Summary of Plant Construction Status

During this inspection period the licensee continued construction of the Unit 2 floors in the non-radiological area of the auxiliary building at the 82'6" level and the radiologically controlled area at the 82'6" level. Unit 2 concrete was placed inside containment up to elevation 87'6" for the west side of containment. For Unit 3, ongoing work included auxiliary building exterior wall construction up to elevation 100' and concrete placement inside containment up to elevation 76'6". Work continued on Unit 3 CA20, the auxiliary building module and Unit 2 CA03 which is the in-containment refueling water storage tank module.

#### 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) 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
- 65001.11-02.01 - Purchase Orders
- 65001.11-02.02 - Storage and Handling
- 65001.11-02.03 - Installation and Welding
- 65001.B-02.01 - Program and Procedures Review
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records

The inspectors observed in-process manual gas tungsten arc welding (GTAW) performed by welder EH1375 for an open-root butt joint between a 12" diameter stainless steel forged flued head fitting and a carbon steel sleeve of the bottom head P22 mechanical penetration for the containment vessel (CV). Specifically, the inspectors reviewed a purchase order, drawings, certified material test reports (CMTRs) for the flued head and weld rod, Chicago Bridge and Iron (CB&I) welding procedure and program documents, two welder test records, and calibration records for a clamp meter (used for heat input control during welding) and an infrared thermometer (used in rod room #6) to determine whether the following were conducted in accordance with the requirements of the Westinghouse (WEC) Design Specification APP-ML10-Z0-002, and

the 2001 Edition including 2002 Addenda of the American Society of Mechanical Engineers (ASME) Section III Code, Subsection NE, for Class MC Components:

- proper reviews and approvals were performed for calibration records, weld rod Material Issue Records, and field Weld Records;
- proper designation of the ASME Code class, material type and grade, welding procedure specification (WPS), weld joint configuration, and weld rod classification;
- Quality Control (QC) hold points were signed-off for cleanliness, fit-up, and argon gas purge/backing using an oxygen sensor;
- traceability of welders and weld rods were maintained;
- welding parameters for a fill pass were within the essential variables of WPS1-1.8T20; and
- rod room #6 storage, issuance, and return of weld rods was adequate.

b. Findings

No findings were identified.

1A02 (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:

- 65001.01-02.01 - Procedures
- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.A-02.03 - Independent Assessment/Measurement Inspection
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.05 - Inspection
- 65001.B-02.06 - Records
- 65001.F-02.03 - Observation of Fabrication Activities

The inspectors performed a field inspection of the western portion of the containment internal reinforcing steel from elevation 84'-6" to 87'-6". The inspectors reviewed applicable design drawings, design specifications, and interviewed licensee personnel to determine whether structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures. Specifically, the inspectors verified if:

- 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 and requirements;

- 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;
- reinforcing steel was located properly in the structures, secured, free of excess rust, and had proper clearances; and
- QC inspections were performed to verify correct placement of reinforcing steel.

In addition, inspectors reviewed applicable design specifications, engineering and design coordination reports (E&DCRs), nonconformance reports, and corrective action reports associated with the containment vessel bottom head reinforcing steel installation to determine if:

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

The inspectors performed a direct inspection of construction activities associated with the assembly of the in-containment refueling water storage tank (IRWST) submodules CA03-05 and CA03-11. The inspectors observed the welding of structural steel components that make up these submodules and observed quality control inspectors perform non-destructive examinations of the welds. Specifically, the inspectors observed field welds (FW) FW-11-WL-002, FW-11-WL-001, FW-05-WL-002, and FW-11-GP-014. The inspectors reviewed the drawings, WPS, and supporting procedure qualification records (PQRs) to determine whether the welding activities were performed in accordance with the design specifications, design drawings, and American Welding Society (AWS) D1.1, Structural Steel Welding Code. Welder qualification records were reviewed by the inspectors to determine whether the welders performing the activities were qualified in accordance with the applicable AWS D1.1 requirements. The inspectors reviewed the weld travelers to verify the traceability of each welder and the filler material used to the weld observed. In addition, the CMTRs for the weld filler material used were reviewed by the inspectors to determine whether the material was in accordance with the WPS. The inspectors also visually inspected the welds to determine if they were the correct type, size, in the proper location, and free of any visual defects.

The inspectors performed a receipt inspection of submodules CA03-05 and CA03-11 to verify that the components procured to assemble the submodules were in accordance with procurement documents and design specifications. The inspectors measured the overall dimensions of each submodule to determine whether they were in accordance with approved design drawings. The inspectors also reviewed receipt inspection packages and performed measurements of the steel components including the face plates, stiffeners, and other supporting steel to ensure the member size, shape, and grade was in accordance with the design drawings and design specifications.

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:

- 65001.01-02.05 - Steel Structures
- 65001.A-02.03 - Independent Assessment/Measurement Inspection
- 65001.B-02.01 - Program and Procedures Review
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.F-02.01 - Design Document Review

The inspectors observed the as-built configuration of the embed plates that connect the east steam generator compartment of CA01 to the basemat inside the containment vessel at the 87'6" elevation. Specifically, the inspectors observed plates B-110, B-113 and B-114. The inspectors performed an independent verification to ensure the size, length, and location of welds between both the CA01 wall plates and the embed plates on the top side of the plate, and between the plates and rebar couplers on the bottom side of the plate conformed to design requirements. The inspectors also reviewed certified material test reports for the weld filler material and for the embed plate material to determine if the installed material properties met the requirements of the design and material specifications. Specifically, the inspectors reviewed the embed plate material against the chemical composition and mechanical property requirements of American Society for Testing and Materials (ASTM) A572-07 and reviewed the filler material against the chemical composition and mechanical property requirements of ASME Section II, Part C, SFA 5.5 for E8018-C1 low alloy steel covered welding electrodes.

b. Findings

No findings were identified.

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:

- 65001.01-02.01 - Procedures
- 65001.01-02.05 - Steel Structures
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls

The inspectors observed in-process manual GTAW on weld No. FW-07-VP-002 located between submodules CA03-07 and CA03-08. The weld joined two A240 stainless-steel

members which form part of the IRWST. Specifically, the inspectors reviewed specifications, drawings, CB&I welding procedures, material issue records, welding procedure specifications, and welder test records, to determine if the identification of welds and welders was maintained for each weld and the welders were qualified in accordance with CB&I procedures and AWS D1.6. In addition, the inspectors verified welding parameters such as amperage, voltage, pre-heat temperature, and that the appropriate type of filler metal used was in accordance with welding procedure specifications. Also, the inspectors observed in-process liquid penetrant examination (PT) and reviewed the examiner's non-destructive qualification records to determine if the testing was performed in accordance with CB&I procedures.

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.F-02.02 - Fabrication Records Review

The inspectors performed field inspections of Unit 2 submodules CA03-07 and CA03-10 to verify that the items received were the proper shape, size, and dimensions, in accordance with IRWST design drawings. The CA03 module is one of the walls of the IRWST. The IRWST is part of the passive core cooling system, which is the system that provides emergency core cooling following design basis events.

