



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

January 17, 2014

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 05200027/2013005 and  
05200028/2013005**

Dear Mr. Jones:

On December 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Virgil C. Summer Nuclear Station Units 2 and 3. The enclosed inspection report documents the inspection results, which the inspectors discussed with Mr. Alan Torres, other members of your staff, and consortium staff members on January 15, 2014.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

No findings were identified during this inspection.

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

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

Sincerely,

**/RA/**

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

Docket Nos.: 05200027, 05200028

License Nos: NPF-93, NPF-94

Enclosure: Inspection Report 05200027/2013005  
and 05200028/2013005  
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Sincerely,

**/RA/**

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Letter to R. Jones from Michael E. Ernstes dated January 17, 2014

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 - NRC  
INTEGRATED INSPECTION REPORTS 05200027/2013005 and  
05200028/2013005

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

Docket Numbers: 5200027  
5200028

License Numbers: NPF-93  
NPF-94

Report Numbers: 05200027/2013005  
05200028/2013005

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, 2013 through December 31, 2013

Inspectors: C. Abbott, Resident Inspector, DCP  
B. Davis, Senior Construction Inspector, DCI  
P. Donnelly, Resident Inspector, DCP  
D. Failla, Resident Inspector, DCP  
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Approved by: M. Ernstes, Chief  
Construction Projects Branch 4  
Division of Construction Projects

Enclosure

## **SUMMARY OF FINDINGS**

Inspection Report 05200027/2013005, 05200028/2013005; 10/01/2013 through 12/31/2013; 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 Inspection 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 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 placed the first structural modules in the Containment Vessel Bottom Head (CVBH), continued constructing the Auxiliary Building walls, and poured the first layer of Self-Consolidating Concrete (SCC) outside the CVBH for Unit 2. For Unit 3, the nuclear island basemat was poured and nuclear island construction has begun.

#### 1. CONSTRUCTION REACTOR SAFETY

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

#### 1A01 (Unit 2) ITAAC Number 93 / Family 06B

##### a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.03a:

| Design Commitment  | Inspections, Tests, Analysis   | Acceptance Criteria   |
|--|--|---|
| 3.a) Pressure boundary welds in components identified in Table 2.2.1-1 as ASME Code Section III meet ASME Code Section III requirements. | Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III. | A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds. |

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.06-02.02 – Component Welding
- 65001.B-02.04 – Production Controls
- 65001.B-02.05 – Inspection
- 65001.11-02.03 – Installation and Welding
- 65001.F-02.03 – Observation of Fabrication Activities

The inspectors observed field welding of course 7 to course 8 (S7-S8) of ring 2 to determine whether the welding was performed in accordance with the design specification and American Society of Mechanical Engineers (ASME) Code Section III, Subsection NE. During the weld observations, the inspectors performed the following activities:

- reviewed the associated weld data record to determine whether correct Welding Procedure Specifications (WPSs) were referenced, hold points were observed, and inspections were performed;
- examined the weld filler material to determine whether the material was in accordance with the WPS;

- observed welding to verify that it was being performed within the WPS variables;
- verified that the weld joint was protected from wind and rain in accordance with the general welding procedure specification for the flux cored arc welding process;
- verified that the preheat and interpass temperatures were monitored and controlled in accordance with the general welding procedure specification for the flux cored arc welding process and the specific WPS; and
- verified that the weld was traceable to the welder

b. Findings

No findings were identified.

1A02 (Unit 2) ITAAC Number 139 / Family 06F

a. Inspection Scope

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

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

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 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 reviewed subcontractor, Williams Specialty Services, coating procedures to determine whether the procedures met the requirements of the Updated Final Safety Analysis Report (UFSAR), design specification, industry standards, and manufacturer's recommendations. The inspectors reviewed Certificates of Conformance (CoC) for the coating material, Carboline Carbozinc 11 HSN and Thinner 33, to determine whether the material met the requirements of the UFSAR and design specification.

The inspectors walked down the inorganic zinc coating and abrasive medium storage areas to determine whether procedure and industry standard requirements were being followed. The inspectors observed testing of compressed air used for blast cleaning of

the containment vessel exterior surfaces to determine whether oil or water was present in the compressed air, procedures were followed, and the requirements of American Society of Testing and Materials (ASTM) D4285 were met. The inspectors observed blast cleaning of the exterior surface of the containment vessel ring 1 to determine whether the cleaning was conducted in accordance with the design specification, procedures, and industry standards. The inspectors observed examination of the surface profile for the cleaned exterior surface to determine whether the design specification and procedure requirements were met.

The inspectors observed mixing of the inorganic zinc coating for the containment vessel ring 1 to determine whether the proportions were mixed correctly, the mixture was being agitated, and procedures were followed. The inspectors observed testing of the environmental conditions to determine whether the testing was performed in accordance with procedures and coatings were not applied until environmental conditions were achieved. The inspectors observed application of the inorganic zinc coating on the exterior surface of the containment vessel ring 1 to determine whether the coating was applied in accordance with the design specification, procedures, and industry standards. The inspectors reviewed work travelers for the application of the inorganic zinc coating on the containment vessel to determine whether hold points were observed.

The inspectors reviewed the calibration record for the dry film thickness gauge to determine whether the calibration was current and documented in accordance with procedures. The inspectors reviewed applicators' qualifications to determine whether the applicators were qualified in accordance with procedures and industry standards. The inspectors reviewed the coating inspectors' qualifications to determine whether the inspectors were qualified in accordance with procedures and industry standards. The inspectors reviewed inspection records of the inorganic zinc coating on the containment vessel to determine whether the dry film thickness met the design specification requirements and the inspection results were documented in accordance with procedures.

b. Findings

No findings were identified.