The inspectors reviewed the receipt packages associated with submodules CA03-07, CA03-10, and CA03-09 to verify the shape, size, dimensions, type, and grade conformed to approved design drawings. The inspectors also reviewed CMTRs to verify that filler metals met the chemical and mechanical requirements per ASME. The filler metals had the following Material ID (MI) #s: 15035, 15034B, 15036, 16568A, 15643, and 15034. The inspectors reviewed a sample of design changes and weld travelers associated with each of the modules. For CA03-07 and CA03-10, the inspectors additionally reviewed CMTRS associated with base metals to verify they met chemical and mechanical requirements per the DCD and ASME. The base metals had the following MI #s: N792, N1663, N1090, N1739, N1500, and N1810.

b. Findings

No findings were identified.

1A06 (Unit 2) ITAAC Number 3.3.00.02a.i.b (761) / Family 01Fa. Inspection Scope

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

- 65001.01-02.01 - Procedures
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.03 - Special Considerations
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.F-02.01 - Design Document Review

The inspectors observed ongoing construction activities associated with the Unit 2 shield building reinforced concrete (RC) / steel concrete composite (SC) horizontal connection located approximately between azimuths 173 and 342 degrees and elevations 100'-0" and 103'-6". The inspectors verified field measurements, performed visual observations, reviewed documents, and interviewed licensee personnel to assess the implementation of the quality assurance (QA) program specific to the mechanical connection between the shield building reinforced concrete walls and the steel concrete composite wall panels along the western perimeter of the shield building. These activities were performed in order to verify:

- installation of structural modules was completed in accordance with applicable specifications, drawings, and approved procedures;
- that deviations were being addressed in accordance with procedure requirements; and
- nonconforming conditions identified by the licensee were being appropriately resolved.

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

The inspectors completed a review of the enhanced shield building construction mockup program. Specifically, the inspectors reviewed the final report documenting the enhanced shield building construction mockup program including lessons learned from concrete placement and conclusions based on destructive examination of the mockups. This review supplemented direct observations of these activities that were previously conducted earlier in the year. The intent of this review was to:

- verify that the licensee had established and was implementing a construction mockup program as described in Section 3.8.4.8 of the Updated Final Safety Analysis Report (UFSAR);

- verify that the proposed construction means and methods are capable of producing a completed structure that meets design and licensing requirements;
- verify that, if adequately implemented, the planned quality assurance measures are sufficient to provide reasonable assurance that the completed structure has been constructed in accordance with design and licensing requirements;
- verify that lessons learned from the construction mockup program are being appropriately incorporated into planned quality assurance measures, inspection techniques, and construction means and methods; and
- support future NRC inspection activities by providing insights into and familiarization with planned quality assurance measures and construction means and methods associated with construction of the AP1000 enhanced shield building.

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

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

b. Findings

No findings were identified.



1A07 (Unit 2) ITAAC Number 3.3.00.02a.i.b (761) / Family 01Fa. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.01 - Observation of in-Process Installation Activities

The inspectors observed in-process machine flux core arc welding (FCAW) of horizontal welding between Course 01 and Course 02 of the shield building panels. The horizontal welds inspected were FW-HS-001, located on the interior side of the shield building, and weld FW-HS-002, located on the exterior side of the building. The inspectors reviewed documentation associated with two vertical welds. The welds were FW-HG-001, located on the interior side of the shield building between panels 02G and 02H, and weld FW-KJ-001, located on the exterior side of the building between panels 02J and 02K. The welds were performed by machine and semi-automatic welding joining two ASTM A572 Grade 50 carbon steel plates. Specifically, the inspectors reviewed weld map drawings, welding procedure specifications, welding procedures, non-conformance and disposition reports, and welder test records to verify if:

- the weld joint geometry, including root opening and fit-up tolerances were specified; and
- the welders had the proper skills by performing specific performance qualification tests prescribed by AWS D1.1.

In addition, the inspectors verified welding parameters such as amperage, voltage, and pre-heating temperature to determine if they were in accordance with the requirements of welding procedure specifications and AWS D1.1.

b. Findings

No findings were identified.

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

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

- 65001.01-02.01 - Procedures
- 65001.01-02.06 - Records
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.F-02.02 - Fabrication Records Review

The inspectors performed a direct inspection of construction activities associated with the precast panels that form a portion of the auxiliary building floor at elevation 82'-6" between column line I and the shield building and between column lines 7 and 7.3. The inspectors observed the size, spacing, and configuration of the reinforcement in precast panels 1223-CP-S03 and 1223-CP-S04 being fabricated for use as elements of the reinforced concrete floors at 82'-6" in the radiologically controlled area of the Unit 2 auxiliary building to determine if the reinforcement was installed in accordance with applicable requirements. The inspectors reviewed work package VS2-1220-C0W-004, "Unit 2 Auxiliary Building Precast Concrete Floors EL 82'-6", to verify that the detailed design was in conformance with regulatory requirements and construction activities were completed and documented in accordance with site procedures. The inspectors also verified that the reinforcement was adequately secured to prevent movement during concrete placement and concrete cover was within tolerances.

The inspectors observed the placement of concrete within the panels to verify whether the concrete was placed in accordance with applicable requirements and was well consolidated to prevent voiding. The concrete batch tickets and quality documentation were reviewed to determine if the concrete was of the appropriate mix design and within specifications.

b. Findings

No findings were identified.

1A09 (Unit 2) 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 performed direct inspection of construction activities associated with walls within the containment vessel for Summer Unit 2. Specifically, the inspectors observed construction activities associated with the following wall sections between elevation 83' and 90':

- West Reactor Vessel Cavity Wall
- North Reactor Vessel Cavity Wall
- East Reactor Vessel Cavity Wall

The inspectors reviewed the dimensions specified in the V.C Summer Units 2&3 UFSAR, Table 3.3-1 for samples listed above. The inspectors assessed the method and controls used by the licensee to verify that the as-built dimensions conformed to the licensing basis to determine whether the methodology used was appropriate and would produce sufficient records to document that completed work met the design specifications and acceptance criteria. The inspectors performed independent inspections and measurements to determine whether the as-built concrete thickness of completed wall sections were in accordance with the final design, the ITAAC, and the

UFSAR. Additionally, the inspectors reviewed measuring and surveying records associated with the wall sections inspected to determine whether:

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

b. Findings

No findings were identified.

1A10 (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:

- 65001.01-02.05 - Steel Structures
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors measured the thickness of shield building panels to verify that they were within tolerance according to design drawings. The thicknesses were measured in laydown yards, prior to any future welding or concrete pours. Specifically, to ensure conformance with the requirements of UFSAR, Tier 1, Table 3.3-1, the inspectors performed independent measurements on the following shield building panels:

- VS2-1208-SC-07G, located at elevation 149'6" to 159'6"
- VS2-1208-SC-08K, located at elevation 159'6" to 169'6"
- VS2-1208-SC-09K, located at elevation 169'6" to 179'6"
- VS2-1208-SC-12G, located at elevation 199'6" to 209'6"
- VS2-1208-SC-13B, located at elevation 209'6" to 219'6"
- VS2-1208-SC-13M, located at elevation 209'6" to 219'6"

b. Findings

No findings were identified.

1A11 (Unit 3) ITAAC Number 2.2.03.08c.vi.01 (189) / Family 06A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.08c.vi.01 (189). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.06-02.04 - Testing and Verification

- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review

The inspectors performed an inspection of vendor documentation, reviewed calculations, reviewed deviation notices, and reviewed acceptance information associated with the core makeup tanks (CMTs) for V.C Summer Unit 3 to determine whether the volume of both CMTs met the minimum volume established in the Summer Unit 3 UFSAR, Section 5.4.13 "Core Makeup Tank" and the Summer Unit 3 COL, Appendix C, Table 2.2.3-4, "Inspections, Tests, Analyses, and Acceptance Criteria."

The inspectors reviewed documentation related to the volume verification to determine whether:

- critical attributes of the CMT were identified and measured;
- the method and controls used by the licensee to verify that the as-built dimensions conformed to the licensing basis were adequate;
- the as-built tank volume and dimensions were in accordance with the final design, the ITAAC, and UFSAR;
- equipment used for measurement was properly maintained and calibrated;
- equipment accuracy was within procedural specifications;
- 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.

In addition, the inspectors performed an independent calculation of the volume using the as-built dimensions of the CMTs.

b. Findings

No findings were identified.

1A12 (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:

- 65001.01-02.01 - Procedures
- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.F-02.01 - Design Document Review

The inspectors performed a field inspection of the containment internal reinforcing steel from elevation 71'-6" to 76'-6". The inspectors reviewed applicable design drawings,

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

- 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 and requirements;
- 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;
- reinforcing steel was located properly in the structures, secured, free of excess rust, and had proper clearances; and
- QC inspections were performed to verify correct placement of reinforcing steel.

In addition, inspectors reviewed applicable design specifications, E&DCRs, nonconformance reports, and corrective action reports associated with the containment vessel bottom head reinforcing steel installation to determine if:

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

b. Findings

No findings were identified.

1A13 (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:

- 65001.01-02.01 - Procedures
- 65001.01-02.06 - Records
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.03 - Special Considerations
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.F-02.03 - Observation of Fabrication Activities

The inspectors observed the concrete placement inside the Unit 3 containment vessel bottom head from elevation 71'-6" to 76'-6" (Layer 1A). The inspectors observed final quality control inspections of the reinforcing steel. The inspectors also observed in process testing of the fresh concrete, reviewed concrete batch tickets, and observed the final finish and curing techniques used. The inspectors observed the pour, reviewed the applicable concrete procedures and specifications, and reviewed the work package to determine whether:

- contractors had approved implementing procedures, which addressed the requirements of applicable American Concrete Institute (ACI) codes, prescribed adequate methods of QC inspection, and specified appropriate quantitative and qualitative acceptance criteria;
- the batch plant was producing the specified mix, using the proper qualified and approved constituents;
- concrete subgrade, form work, and reinforcing steel were free of foreign materials and excess rust;
- concrete was placed and consolidated by properly trained individuals using the proper equipment;
- fresh concrete tests including slump, air content, temperature, and unit weight were performed by qualified personnel and equipment; at the appropriate intervals; and
- proper finishing, curing, and temperature monitoring techniques and equipment were utilized.

In addition, inspectors reviewed applicable design specifications, E&DCRs, nonconformance reports, and corrective action reports associated with the containment vessel bottom head 1A concrete pour and rebar installation to determine if:

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

b. Findings

No findings were identified.

1A14 (Unit 3) ITAAC Number 3.3.00.02a.i.a (760) / Family 01Fa. Inspection Scope

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

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

The inspectors observed in-process machine gas metal arc welding (GMAW) on two vertical weld seams FW-0307 and FW-0703 performed by welding operators DOS2204 and SRT9205, respectively. They used separate remote control panels and monitors to join carbon steel structural submodules CA05-03 to CA05-07 using full penetration single-V grooves with backing bars. Specifically, the inspectors reviewed welding procedure WPS2-1.1M73 as well as each individual's test records to verify the essential variables were compatible with the production welds, and they were properly tested and able to follow the required parameters. These included wire feed speed, travel speed, voltage, and gas mixtures and flow rates in accordance with the requirements of the AWS D1.1:2000 Code for welding structural steel.

b. Findings

No findings were identified.

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

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

- 65001.01-02.05 - Steel Structures
- 65001.A - As-Built Attributes for SSCs associated with ITAAC
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls

The inspectors observed in-process machine GMAW on three vertical weld seams for module CA05. The vertical welds were:

- FW-0506 and FW-0605 located between submodules CA05-05 and CA05-06. Each weld joined two A572 Grade 60 carbon steel plates; and
- FW-0102, which also joined two A572 Grade 60 carbon steel plates, located between submodules CA05-01 and CA05-02.

The inspectors also observed in-process manual GTAW for vertical weld FW-0201, which joined a A572 Grade 60 carbon steel plate and a A240 stainless steel plate. The machined welds, which joined two ASTM A572 Grade 60 carbon steel structural plates, were performed by separate remote control panels and monitors. Specifically, the inspectors reviewed weld map drawings, welding procedure specifications, CB&I welding procedures, welding machine calibration records, weld traveler records, and welder test records to verify if:

- The welders had the proper skills by performing specific performance qualification tests prescribed by AWS D1.1;
- Shielding gas flow and composition was as specified in the WPS;
- The temperature of the base material at the joint prior to welding met the preheat requirements of the procedure specification;
- The filler metal utilized was in compliance with the WPS, manufacturer's recommendations, and AWS D1.1; and
- Construction personnel had the proper guidance which coordinated and sequenced welding activities, referenced procedures, and established hold points for inspections.

In addition, the inspectors verified welding parameters such as wire feed speed, travel speed, amperage, voltage, and gas mixtures in accordance with the requirements of the AWS D1.1: 2000 Code.

b. Findings

No findings were identified.

1A16 (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:

- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.03 - Special Considerations

The inspectors completed a review of the enhanced shield building construction mockup program. Specifically, the inspectors reviewed the final report documenting the enhanced shield building construction mockup program including lessons learned from concrete placement and conclusions based on destructive examination of the mockups. This review supplemented direct observations of these activities that were previously conducted earlier in the year. The intent of this review was to:

- verify that the licensee had established and was implementing a construction mockup program as described in Section 3.8.4.8 of the UFSAR;
- verify that the proposed construction means and methods are capable of producing a completed structure that meets design and licensing requirements;



- verify that, if adequately implemented, the planned quality assurance measures are sufficient to provide reasonable assurance that the completed structure has been constructed in accordance with design and licensing requirements;
- verify that lessons learned from the construction mockup program are being appropriately incorporated into planned quality assurance measures, inspection techniques, and construction means and methods; and
- support future NRC inspection activities by providing insights into and familiarization with planned quality assurance measures and construction means and methods associated with construction of the AP1000 enhanced shield building.

b. Findings

No findings were identified.