1A03 (Unit 2) ITAAC Number 140 / Family 06F

a. Inspection Scope

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

|                   |                              |                     |
|-------------------|------------------------------|---------------------|
| Design Commitment | Inspections, Tests, Analysis | Acceptance Criteria |
|-------------------|------------------------------|---------------------|

|  |   |   |
|--|---|---|
| 7.b) The PCS wets the outside surface of the containment vessel. The inside and the outside of the containment vessel above the operating deck are coated with an inorganic zinc material. | iii) Inspection of the containment vessel interior coating will be conducted. | iii) A report exists and concludes that the containment vessel interior surface is coated with an inorganic zinc coating above 7' above the operating deck. |
|--|---|---|

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 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 reviewed subcontractor, Williams Specialty Services, coating procedures to determine whether the procedures meet the requirements of the UFSAR, design specification, industry standards, and manufacturer's recommendations. The inspectors reviewed CoC for the coating material, Carboline Carbozinc 11 HSN and Thinner 33, to determine whether the material met the requirements of the UFSAR and design specification.

The inspectors walked down the inorganic zinc coating and abrasive medium storage areas to determine whether procedure and industry standard requirements were being followed. The inspectors observed testing of compressed air used for blast cleaning of the containment vessel interior surfaces to determine whether oil or water was present in the compressed air, procedures were followed, and the requirements of ASTM D4285 were met. The inspectors observed blast cleaning of the interior surface of the containment vessel ring 1 to determine whether the cleaning was conducted in accordance with the design specification, procedures, and industry standards.

The inspectors observed mixing of the inorganic zinc coating for the containment vessel ring 1 to determine whether the proportions were mixed correctly, the mixture was being agitated, and procedures were followed. The inspectors observed testing of the environmental conditions to determine whether the testing was performed in accordance with procedures and coatings were not applied until environmental conditions were achieved. The inspectors observed application of the inorganic zinc coating on the interior surface of the containment vessel ring 1 to determine whether the coating was applied in accordance with the design specification, procedures, and industry standards. The inspectors reviewed work travelers for the application of the inorganic zinc coating on the containment vessel to determine whether hold points were observed.

The inspectors reviewed the calibration record for the dry film thickness gauge to determine whether the calibration was current and documented in accordance with procedures. The inspectors observed testing of the dry film thickness for the applied coating on the interior surface panel B2-A10 of the containment vessel ring 1 to

determine whether the design specification and procedure requirements were met. The inspectors reviewed dry film thickness inspection reports to determine whether the containment vessel coating thickness met the requirements of the design specification.

The inspectors reviewed applicators' qualifications to determine whether the applicators were qualified in accordance with procedures and industry standards. The inspectors reviewed the coating inspectors' qualifications to determine whether the inspectors were qualified in accordance with procedures and industry standards. The inspectors reviewed inspection records of the inorganic zinc coating on the containment vessel to determine whether the dry film thickness met the design specification requirements and the inspection results were documented in accordance with procedures.

b. Findings

No findings were identified.

1A04 (Unit 2) ITAAC Number 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:

| Design Commitment   | Inspections, Tests, Analysis  | Acceptance Criteria  |
|---|---|--|
| 2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions. | i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads. | i.b) A report exists which reconciles deviations during construction and concludes that the as-built shield building structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions. |

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.02-02.01 – Inspection of Concrete Placement
- 65001.02-02.06 – Record Review

The inspectors observed mechanical splicing of reinforcing steel dowels for the shield building to determine whether the mechanical splicing was performed in accordance with the design specification, procedures, and manufacturer's recommendations. Specifically, the dowels and couplers on the outside west face of the shield building from elevation 66'-6" to 72'-6" were inspected. The inspectors reviewed drawing VS2-1000-CR-903 to determine whether the mechanical splices were installed in accordance with the design.

The inspectors observed a quality control inspection of the mechanical splicing torquing to determine whether all key attributes were inspected, torquing procedures were followed, and that the mechanical coupler was torqued to manufactures recommendations. The inspectors reviewed the calibration sticker for the torque wrench to determine whether the calibration for the wrench was current. The inspectors reviewed work package VS2-1010-COW-001 to determine whether material traceability for the mechanical couplers used for the shield building was maintained. The inspectors reviewed certified material test reports for the reinforcing steel and mechanical coupler to determine whether the design specification and American Concrete Institute (ACI) 349 code requirements were met.

b. Findings

No findings were identified.

1A05 (Unit 2) ITAAC Number 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. The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.01 – Procedures
- 65001.02-02.01 – Inspection of Concrete Placement
- 65001.02-02.03 – Special Considerations
- 65001.02-02.07 – Problem Identification and Resolution
- 65001.A – As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.01 – Observation of in-Process Installation Activities
- 65001.A.02.03 – Independent Assessment/Measurement Inspection
- 65001.A.02.04 – Review As-built Deviations/Nonconformance

The inspectors conducted inspections of concrete and reinforcing steel placement, reviewed applicable design drawings and specifications, and interviewed licensee personnel to verify construction activities were being conducted in accordance with the design documents and applicable procedures. Specifically, the inspectors verified that:

- 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;
- structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures;
- deviations from the design due to as-built conditions were identified and documented appropriately; and
- records reflected that completed work met design specifications and acceptance criteria.