1A17 (Unit 3) ITAAC Number 3.3.00.02a.i.c (762) / Family 01F

a. Inspection Scope

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

- 65001.01-02.06 - Records
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.A.02.02 - Installation Records Review
- 65001.F-02.01 - Design Document Review

The inspectors performed a direct inspection of construction activities associated with the fabrication of the floors in rooms 12211 and 12201, which are located in the northeast corner of the Unit 3 auxiliary building at the 82'6" elevation. The inspectors verified the reinforcing steel (rebar) and embedded items such as embed plates and penetrations were installed in accordance with design drawings and regulatory requirements. Specifically, the inspectors verified if:

- structural concrete design and construction was accomplished under controlled conditions and in accordance with applicable procedures, specifications, drawings, and approved procedures;
- records reflected that completed work met design specifications and acceptance criteria;
- reinforcing steel was located properly in the structures, secured, free of excess rust, and had proper clearances; and
- QC inspections were performed to verify correct placement of reinforcing steel.

The inspectors reviewed work package VS3-1220-C0W-009, "Rebar, Embeds, Anchor Bolts and Concrete for Unit 3 Aux Building Areas 1 & 2 82'6" Floors," to determine if construction activities were performed and documented in accordance with site procedures.

b. Findings

No findings were identified.

1A18 (Unit 3) ITAAC Number 3.3.00.02a.i.d (763) / Family 01F

a. Inspection Scope

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

- 65001.01-02.03 - Key Site Parameters
- 65001.01-02.06 - Records
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.F-02.01 - Design Document Review

The inspectors reviewed quality records and performed direct inspection of construction activities associated with the radiologically controlled area of the auxiliary building for V.C Summer Unit 3. Specifically, the inspectors observed construction activities associated with the wall section between elevation 82'-6" and 100'-0" along column line 1 between column lines J-2 and N.

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

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

For the wall section listed above, the inspectors performed independent inspection and measurements to determine whether the steel reinforcement, embedments, and formwork conformed to the design specifications.

b. Findings

No findings were identified.

1A19 (Unit 3) ITAAC Number 3.3.00.02a.i.d (763) / Family 01Fa. Inspection Scope

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

- 65001.01-02.05 - Steel Structures
- 65001.F-02.04 - General QA Review

The inspectors observed welding on the CA20 module which comprises portions of the radiologically controlled area of the auxiliary building. As applicable, the inspectors observed the weld fit up, weld gas flow, gas composition, filler metal, amperage, and voltage to verify they were within the tolerances of the welding procedure. The inspectors reviewed the qualifications of the welder. The inspectors reviewed the ultrasonic testing (UT) and magnetic particle examination (MT) nondestructive examination (NDE) records to verify that it was acceptable. The inspectors observed the welding of the following welds:

- weld VS3-CA20-VWK-097-FW-0203-001 between submodules CA20-02 and CA20-03, located on the J1 wall;
- fill pass weld VS3-CA20-VWK-101-FW-0304-001 between submodules CA20-03 and CA20-04, located on the J1 wall;
- duplex weld VS3-CA20-VWK-144-FW-2728-008 between submodules CA20-27 and CA20-28, located on the L2 wall which is adjacent to waste holdup tanks and the spent fuel storage rack room;
- weld VS3-CA20-VWK-153-FW-2829-008 between submodules CA20-28 and CA20-29, located on the L2 wall;
- carbon steel welds VS3-CA20-VWK-159-FW-2930-011 and VS3-CA20-VWK-159-FW-2930-007 between submodules CA20-30 and CA20-29 located on the L2 wall;
- root pass of welds VS3-CA20-VWK-156-FW-3029-007 and VS3-CA20-VWK-156-FW-3029-008 between submodules CA20-30 and CA20-29 located on the L2 wall; and
- weld VS3-CA20-VWK-104-FW-2221-008 between submodules CA20-22 and CA20-21 located on the K2 wall.

b. Findings

No findings were identified.

1A20 (Unit 3) ITAAC Number 3.3.00.02a.ii.b (765) / Family 01Aa. 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:

- 65001.01-02.05 - Steel Structures

The inspectors measured the thickness of shield building panels to verify that they were within tolerance according to design drawings. The thicknesses were measured in laydown yards, prior to any future welding or concrete pours. Specifically, to ensure conformance with the requirements of UFSAR, Tier 1, Table 3.3-1, the inspectors performed independent measurements on the following shield building panels:

- VS3-1203-SC-07H, located at elevation 149'6" to 159'6"
- VS3-1208-SC-08J, located at elevation 159'6" to 169'6"
- VS3-1208-SC-08H, located at elevation 159'6" to 169'6"

b. Findings

No findings were identified.

1A21 (Unit 3) ITAAC Number 3.3.00.02a.ii.b (765) / Family 01A

a. Inspection Scope

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

- 65001.01-02.05 - Steel Structures

The inspectors measured the thickness of shield building panels to verify that they were within tolerance according to design drawings. The thicknesses were measured in laydown yards, prior to any future welding or concrete pours. Specifically, to ensure conformance with the requirements of UFSAR, Tier 1, Table 3.3-1, the inspectors performed independent measurements on the following shield building panels:

- VS3-1208-SC-01M, located at elevation 100'0" to 103'6"
- VS3-1208-SC-02L, located at elevation 103'6" to 113'6"
- VS3-1208-SC-03G, located at elevation 113'6" to 123'6"

b. Findings

No findings were identified.

1A22 (Unit 3) ITAAC Number 3.3.00.02a.ii.d (767) / Family 01A

a. Inspection Scope

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

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

The inspectors performed direct measurements and reviewed the as-built condition of submodules CA20-22A and CA20-30, which make up walls of the radiological controlled auxiliary building. The inspectors verified that the walls conformed to the as-built thickness requirements as specified in the UFSAR, Tier 1, Table 3.3-1.

b. Findings

No findings were identified.

1A23 (Unit 3) ITAAC Number 3.3.00.02a.ii.d (767) / Family 01A

a. Inspection Scope

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

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

The inspectors performed a walk-down of the V.C. Summer Unit 3 nuclear island (NI) and conducted an independent measurement of wall 1 from column line J-2 to column line N from elevation 82'6" to 100'0" in the radiological area of the auxiliary building to verify that it was in accordance with Table 3.3-1 "Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building."

b. Findings

No findings were identified.

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

1P01 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 CAP to determine the proper level of evaluation;
- identification and correction of procurement document errors, deviations from procurement document requirements, defective items, poor workmanship, incorrect vendor instructions, significant recurring deficiencies at both vendor shops and on site, and generic procurement related deficiencies;
- identification and correction of design deficiencies;
- consideration of extent of condition, generic implications, common cause, and previous occurrences;
- classification and prioritization of the resolution of the problem commensurate with its safety significance;
- identification of corrective actions that are appropriately focused to correct the problem;
- identification of root and contributing causes, as well as actions to preclude recurrence for significant conditions adverse to quality;
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue;
- provisions for escalating to higher management those corrective actions that are 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 and the engineering, procurement, and construction (EPC) consortium's corrective action programs. The inspectors attended several weekly management review committee meetings at the site and held discussions with licensee and EPC consortium personnel responsible for the screening and correction of the issues to determine if:

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

#### Selected Issues for Follow-Up Inspection

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

- conditions adverse to quality were promptly identified and corrected;

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

b. Findings

No findings were identified.