The inspectors performed observations and independent measurements on sample areas of the basemat concrete and reinforcing steel for the Unit 2 nuclear island structures. Specifically, the inspectors observed the placement of, and performed independent measurements of, the shield building wall dowels and horizontal steel from elevation 66'-6" to elevation 72'-6". Inspectors also observed placement of SCC within the shield building area of the nuclear island from elevation 66'-6" to elevation 72'-6". In addition, inspectors reviewed various documents within the work package and design documents for the reinforcing steel and concrete to verify that:

- contractors had approved implementing procedures, which addressed the requirements of applicable codes, prescribed adequate methods of Quality Control (QC) inspection, and specified appropriate quantitative and qualitative 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;
- QC inspections were performed to verify correct placement of reinforcing steel;
- 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 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

All issues and non-conformances identified by the licensee associated with this placement were entered into the corrective action program. A sample of these documents was reviewed by the inspectors to verify that each issue was properly captured and had received adequate attention.

b. Findings

No findings were identified.

1A06 (Unit 2) ITAAC Number 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:

| Design Commitment                                 | Inspections, Tests, Analysis                      | Acceptance Criteria                                     |
|---|---|---|
| 2.a) The nuclear island structures, including the | i) An inspection of the nuclear island structures | i.d) A report exists which reconciles deviations during |

|   |   |  |
|---|---|--|
| 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. | will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads. | construction and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions. |
|---|---|--|

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.01 – Procedures
- 65001.F-02.01 – Design Document Review
- 65001.F-02.02 – Fabrication Records Review
- 65001.02-02.07 – Problem Identification and Resolution
- 65001.02 – Inspection of ITAAC-Related Installation of Structural Concrete

Specifically, the inspectors observed and reviewed the installation of reinforcing steel for the Column Line I wall from Column Lines 5 to 6, from elevation 66'-6" to 82'-6". The inspectors also observed and reviewed module assembly of CA-20 along Column Line J-2, 2 and 3.

The inspection of the reinforced concrete wall along Column Line I applied the guidance from Inspection Procedure (IP) 65001.02, "Inspection of ITAAC Related Installation of Structural Concrete." The inspectors conducted inspections of the concrete reinforcing steel placement, reviewed documents and applicable design drawings and specifications to verify construction activities were being conducted in accordance with design documents and applicable processes and procedures. Specifically, the inspectors verified that:

- structural concrete work, design and installation was completed in accordance with applicable specifications, drawings, approved procedures and qualified personnel;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- records reflected that completed work meets design specifications and acceptance criteria; and
- the inspectors performed independent measurements and observations on the reinforcing steel placement.

In addition, the inspectors reviewed various documents within the work packages and design control documents for the reinforcing steel to verify that:

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

For the CA-20 module along Column Line J-2, 2, and 3, the inspectors applied the guidance from IP 65001.01, "Inspection of ITAAC-Related Foundation and Buildings" and IP 65001.F, "Inspection of ITAAC-Related Design and Fabrication Requirements." The inspectors reviewed documents and applicable design drawings and specifications to verify construction activities were being conducted in accordance with design documents and applicable processes and procedures. The inspectors reviewed various documents within the work packages, such as sub-assembly drawings, design drawings, and specifications, to verify that:

- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings;
- records reviewed were approved in accordance with procedure requirements; and
- records related to inspected activities were reviewed and the information met project requirements.

In addition, for the Auxiliary Building Module (CA20), the inspectors reviewed applicable design specifications, Engineering and Design Coordination Reports (E&DCRs), non-conformance reports and corrective action reports associated with the module fabrication to determine whether:

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

b. Findings

No findings were identified.

1A07 (Unit 2) ITAAC Number 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. The inspectors used the following NRC inspection procedures/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-02.06 – Records

The inspectors observed the in-process welding of the Unit 2 module CA20 to determine if the welding was performed within the ranges allowed by welding procedure specification number WPS2-1.1M02, and the requirements of the American Welding Society (AWS) D1.1:2000, "Structural Welding Code – Steel." Specifically, the inspectors observed the in-process welding of weld numbers FW-01-007R, FW-01-008R, and FW-01-009R. These repair welds were performed on submodule CA20-01, which is the outer corner of submodule CA20 at the intersection of Column Line J1 and Column Line 2 in accordance with work package VS2-CA20-SLW-001, Revision 0, "CA20 Sub-Assembly 1 Faceplate Weld Repairs."

The inspectors also observed welding of field welds FW-05-001R and FW-05-03BMR on submodule CA20-05, which is the outer corner of submodule CA20 at the intersection of Column Line J1 and Column Line 4, to determine whether the welding was performed in accordance with the welding procedure and work package, VS2-CA20-SLW-001. The inspectors verified the following weld parameters were within the ranges allowed by the WPS: filler metal size and classification, voltage, travel speed, wire feed speed, shielding gas composition, and shielding gas flow rate.

In addition, the inspectors performed a visual inspection of a sample of safety-related, seismic category I structural submodules associated with module CA20. The inspectors compared these as-built submodules to their respective design drawings, which are listed in the documents reviewed section of this report, to independently determine whether these submodules conformed to the approved design; and to determine whether any structural deviations were present that had not been dispositioned by the licensee. Specifically, the inspectors examined submodules CA20-17, which is a submodule located on Column Line 4 between Column Lines J2 and K2, and CA20-20, which is a submodule located at the intersection of Column Lines 3 and K2.