**4. OTHER INSPECTION RESULTS**

4OA6 Meetings, Including Exit

1. Exit Meeting.

On January 28, 2016, the inspectors presented the inspection results to with Alan Torres, General Manager of Nuclear Plant Construction, along with other members of your staff and consortium staff members. The inspectors stated that no proprietary information would be included in the inspection report.

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensees and Contractor Personnel

J. Arnall, Concrete Manager, CB&I  
Z. Ashcraft, Construction Supervisor, SCE&G  
C. Baucom, Licensing, CB&I  
B. Bedford, ITAAC Manager, WEC  
J. Bouknight, Supervisor, Licensing, SCE&G  
K. Brown, Licensing, SCE&G  
J. Cole, Site Licensing Manager, WEC  
M. Engel, Site Design Engineering Manager, WEC  
P. Gibbons, Construction Supervisor, SCE&G  
N. Kellenburger, Acting Supervisor, ITAAC, SCE&G  
B. Koons, Site Design Engineering, WEC  
S. Leighty, Licensing Engineer, WEC  
B. McClung, Quality Control Manager, CB&I  
B. McIntyre, Licensing Director, WEC  
M. Pitre, Manager Weld Engineering, CB&I  
D. Powell, Field Engineering, CB&I  
A. Rice, Manager, Licensing SCE&G  
J. Robinson, Site Engineering Manager, WEC  
F. Salter, Licensing, SCE&G  
R. Troficanto, Engineering, SCE&G  
B. Tune, Construction, SCE&G  
W. Turnbow, Construction Manager, CB&I  
B. Wood, Project Director, CB&I  
K. Young, Construction Supervisor, SCE&G  
P. Young, Site Engineering Director, WEC

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

<u>Item Number</u>	<u>Type</u>	<u>Status</u>	<u>Description</u>
None			



## LIST OF DOCUMENTS REVIEWED

### Section 1

[2502 Documents]

[2503 Documents]

### Section 1A01

WEC APP-ML10-Z0-002, AP1000 Containment Piping Penetrations with Flued Heads Design Specification, Revision 5, dated February 4, 2010

WEC Dwg. APP-ML10-V6-010, AP1000 Flued Head Detail Drawing for Penetration P22, Revision 1, dated 08/11/2015

WEC Dwg. APP-MV50-V1-019, AP1000 Containment Vessel Mechanical Penetration Sleeves Bottom Head, Revision 3, dated 07/07/2015

WEC Dwg. APP-1100-P0-906, Steel Containment Vessel Mechanical Penetration Details, Revision 4, dated 05/04/2010

WEC Quality Release & Certificate of Conformance (494 pages), VS2-ML10-VQQ-001, Revision 4, dated Aug-15-2013, that includes Taewoong, Co., Ltd. CMTR 1112-028 of Heat-No. A311808 for SA-182 Grade F304L P22 flued head; Inspection Certificate TW201112-0916 Chemical Analysis and Tensile Test; Heat Treatment Report H110920-001; Report of Ultrasonic Examination HSIT-02-U11-TW3473; Report of Liquid Penetrant Examination HSIT-02-P11-TW0271; Dimensional Inspection Record HD-1110-T14-2; and drawing AD-PE-15137-0325\_11.

CB&I GWS-1, ASME General Welding Specification, Revision 3, dated 05/22/14

CB&I GPS-1, General Purging Standard, Revision 1, dated 04/16/14

CB&I Weld Record for Weld No. VS2-SFS-MLK-003-FW-001, Rev. 1, dated 11/10/2015

Shaw Nuclear Engineering Spec Number DMD-M-NS-QA1-01, Welding Program Doc. No. TR-5.9-3XXL-GTAW, Welding Filler Material Procurement Specification, Rev. 1, dated March 08, 2012

Shaw Nuclear Engineering Spec Number DMD-M-NS-593XXLGTAW-01, Welding Program Doc. No. TR-QA-1, Welding Filler Material Procurement Specification, ER308L/ER309L/ER316L/ER320LR Stainless Steel Bare Wire/Rods, Rev. 1, dated 04/20/2012

CB&I Material Issue Record MIR # 153509 for weld rod ER309L, Heat-No. 1116Z, from Rod Room #6 for NI-2

Lincoln Electric Company CMTR 5677816, ES-ZBEN, 1/8" by 18", SFA-5.9 ER309L, Heat No. 1116Z with chemical analysis, mechanical test, and ferrite measurement

CB&I ASME Section IX welding procedure specification WPS1-1.8T20 GTAW with supporting PQRs PQ558 and PQ586, Revision 3, dated 9/22/2015

CB&I Record of Welder Performance Qualifications - ASME Section IX Groove Weld for welders JWH9819 (for fit-up and tack welding) and EH1375 (fill weld pass) each on a 1/2" thick carbon steel 2 3/4" diameter pipe test coupon in the open butt (no backing) 6G (45°) test position, dated 10/15/2015 and 03/06/2015, respectively

CB&I Nuclear Calibration Checklist 166316-4 for Fluke RMS Clamp Meter control no. 166316 with expiration date of 2/26/2016

CB&I Nuclear Calibration Checklist 149494-3 for Fluke IR Thermometer control no. 149494 with expiration date of 1/10/2016

**Section 1A02**Drawings:

APP-1110-CR-701, Containment Concrete Reinforcement Vertical Dowel Layout at CJ 87'-6", Rev. 0  
 APP-1120-CR-563, Containment Concrete Reinforcement from EL. 83'-0" to EL. 107'-2", Rev. 2  
 APP-CA03-S5-11001, Containment Building Module CA03 - Submodule CA03-11 Isometric Views, Rev. 3  
 APP-CA03-S5-11002, Containment Building Module CA03 - Submodule CA03-11 Break Down, Rev. 3  
 APP-CA03-S5-11003, Containment Building Module CA03 - Submodule CA03-11 Structural Outline Vertical Sections/Views, Rev. 4  
 APP-CA03-S5-11004, Containment Building Module CA03 - Submodule CA03-11 Structural Outline Horizontal Sections/Views, Rev. 4  
 APP-CA03-S5-11005, Containment Building Module CA03 - Submodule CA03-11 Structural Outline Specific Details, Rev. 4  
 APP-CA03-S5-11006, Containment Building Module CA03 - Submodule CA03-11 Structural Outline Specific Details II, Rev. 0  
 APP-CA03-S5-11007, Containment Building Module CA03 - Submodule CA03-11 Break Down II, Rev. 0

Design 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

N&Ds:

APP-CA04-GNR-850070, Weld Qualification, Rev. 0  
 VS2-1110-GNR-000036, Missing Dowels, Rev. 0

Welding Procedures:

WPS5-10H.10HM70, Rev. 0  
 WPS5-10H.10HT70, Rev. 1  
 PQR SP394

**Section 1A03**Drawings and Sketches:

VS2-CA01-S4-700, Containment Building Areas 3&4, Module CA01 Subassembly-01 Structural Outline - Basemat Connection Plan View, Rev. 0  
 VS2-CA01-S4-708, Containment Building Areas 1-4 Module CA01 Basemat Connection Details I, Rev. 0  
 VS2-CA01-VWK-763, VS2-CA01-S4W-01005 CA01 Sub-Assembly 1 Basemat Connection Plate to Liner Plate Weld Map, Rev. A  
 VS2-CA01-CAK-029, VS2-CA01-S4W-01005 CA01 B-Plates B-110, 113, 114 Coupler Weld Upsize Weld Map, Rev. A

E&DCRs:

APP-CA01-GEF-573, CA01 Basemat Connections, Rev. 0  
 Weld Procedure Specification  
 WPS2-1.1S02, Rev. 1

CMTRs:

Consolidated Power Supply, Heat 3508875, 2/25/14  
 Consolidated Power Supply, Heat 3508876, 2/25/14  
 Lincoln Electric Company, Lot 1229P, 6/4/15  
 Lincoln Electric Company, Lot 1231K, 5/28/15

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VS2-CA03-VWK-007, Rev. A  
 VS2-CA03-VWK-040, Rev. D  
 VS2-CA03-S5B-07001, Rev. 0

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WPS 5-10H.10HT70

Procedures:

GSW-2, AWS D1.1- Structural Steel General Welding Specification, Rev. 4  
 GWS-5, AWS D1.6 - Stainless Structural Steel General Welding Specification, Rev. 3  
 QAD 09.31, Liquid Penetrant Examination Requirement for the Solvent Removable, Color Contrast Technique. Rev. 03.02

Material Issue Records:

MIR No. 142683-001

**Section 1A05**

VS2-CA03-GNR-000004, SMCI VS2 CA03-10 Dimensional O.O.T., Rev. 0.  
 VS2-CA03-GNR-000006, SMCI VS2 CA03-10 MK14 & MK15 Straightness & Dimensions O.O.T, Rev. 0  
 Q445-15-4583  
 132177-D100.CA006-404-012-00017, VS2-CA03-10 Receipt Package, Rev.2  
 132177-D100.CA006-404-012-00001, VS2-CA03-09 Receipt Package, Rev.2  
 132177-D100.CA006-404-012-00012, VS2-CA03-07 Receipt Package, Rev.2  
 WM-P01, CA03 Panel Weldment for Modules 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, Weld Map, Rev. 3-0  
 FM-CA03-Main, CA03 Main Assembly Feature Map (Modules 2 through 16), Rev. 5  
 132177-D100.CA006-405-012-00008, CA03 Fabrication Bill of Materials, Rev.1  
 132177-D100.CA006-405-012-00001, CA03 Fabrication Materials, Rev.12  
 132177-D100.CA006-405-012-00002, CA03 Fabrication Materials, Rev.1  
 132177-D100.CA006-405-012-00003, CA03 Fabrication Materials, Rev.1  
 132177-D100.CA006-405-012-00004, CA03 Fabrication Materials, Rev.1  
 VS2-CA03-S5-10001-R0, Containment Building Module CA03- Submodule CA03-10 Isometric Views, Rev. 0  
 VS2-CA03-S5-10002-R0, Containment Building Module CA03- Submodule CA03-10 Breakdown, Rev. 0  
 VS2-CA03-S5-10004-R0, Containment Building Module CA03- Submodule CA03-10 Structural Outline Horizontal Sections/Views, Rev. 0  
 VS2-CA03-S5-10005-R0, Containment Building Module CA03- Submodule CA03-10 Structural Outline Specific Details, Rev. 0

VS2-CA03-S5-10006-R0, Containment Building Module CA03- Submodule CA03-10 Structural Outline Specific Details II, Rev. 0  
 VS2-CA03-S5-10007-R0, Containment Building Module CA03- Submodule CA03-10 Breakdown II, Rev. 0  
 VS2-CA03-S5-09001-R0, Containment Building Module CA03- Submodule CA03-09 Isometric Views, Rev. 0  
 VS2-CA03-S5-09002-R0, Containment Building Module CA03- Submodule CA03-09 Breakdown, Rev. 0  
 VS2-CA03-S5-09003-R0, Containment Building Module CA03- Submodule CA03-09 Structural Outline Vertical Sections/Views, Rev. 0  
 VS2-CA03-S5-09004-R0, Containment Building Module CA03- Submodule CA03-09 Structural Outline Horizontal Sections/Views, Rev. 0  
 VS2-CA03-S5-09005-R0, Containment Building Module CA03- Submodule CA03-09 Structural Outline Specific Details, Rev. 0  
 VS2-CA03-S5-09006-R0, Containment Building Module CA03- Submodule CA03-09 Structural Outline Specific Details II, Rev. 0  
 VS2-CA03-S5-09007-R0, Containment Building Module CA03- Submodule CA03-09 Breakdown II, Rev. 0  
 VS2-CA03-S5B-07001-R0, Containment Building Module CA03- Submodule CA03-07 Bill of Materials, Rev. 0  
 VS2-CA03-S5-07001-R0, Containment Building Module CA03- Submodule CA03-07 Isometric Views, Rev. 0  
 VS2-CA03-S5-07002-R0, Containment Building Module CA03- Submodule CA03-07 Breakdown, Rev. 0  
 VS2-CA03-S5-07003-R0, Containment Building Module CA03- Submodule CA03-07 Structural Outline Vertical Sections/Views, Rev. 0  
 VS2-CA03-S5-07004-R0, Containment Building Module CA03- Submodule CA03-07 Structural Outline Horizontal Sections/Views, Rev. 0  
 VS2-CA03-S5-07005-R0, Containment Building Module CA03- Submodule CA03-07 Structural Outline Specific Details, Rev. 0  
 VS2-CA03-S5-07006-R0, Containment Building Module CA03- Submodule CA03-07 Structural Outline Specific Details II, Rev. 0  
 VS2-CA03-S5-07007-R0, Containment Building Module CA03- Submodule CA03-07 Breakdown II, Rev. 0

### **Section 1A06**

#### Miscellaneous:

V.C Summer Shield Building Mockups Evaluation Report, 5/18/2015  
 V.C. Summer Unit 2 Layer F2 Placement Plan, Revision 1, 9/23/2015  
 Work Package VS2-1020-CCW-001

### **Section 1A07**

#### Specifications:

APP- 1208-Z0-001, Rev. 1

#### Welding Procedure Specification:

WPS 1-1.1S03-SB, Rev. 0  
 WPS 2-1.1F20-SB (FCAW), Rev. 4  
 WPS 1-1.1SA30-SB, Rev. 0

WPS 1-1.1F01-SB, Rev. 2

Welder Qualifications:

BDM 8173  
 SHP 1617  
 SCS 6076  
 MLG 6746

Weld Maps:

VS2-1238-VWK-003, Rev. D  
 VS2-1208-SC-906, Rev.5

Non-Conformance and Disposition:

VS2-1238-GNR-000029, Rev. 0

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APP-1223-CPY-030, Auxiliary Building Area 3 Concrete Precast Panel 1223-CP-S03  
 Reinforcement Details, Rev. 3  
 APP-1223-CPY-040, Auxiliary Building Areas 3 & 4 Concrete Precast Panel 1223-CP-S04  
 Reinforcement Details, Rev. 3  
 APP-1223-CPY-042, Auxiliary Building Areas 3 & 4 Concrete Precast Panel 1223-CP-S04  
 Reinforcement Details, Rev. 0