The inspectors verified that a sample of submodule fabrication and welding met the applicable code requirements (American Institute of Steel Construction [AISC] N690, "American National Standard Specification for the Design, Fabrication, and Erection of Steel Safety-related Structures for Nuclear Facilities," 1994 edition; AWS D1.1, "Structural Welding Code – Steel," 2000 edition; and AWS D1.6, "Structural Welding Code – Stainless Steel," 1999 edition) and the applicable design drawings and general notes (see Documents Reviewed Section). Specifically, the inspectors performed visual observations and independently measured a sample of structural welds to determine whether:

- as-fabricated condition matched the applicable design drawings with respect to layout and dimensions;

- an adequate marking system was used to maintain the identity of material from storage to installation;
- nonconforming materials were adequately identified and segregated;
- structural steel was protected from corrosion caused by exposure to weather; and
- shear studs, faceplates, steel channel, angle iron, rebar, mechanical threaded couplers, and pipe sleeves were installed in accordance with drawings.

b. Findings

No findings were identified.

1A08 (Unit 3) ITAAC Number 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. The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.01 – Procedures
- 65001.02-02.01 – Inspection of Concrete Placement
- 65001.A.02.01 – Observation of in-Process Installation Activities
- 65001.A.02.02 – Installation Records Review
- 65001.A.02.03 – Independent Assessment/Measurement Inspection

The inspectors observed construction activities in the field associated with this ITAAC for the shield building area of the Unit 3 nuclear island basemat. The inspectors reviewed applicable design drawings and specifications, observed reinforcing steel placement and interviewed licensee personnel to verify that construction activities were being conducted in accordance with design documents and applicable processes and procedures.

Specifically, the inspectors verified that:

- structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- records reflected that completed work met design specifications and acceptance criteria.

The inspectors performed independent measurements and observations on sample areas of the basemat reinforcing steel for the proposed Unit 3 nuclear island structures. Specifically, the inspectors observed the shield building area reinforcing steel placement, including basemat reinforcing steel layers, inner and outer wall dowels, and mechanical reinforcing steel splices. In addition, the inspectors reviewed various documents within the work packages and design control documents for the reinforcing steel to verify that:

- reinforcing steel was controlled and placement performed in accordance with the applicable specifications, codes, drawings, and procedures;
- contractors had approved implementing procedures;

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

On November 4, 2013, the first nuclear concrete pour in the Unit 3 nuclear island basemat was completed. The inspectors observed basemat concrete production and placement activities to verify that:

- concrete constituent testing was performed by qualified personnel utilizing calibrated equipment;
- 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;
- embed plates and temporary construction aids used to determine finished concrete elevation, were placed such that the specified concrete thickness would be achieved; and
- proper finishing, curing, and temperature monitoring techniques and equipment were utilized.

In addition, inspectors reviewed E&DCRs and nonconformance and disposition reports (N&Ds) associated with the basemat rebar installation to determine if:

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

b. Findings

No findings were identified.

1A09 (Unit 3) ITAAC Number 761 / Family 01F

a. Inspection Scope

During the week of October 28, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.i.b. The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.01 – Procedures
- 65001.01-02.06 – Records
- 65001.01-02.07 – Identification and Resolution of Problem
- 65001.02-02.01 – Inspection of Concrete Placement
- 65001.02-02.02 – Laboratory Testing
- 65001.02-02.03 – Special Considerations
- 65001.02-02.06 – Record Review
- 65001.02-02.07 – Problem Identification and Resolution
- 65001.02-02.08 – Construction Interface Concerns
- 65001.A – As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.01 – Observation of in-Process Installation Activities
- 65001.A.02.02 – Installation Records Review
- 65001.A.02.03 – Independent Assessment/Measurement Inspection
- 65001.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 performed a field inspection of construction activities associated with this ITAAC for the Unit 3 nuclear island basemat within the area of the shield building. The inspectors applied the guidance in IP 65001.01, "Inspection of the As-Built Attributes for Structures, Systems, and Components (SSCs) Associated with ITAAC," IP 65001.02, "Inspection of ITAAC-Related Foundations and Buildings," IP 65001.A, "ITAAC Attributes for As-Built Inspection," and IP 65001.F, "Inspection of the ITAAC-Related Design and Fabrication Requirements." The inspectors conducted inspections of concrete and reinforcing steel placement, reviewed applicable design drawings and specifications, and interviewed licensee personnel to verify construction activities were being conducted in accordance with the design documents and applicable 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, requirements, and relevant ITAAC;
- structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures;
- deviations from the design due to as-built conditions were identified and documented appropriately; and
- records reflected that completed work met design specifications and acceptance criteria.

The inspectors performed observations and independent measurements on sample areas of the basemat concrete and reinforcing steel for the proposed Unit 3 nuclear island structures. Specifically, the inspectors observed placement of the shield building area concrete and final quality control inspections of the basemat reinforcing steel, including: horizontal reinforcing steel, shrinkage and temperature reinforcement, inner and outer wall dowels, and mechanical reinforcing steel splices. In addition, inspectors reviewed various documents within the work package and design documents for the reinforcing steel to verify if:

- contractors had approved implementing procedures, which addressed the requirements of applicable ACI codes, prescribed adequate methods of QC inspection, and specified appropriate quantitative and qualitative acceptance criteria;
- QC inspectors were qualified to perform their assigned work;
- 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;
- QC inspections were performed to verify correct placement of reinforcing steel;
- the concrete batch plant and delivery vehicles were qualified by the National Ready Mix Concrete Association (NRMCA) program;
- the batch plant was producing the specified mix, using the proper qualified and approved constituents;
- concrete constituent testing was performed by qualified personnel utilizing calibrated equipment;
- 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, temperature monitoring techniques and equipment were used.

In addition, inspectors reviewed applicable design specifications, E&DCRs, nonconformance reports, and corrective action reports associated with the basemat rebar installation to verify that:

- 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.

1A10 (Unit 3) ITAAC Number 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:

| Design Commitment   | Inspections, Tests, Analysis  | Acceptance Criteria  |
|---|---|--|
| 2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions. | i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads. | i.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. |

The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.02-02.01 – Inspection of Concrete Placement
- 65001.02-02.02 – Laboratory Testing
- 65001.A.02.01 – Observation of in-Process Installation Activities
- 65001.A.02.02 – Installation Records Review
- 65001.A.02.03 – Independent Assessment/Measurement Inspection
- 65001.A.02.04 – Review As-built Deviations/Nonconformance

The inspectors observed construction activities in the field associated with this ITAAC for the non-radiologically controlled area of the Unit 3 nuclear island basemat. The inspectors reviewed applicable design drawings and specifications, observed reinforcing steel placement, and interviewed licensee personnel to verify construction activities were being conducted in accordance with design documents and applicable processes and procedures. Specifically, the inspectors verified that:

- structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- records reflected that completed work met design specifications and acceptance criteria.

The inspectors performed independent measurements and observations on sample areas of the basemat reinforcing steel for the proposed Unit 3 nuclear island structures. Specifically, the inspectors observed the non-radiologically controlled area of the auxiliary building reinforcing steel placement, including basemat reinforcing steel layers, inner and outer wall dowels, mechanical reinforcing steel splices and embed plate

placement. In addition, the inspectors reviewed various documents within the work packages and design control documents for the reinforcing steel to verify that:

- reinforcing steel was controlled and placement performed in accordance with the applicable specifications, codes, drawings, and procedures;
- contractors had approved implementing procedures;
- reinforcing steel installation was controlled and performed in accordance with the applicable specifications, codes, drawings, and procedures;
- reinforcing steel was located properly in the structure, secured, free of concrete or excessive rust, and had proper clearances;
- procedures clearly prescribed acceptable methods of quality control inspection and included appropriate acceptance criteria; and
- reinforcing steel conformed to design drawings and there were no deviations from design.

The inspectors observed basemat concrete production and placement activities to verify that:

- concrete constituent testing was performed by qualified personnel utilizing calibrated equipment;
- 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;
- embed plates and temporary construction aids used to determine finished concrete elevation, were placed such that the specified concrete thickness would be achieved; and
- proper finishing, curing, and temperature monitoring techniques and equipment were utilized.

In addition, inspectors reviewed E&DCRs and N&Ds associated with the basemat rebar installation to verify that:

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

b. Findings

No findings were identified.

1A11 (Unit 3) ITAAC Number 762 / Family 01F

a. Inspection Scope

During the week of October 28, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.i.c. The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01 – Inspection of ITAAC-Related Foundations & Buildings
- 65001.01-02.01 – Procedures
- 65001.01-02.04 – Key Dimensions and Volumes
- 65001.01-02.06 – Records
- 65001.01-02.07 – Identification and Resolution of Problem
- 65001.02-02.01 – Inspection of Concrete Placement
- 65001.02-02.02 – Laboratory Testing
- 65001.02-02.03 – Special Considerations
- 65001.02-02.06 – Record Review
- 65001.02-02.07 – Problem Identification and Resolution
- 65001.02-02.08 – Construction Interface Concerns
- 65001.A – As-Built Attributes for SSCs associated with ITAAC
- 65001.A.02.01 – Observation of in-Process Installation Activities
- 65001.A.02.02 – Installation Records Review
- 65001.A.02.03 – Independent Assessment/Measurement Inspection
- 65001.A.02.04 – Review As-built Deviations/Nonconformance
- 65001.F – 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 performed a field inspection of construction activities associated with this ITAAC for the Unit 3 nuclear island basemat within the non-radiologically controlled area of the auxiliary building. The inspectors also performed an inspection of the construction activities associated with the walls within the non-radiologically controlled area of the auxiliary building at elevation 66'-6" as it relates to this ITAAC. The inspectors applied the guidance in IP 65001.01, "Inspection of the As-Built Attributes for SSCs Associated with ITAAC," IP 65001.02, "Inspection of ITAAC-Related Foundations and Buildings," IP 65001.A, "ITAAC Attributes for As-Built Inspection," and IP 65001.F, "Inspection of the ITAAC-Related Design and Fabrication Requirements." The inspectors conducted inspections of concrete and reinforcing steel placement, reviewed applicable design drawings and specifications, and interviewed licensee personnel to verify that construction activities were being conducted in accordance with the design documents and applicable procedures. Specifically, the inspectors verified that:

- structural concrete design and construction was accomplished under controlled conditions and in accordance with applicable specifications, drawings, and approved procedures using qualified personnel;
- key building critical dimensions and materials satisfied design specifications, requirements, and relevant ITAAC;
- structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures;

- deviations from the design due to as-built conditions were identified and documented appropriately; and
- records reflected that completed work met design specifications and acceptance criteria.