Specifications:

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

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VS2-CA01-GNR-000378, CA01 Layer 5 West As Built Survey, Rev. 0

**Section 1A10**

VS2-1208-SC-701-R2, Shield Building Steel Wall Panels, El 100'00" to EL 248' 6 1/2" Type 2  
 Panel Group 70, Rev. 2  
 VS2-1208-SC-100-R2, Shield Building Steel Wall Panels El 100'00" to EL 248' 6 1/2" General  
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VS3-MT01-Z0R-201, Rev. 0  
 VS3-MT01-VQQ-001P6P8, Rev. 0  
 VS3-MT01-VQQ-002P7P9, Rev. 0

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VS3-MT01-GNR-008, Rev. 0  
 VS3-MT01-GNR-009, Rev. 0  
 VS3-MT01-GNR-023, Rev. 0  
 VS3-MT01-GNR-025, Rev. 1

W3-DN-00-00-076, Rev. 03

M&TE

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Laser tracker AT901, 2LAS

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APP-1110-CR-519, Containment Concrete Reinforcement General Vertical Dowel Plan, Rev. 4

APP-1110-CR-524, Containment Concrete Reinforcement Plan at EL. 76'-6", Rev. 4

APP-1110-CR-525, Containment Concrete Reinforcement Sections, Rev. 4

APP-1110-CR-526, Containment Concrete Reinforcement West SG Area Dowel Plan, Rev. 3

APP-1110-CR-527, Containment Concrete Reinforcement East SG Area Dowel Plan, Rev. 3

APP-1110-CR-528, Containment Concrete Reinforcement CA05 Area Dowel Plan, Rev. 3

APP-1110-CR-531, Containment Concrete Reinforcement Vertical Dowel Layout at CJ 76'-6", Rev. 2

APP-1120-CR-545, Containment Concrete Reinforcement Sections, Rev. 4

APP-1120-CR-546, Containment Concrete Reinforcement Sections, Rev. 5

APP-1120-CR-547, Containment Concrete Reinforcement Sections, Rev. 4

APP-1120-CR-548, Containment Concrete Reinforcement Sections, Rev. 3

Specifications:

VS2-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel, Rev. 7

E&DCRs:

VSG-GW-GEF-000018, Building Separation, Rev. 0

VS3-CR01-GEF-000075, Reinforcement Spacing Tolerances, Rev. 0

APP-1110-GEF-104, Dowel Splices, Rev. 0

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VS3-1110-GNR-000005, Reinforcement Clearance, Rev. 0

VS3-CR01-GNR-000073, Bending of Embedded Rebar, Rev. 0

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ACI 318-11, Building Code Requirements for Structural Concrete

ACI 349-01, Code Requirements for Nuclear Safety Related Concrete Structures

**Section 1A14**

WEC drawing no. APP-CA05-S5B-07001, titled Containment Building Area 3 Module CA05 Submodule CA05\_07 Bill of Materials, Rev. 2, dated 04/21/2011

CB&I Stone & Webster, Inc. drawing no. VS3-CA05-VWK-009, titled VS3-CA05-S4W-00001 Seam 0307 and 0703 Weld Map, Rev. A, dated 8/29/15

CB&I Power Welding Procedure Specification WPS2-1.1M73 for AWS D1.1:2000 Code for pulsed-GMAW with supporting procedure qualification numbers (PQRs) PQ441, PQ447, and 1-1-769, Rev. 9, dated 4/28/2015

CB&I Power Record of Welder Performance Qualification Test - AWS D1.1, Groove Weld, Test No. 2CS-07-O for DOS2204, dated 07/06/2015

CB&I Power Record of Welder Performance Qualification Test - AWS D1.1, Groove Weld, Test No. 2CS-07-O for SRT9205, dated 05/30/2014

### **Section 1A15**

Specifications:

WPS2-1.1T30  
WPS2-1.1M71  
WPS 5-1.10HT30

Weld Maps:

VS3-CA05-S4W-00001

Drawing:

VS3-CA05-S5B-01001. Rev. 0

Welder Qualification Records:

SRT9205  
MGB3294  
CRH 6883  
SRT 9205

Material Issue Records:

MIR 153320-002  
MIR 153196-001  
MIR 153196-003

Welding Machine Calibration Records:

RMTS Serial No. A000015  
Lincoln Power Wave R350 Serial No. U1110603213  
RMTS Serial No. A00022  
Lincoln Power Wave R350 Serial No. U1141107732

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VS3-1222-CR-232, Auxiliary Building Area 2 Concrete Reinforcement Floor EL 82'6" Details, Rev. 1  
VS3-1222-CR-222, Auxiliary Building Area 2 Concrete Reinforcement Floor EL 82'6" Details, Rev. 1  
VS3-1222-CC-202, Auxiliary Building Concrete Outline Area 2 Floor EL 82'6", Rev. 3

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VSG-1222-GEF-000004, EL. 82'6" 12201 Dwg. Discrepancies, Rev. 0

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VS2-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel, Rev. 7

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VSG-CR01-GEF-000139 Rev. 0, 1 Line Form Saver Option

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C112-15-11276 Rev. 0, Concrete Pre-Placement Inspection (1 Line EL. 82'6" to 100'0" J2 to N)

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VS3-1200-CR-950 Rev. 1, Auxiliary Building Areas 5&6 Concrete Reinforcement Wall 1 Elevation

VS3-1220-CR-950 Rev. 1, Auxiliary Building Areas 5&6 Concrete Reinforcement Wall 1 Sections & Details Elevation 82'-6"

VS3-1200-CR-906 Rev. 0, Auxiliary Building Concrete Reinforcement Typical Details Slab on Precast Panel & Wall Connection

VS3-1220-CC-950 Rev. 0, Auxiliary Building Concrete Outline Areas 5&6 Elevation 82'-6" Section A

VS3-1220-CR-954 Rev. 2, Auxiliary Building Area 5 Concrete Reinforcement Wall 1 Sections & Details Elevation 82'-6"

VS3-1220-CR-955 Rev. 1, Auxiliary Building Areas 5&6 Concrete Reinforcement Wall J-1 Sections & Details Elevation 82'-6"

VS3-1220-CR-957 Rev. 1, Auxiliary Building Areas 5&6 Concrete Reinforcement Wall K-2 Sections & Details Elevation 82'-6"

VS3-1220-CR-958 Rev. 1, Auxiliary Building Areas 5&6 Concrete Reinforcement Wall L-2 Sections & Details Elevation 82'-6"

VS3-1220-CR-959 Rev. 1, Auxiliary Building Areas 5&6 Concrete Reinforcement Wall N Sections & Details Elevation 82'-6"

VS3-1220-CR-990 Rev. 2, Auxiliary Building Concrete Reinforcement Secondary Walls Elevation 82'-6"

VS3-1220-CR-993 Rev. 1, Auxiliary Building Concrete Reinforcement Secondary Walls Sections & Details Elevation 82'-6"