The inspectors performed observations and independent measurements on sample areas of the basemat concrete and reinforcing steel for the proposed Unit 3 nuclear island structures. Specifically, the inspectors observed placement of the auxiliary building area basemat reinforcing steel, including: horizontal reinforcing steel, shrinkage and temperature reinforcement, shear reinforcement, embed plates, wall dowels, and mechanical reinforcing steel splices. In addition, inspectors reviewed various documents within the work package and design documents for the reinforcing steel to verify that:

- contractors had approved implementing procedures, which addressed the requirements of applicable ACI codes, prescribed adequate methods of QC inspection, and specified appropriate quantitative and qualitative acceptance criteria;
- QC inspectors were qualified to perform their assigned work;
- 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;
- QC inspections were performed to verify correct placement of reinforcing steel;
- the concrete batch plant and delivery vehicles were qualified by the NRMCA program;
- the batch plant was producing the specified mix, using the proper qualified and approved constituents;
- concrete constituent testing was performed by qualified personnel utilizing calibrated equipment;
- 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, N&Ds, and corrective action reports associated with the basemat rebar installation to verify that:

- 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.

1A12 (Unit 3) ITAAC Number 763 / Family 01Fa. Inspection Scope

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

- 65001.01-02.01 – Procedures
- 65001.F-02.01 – Design Document Review
- 65001.02-02.01 – Inspection of Concrete Placement

The inspectors observed the reinforcing steel placement for layers 4 and 5 of the radiological controlled area of the basemat. The field activities applied the guidance in IP 65001.01, "Inspection of ITAAC-Related Foundation and Buildings," IP 65001.02, "Inspection of ITAAC Related Installation of Structural Concrete" and IP 65001.F, "Inspection of ITAAC-Related Design and Fabrication Requirements." The inspectors conducted inspections of the concrete reinforcing steel placement, reviewed documents and applicable design drawings and specifications to verify that construction activities were being conducted in accordance with design documents and applicable processes and procedures. Specifically, the inspectors verified that:

- structural concrete work, design, and installation were completed in accordance with applicable specifications, drawings, approved procedures and qualified personnel;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC

The inspectors performed independent measurements and observations on sample areas of the basemat reinforcing steel for the proposed Unit 3 Radiological Controlled Area of Nuclear Island. The inspectors reviewed various documents within the work packages and design control documents for the reinforcing steel to verify that:

- reinforcing steel is controlled and placement performed in accordance with the applicable specifications, codes, drawings, and procedures;
- contractors have approved implementing procedures;
- reinforcing steel installation is controlled and performed in accordance with the applicable specifications, codes, drawings, and procedures
- reinforcing steel are located properly in the structure, secured, free of concrete or excessive rust, and have proper clearances; and
- procedures clearly prescribe acceptable methods of quality control inspection and include appropriate acceptance criteria.

In addition, inspectors reviewed applicable design specifications, E&DCR's, N&Ds, and corrective action reports associated with the rebar installation to determine whether:

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

b. Findings

No findings were identified.

1A13 (Unit 3) ITAAC Number 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. The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01-02.01 – Procedures
- 65001.01-02.02 – Foundation Work
- 65001.02-02.01 – Inspection of Concrete Placement
- 65001.02-02.02 – Laboratory Testing

The inspectors observed construction activities in the field associated with this ITAAC for the radiologically controlled area of the Unit 3 nuclear island basemat. The inspectors reviewed applicable design drawings and specifications, observed reinforcing steel placement, and interviewed licensee personnel to verify construction activities were being conducted in accordance with design documents and applicable processes and procedures. Specifically, the inspectors verified that:

- structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- records reflected that completed work met design specifications and acceptance criteria.

The inspectors performed independent measurements and observations on sample areas of the basemat reinforcing steel for the proposed Unit 3 nuclear island structures. Specifically, the inspectors observed the radiologically controlled area of the auxiliary building reinforcing steel placement, including basemat reinforcing steel layers, inner and outer wall dowels, mechanical reinforcing steel splices and embed plate placement. In addition, the inspectors reviewed various documents within the work packages and design control documents for the reinforcing steel to verify that:

- reinforcing steel was controlled and placement performed in accordance with the applicable specifications, codes, drawings, and procedures;
- contractors had approved implementing procedures;
- reinforcing steel installation was controlled and performed in accordance with the applicable specifications, codes, drawings, and procedures;
- reinforcing steel was located properly in the structure, secured, free of concrete or excessive rust, and had proper clearances;
- procedures clearly prescribed acceptable methods of quality control inspection and included appropriate acceptance criteria; and

- reinforcing steel conformed to design drawings and there were no deviations from design.

The inspectors observed basemat concrete production and placement activities to verify that:

- concrete constituent testing was performed by qualified personnel utilizing calibrated equipment;
- 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;
- embed plates and temporary construction aids used to determine finished concrete elevation, were placed such that the specified concrete thickness would be achieved; and
- proper finishing, curing, temperature monitoring techniques and equipment were used.

In addition, inspectors reviewed E&DCRs and N&Ds associated with the basemat rebar installation to verify that:

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

b. Findings

No findings were identified.

1A14 (Unit 3) ITAAC Number 763 / Family 01F

a. Inspection Scope

During the week of October 28, 2013, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.i.d. The inspectors used the following NRC inspection procedures/sections to perform this inspection:

- 65001.01 – Inspection of ITAAC-Related Foundations & Buildings
- 65001.01-02.01 – Procedures
- 65001.01-02.06 – Records
- 65001.01-02.07 – Identification and Resolution of Problem
- 65001.02-02.01 – Inspection of Concrete Placement
- 65001.02-02.02 – Laboratory Testing
- 65001.02-02.03 – Special Considerations
- 65001.02-02.06 – Record Review
- 65001.02-02.07 – Problem Identification and Resolution
- 65001.02-02.08 – Construction Interface Concerns
- 65001.A – As-Built Attributes for SSCs associated with ITAAC

- 65001.A.02.01 – Observation of in-Process Installation Activities
- 65001.A.02.02 – Installation Records Review
- 65001.A.02.03 – Independent Assessment/Measurement Inspection
- 65001.A.02.04 – Review As-built Deviations/Nonconformance
- 65001.F – 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 performed a field inspection of construction activities associated with this ITAAC for the Unit 3 nuclear island basemat within the radiologically controlled area of the auxiliary building. The inspectors also performed an inspection of the construction activities associated with the walls within the radiologically controlled area of the auxiliary building at elevation 66'-6" as it relates to this ITAAC. The inspectors applied the guidance in IP 65001.01, "Inspection of the As-Built Attributes for Structures, Systems, and Components (SSCs) Associated with ITAAC," IP 65001.02, "Inspection of ITAAC-Related Foundations and Buildings," IP 65001.A, "ITAAC Attributes for As-Built Inspection," and IP 65001.F, "Inspection of the ITAAC-Related Design and Fabrication Requirements." The inspectors conducted inspections of concrete and reinforcing steel placement, reviewed applicable design drawings and specifications, and interviewed licensee personnel to verify that construction activities were being conducted in accordance with the design documents and applicable procedures. Specifically, the inspectors verified that:

- structural concrete design and construction was accomplished under controlled conditions and in accordance with applicable specifications, drawings, and approved procedures using qualified personnel;
- key building critical dimensions and materials satisfied design specifications, requirements, and relevant ITAAC;
- structural concrete work and related licensee quality control activities were being performed in accordance with design specifications and approved procedures;
- deviations from the design due to as-built conditions were identified and documented appropriately; and
- records reflected that completed work met design specifications and acceptance criteria.

The inspectors performed observations and independent measurements on sample areas of the basemat concrete and reinforcing steel for the proposed Unit 3 nuclear island structures. Specifically, the inspectors observed placement of the auxiliary building area basemat reinforcing steel, including: horizontal reinforcing steel, shrinkage and temperature reinforcement, shear reinforcement, embed plates, wall dowels, and mechanical reinforcing steel splices.

In addition, inspectors reviewed various documents within the work package and design documents for the reinforcing steel to verify that:

- contractors had approved implementing procedures, which addressed the requirements of applicable ACI codes, prescribed adequate methods of QC

inspection, and specified appropriate quantitative and qualitative acceptance criteria;

- QC inspectors were qualified to perform their assigned work
- 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;
- QC inspections were performed to verify that correct placement of reinforcing steel;
- the concrete batch plant and delivery vehicles were qualified by the NRMCA program;
- the batch plant was producing the specified mix, using the proper qualified and approved constituents;
- concrete constituent testing was performed by qualified personnel utilizing calibrated equipment;
- 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, N&Ds, and corrective action reports associated with the basemat 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.

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

a. Inspection Scope

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

evaluated against the current licensing basis as described in the VC Summer Unit 2 and Unit 3 UFSAR and was performed in accordance with procedure APP-GW-GAP-420.

Furthermore, the inspectors reviewed these E&DCRs to determine whether each change received the proper level of engineering review and was incorporated into all affected documents. Specifically, the inspectors reviewed the following E&DCRs:

- E&DCR No. APP-MV50-GEF-032, Removal of the Detrimental Material Control Requirements for the AP1000 Containment Vessel, Revision 0
- E&DCR No. VSG-CA04-GEF-000007, NO-OX-ID Special A Temporary Coating on CA04, Revision 0
- E&DCR No. VS2-CB65-GEF-000002, CB65 Module Welding Details, Revision 0
- E&DCR No. VS2-CB65-GEF-000003, CB65 Module Welding Detail 2, Revision 0
- E&DCR No. VS2-CR01-GEF-000054, Dimension for 1 Line Form Savers, Revision 0
- E&DCR No. VS2-CA20-GEF-000061, CA20-06 to 10 Slot Weld Change, Revision 0

b. Findings

No findings were identified.

1P02 Quality Assurance Implementation, Appendix 11 Inspection of Criterion XI – Test Control (35007)

a. Inspection Scope

The inspectors reviewed test reports for No. 67 coarse aggregate used in concrete production to determine whether the tests were documented and performed in accordance with the design specification and ASTM standards. Specifically, the inspectors reviewed for the following test reports for No. 67 coarse aggregate:

- Gradation testing (ASTM C136)
- Sieve Analysis (ASTM C117)
- Clay Lumps and Friable Particles (ASTM C142)
- Lightweight Particles (ASTM 123)
- LA Abrasion (ASTM 131)
- Sodium Sulfate Soundness (ASTM C88)
- Unit Weight and Voids (ASTM C29)
- Potential Alkali-Silica Reactivity (ASTM C289 & C1260)
- Petrographic Analysis (ASTM C295)
- Bulk Specific Gravity and Absorption (ASTM C127)
- Flat and Elongated Particles (ASTM C4791)

The inspectors reviewed periodic constituent test reports of fine aggregate, No. 67 coarse aggregate, and No. 89 coarse aggregate used in concrete production to determine whether testing of potential alkali-silica reactivity was documented and performed in accordance with the design specification and ASTM standards. The inspectors reviewed test reports for admixtures used for concrete production to

determine whether initial testing and subsequent periodic testing was documented and performed in accordance with the design specification and ASTM standard C494-10.

b. Findings

No findings were identified.