VS3-1225-CC-502 Rev. 1, Auxiliary Building Concrete Outline Area 5 Floor Elevation 82'-6"

VS3-1226-CC-602 Rev. 1, Auxiliary Building Concrete Outline Area 6 Floor Elevation 82'-6"

VS3-1230-CC-950 Rev. 1, Auxiliary Building Concrete Outline Areas 5&6 Elevation 100'-0" Section A

VS3-1230-CR-563 Rev. 1, Auxiliary Building Areas 5&6 Concrete Reinforcement Floor Elevation 100'-0" Plan View

VS3-1230-CR-950 Rev. 0, Auxiliary Building Areas 5&6 Concrete Reinforcement Wall 1 Sections & Details Elevation 100'-0"

### **Section 1A19**

#### Weld VS3-CA20-VWK-097-FW-0203-001:

Weld Doc 151728

VS3-CA20-VWK-097, VS3-CA20-S4W-00203 Carbon Seam for CA20-02 & CA20-03 Seam 0203, Rev. E

V3-15-W-U-0133, Ultrasonic Examination Report for Weld VS3-CA20-VWK-097-FW-0203-001, 11/20/15



V3-15-W-M-0210, Magnetic Particle Examination Report for Weld VS3-CA20-VWK-097-FW-0203-001, 11/13/2015

Weld Procedure WPS2-1.1M73, Rev 9

Weld VS3-CA20-VWK-101-FW-0304-001:

Weld Doc 151517

VS3-CA20-VWK-101, VS3-CA20-S4W-00304 Carbon Seam for CA20-03 & CA20-04 Seam 0304, Rev. C

V3-15-W-M-0186, Magnetic Particle Examination Report for Weld VS3-CA20-VWK-101-FW-0304-001, 11/20/2015

V3-15-W-U-0142, Ultrasonic Examination Report for Weld VS3-CA20-VWK-101-FW-0304-001, 11/24/15

Weld Procedure #WPS2-1.1M71, Rev. 2

Weld VS3-CA20-VWK-144-FW-2728-008:

Weld Doc 152148

VS3-CA20-VWK-144, VS3-CA20-S4W-02728 Leak Chase for CA20-27 & CA 20-28 Seam 2728, Rev. C

V3-15-W-U-0121, Ultrasonic Examination Report for Weld VS3-CA20-VWK-144-FW-2728-007/008, 12/1/2015

Weld Procedure WPS5-10H.10HM70, Rev. 11

Weld VS3-CA20-VWK-153-FW-2829-008:

Weld Doc 152095

VS3-CA20-VWK-153, VS3-CA20-S4W-02829 Leak Chase for CA20-28 & CA 20-29 Seam 2829, Rev. C

Weld Procedure #WPS5-10H-10HM70, Rev.11

V3-15-W-U-0123, Ultrasonic Examination Report for Weld VS3-CA20-VWK-153-FW-2829-007/008, 12/10/15

Welds VS3-CA20-VWK-159-FW-2930-011 and VS3-CA20-VWK-159-FW-2930-007:

Weld Doc 152133

VS3-CA20-VWK-159, VS3-CA20-S4W-02930 Leak Chase for CA20-29 & CA 20-30 Seam 2930, Rev. C

Weld Procedure # WPS2-1.1M73, Rev. 9

Weld Procedure #WPS5-10H.10HM70, Rev. 12

MIR 152133-017

Welds VS3-CA20-VWK-156-FW-3029-007 and VS3-CA20-VWK-156-FW-3029-008:

Weld Doc 152427

VS3-CA20-VWK-156, VS3-CA20-S4W-02930 Leak Chase for CA20-30 & CA20-29 Seam 3029, Rev. B

Weld Procedure #WPS5-10H.10HM70, Rev. 12

Weld VS3-CA20-VWK-104-FW-2221-008:

Weld Doc 1521846

VS3-CA20-VWK-104, VS3-CA20-S4W-02122 Leak Chase for CA20-22 & CA20-21 Seam 2221, Rev. D

Weld Procedure #WPS5-10H.10HM70, Rev. 12

MIR 151846-025

**Section 1A20**

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VS3-1208-SC-701, Rev. 2

VS3-1208-SC-101, Rev. 4

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VS3-1208-SC-261-R2, Shield Building Steel Wall Panels EL 100'-0" to EL 248'-6 1/2"

Connection Panel Group 26, Rev. 2

VS3-1208-SC-701-R2, Shield Building Steel Wall Panels EL 100'-0" to EL 248'-6 1/2" Type 2  
Group 70, Rev. 2

VS3-1208-SC-411-R2, Shield Building Steel Wall Panels EL 100'-0" to EL 248'-6 1/2" Type 1  
Panel Group 41 70, Rev. 2

VS3-1208-SC-100-R2, Shield Building Steel Wall Panels EL 100'00" to EL 248' 6 1/2" General  
Notes, Rev. 2

**Section 1A22**

V.C. Summer Unit 3 Updated Final Safety Analysis Report, Tier 1, Table 3.3-1.

**Section 1A23**

V.C. Summer Unit 3 FSAR, Table 3.3-1 "Definition of Wall Thicknesses for Nuclear Island  
Buildings, Turbine Building, and Annex Building"

[2504 Documents]

**Section 1P01**

CB&I Corrective Action Reports

2015-0974

2015-0975

2015-1006

WEC CAPAL

CAPAL 100335865

## ITAAC INSPECTED

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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.
189	2.2.03.08c.vi.01	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	vi) Inspections of each of the following tanks will be conducted: 1. CMTs	vi) The calculated volume of each of the following tanks is as follows: 1. CMTs $\geq 2487$ ft <sup>3</sup>
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.
767	3.3.00.02a.ii.d	2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as-built concrete thickness will be performed.	ii.d) A report exists that concludes that the as-built concrete thicknesses of the radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.

## LIST OF ACRONYMS

ACI	American Concrete Institute
ADAMS	Agencywide Documents Access & Management System
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CB&I	Chicago Bridge and Iron
CFR	Code of Federal Regulations
CMT	Core Makeup Tanks
CMTR	Certified Material Test Report
COL	Combined License
CV	Containment Vessel
E&DCR	Engineering and Design Coordination Report
EPC	Engineering, Procurement, and Construction
FCAW	Flux Core Arc Welding
FW	Field Welds
GMAW	Gas Metal Arc Welding
GTAW	Gas Tungsten Arc Welding
IP	Inspection Procedures
IR	Inspection Report
IRWST	In-Containment Refueling Water Storage Tank
ITAAC	Inspections, Tests, Analysis, and Acceptance Criteria
PT	Liquid Penetrant Testing
N&D	Nonconformance and Disposition Report
NDE	Nondestructive Examination
NI	Nuclear Island
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PQR	Procedure Qualification Record
QA	Quality Assurance
QC	Quality Control
RC	Reinforced Concrete
SC	Steel Concrete Composite
SCE&G	South Carolina Gas & Electric
SSC	Structures, Systems, and Components
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Testing
WEC	Westinghouse Electric Company
WPS	Welding Procedure Specification