1P03 Quality Assurance Implementation, Appendix 13 Inspection of Criterion XIII – Handling, Storage and Shipping (35007)

a. Inspection Scope

The inspectors performed a walkdown of several on-site storage areas for the VC Summer construction site. Specifically, the inspectors toured warehouses A, B and C, laydown yards 10 and T2 and the material staging areas plant east of the Unit 2 nuclear island and plant west of the Unit 3 nuclear island. These areas were inspected to determine whether the requirements of Chicago Bridge and Iron (CB&I) Nuclear Quality Standard (QS) 13.11, "Material Equipment/Storage", Revision C, and Section 6, "Storage," of ASME NQA-1-1994, Subpart 2.2, "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants" were met. Specifically, the inspectors looked for the following attributes:

- storage areas met the requirements specified in section 6.1 of QS 13.11;
- accepted items were tagged or marked as acceptable for use;
- unacceptable items were segregated or marked as unavailable for use, and a nonconformance report was initiated;
- items were stored on cribbing where required.

The inspectors performed a walkdown of admixture storage containers to determine whether the chemicals were stored in accordance with the design specification and manufacturers recommendations.

b. Findings

No findings were identified.

1P04 Quality Assurance Implementation, Appendix 15 Inspection of Criterion XV – Nonconforming Materials, Parts, or Components (35007)

a. Inspection Scope

Inspection of QA Program Implementation

The inspectors reviewed a sample of N&Ds, to determine whether the conditions were adequately reviewed and accepted, rejected, repaired, or reworked in accordance with the Quality Assurance (QA) program implementing documents for the control of nonconforming material, parts, and components. The inspectors compared these N&D reports to Section 15, "Nonconforming Materials, Parts, or Components," of the CB&I quality assurance program (SWSQAP 1-74A, Revision B) and CB&I procedure QS 15.1, "Nonconformance & Disposition Report," Revision 4. The inspectors reviewed N&D reports associated with both Units 2 and 3.

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

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

- VS2-CA04-GNR-000014, CA04 Fabrication, Assembly and Installation Tolerances, Revision 0
- VS2-CB65-GNR-000005, CB65 Overlay Plate and Couplers, Revision 0
- VS2-CA20-GNR-000056, CA20-15 Shear Stud Layout Nonconformance, Revision 0
- VS2-CA20-GNR-000041, CA20-04 Conduit Support Weld Nonconformance, Revision 0

During the review of the above N&D reports, the inspectors determined if the reports properly identified the nonconforming items, and if the systems for initiating, processing, and closing nonconformances were adhered to. The inspectors specifically verified that:

- reportability screening and evaluations under 10 CFR Part 21 and 10 CFR 50.55I were performed;
- the disposition, such as use-as-is, reject, repair, or rework of nonconforming items were properly identified and documented;
- adequate technical justification for the acceptability of a nonconforming item, dispositioned repair, or use-as-is was appropriately documented;
- nonconformances to design requirements dispositioned use-as-is or repair were subjected to design control measures commensurate with those applied to the original design;
- the as-built records properly reflected the accepted deviation, if applicable;
- controls were implemented to preclude the inadvertent use of nonconforming items and that nonconforming items were marked or tagged and segregated; and
- repaired or reworked items were reexamined in accordance with applicable procedures and with the original acceptance criteria unless the disposition had established alternate acceptance criteria.

b. Findings

No findings were identified.

1P05 Quality Assurance Implementation, Appendix 16 Inspection of Criterion XVI – Corrective Action (35007)

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. Attributes reviewed included:

- classification, prioritization, and evaluation for reportability (i.e., 10 CFR 50.551) of conditions adverse to quality;
- complete and accurate identification of the problem in a timely manner commensurate with its significance and ease of discovery;
- consideration of extent of condition, generic implications, common cause, and previous occurrences;
- classification and prioritization of the resolution of the problem commensurate with its safety significance;
- identification of root and contributing causes, as well as actions to preclude recurrence for significant conditions adverse to quality; and
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue.

### Routine Review of Items Entered into the Corrective Action Program

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

- 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
- potentially 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 verify that:

- 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 50.55I 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**

4AO5 Other Activities

.1 (Closed) VIO 05200027/2012-004-01: "Failure to Translate CA01 and CA20 Design Requirements into Specifications and Drawings"

The inspectors performed a review of the licensee's actions to correct VIO 05200027/2012-004-01, "Failure to Translate CA01 and CA20 Design Requirements into Specifications and Drawings," identified in 05200027/2012-004 (ML12319A648). The review was to determine whether the corrective actions associated with the commitments made in their response to the NOV, dated December 13, 2012, (ML12352A312), were met and were sufficient to adequately correct the issues. This violation was associated with the licensee's failure to translate the regulatory and design basis requirements established, in part, by ACI 349-01, and AISC N690-94 into specifications, drawings, and instructions for the design and fabrication of Seismic Category I structural submodules CA20-04, CA20-07A, CA20-08A, CA20-29, and CA01-24.

The inspectors reviewed SCE&G CR-NND-12-00296, CR-NND-12-00727 and CR-NND-12-00253 which were written to address this violation. The inspectors reviewed the Westinghouse Electric Company corrective action document IR 12-124-M001 and several CB&I N&Ds. The inspectors performed inspections of rework and repair performed as result of these corrective actions at the VC Summer site to ensure the examples identified in the NOV were addressed. Furthermore, the inspectors noted that SCE&G credited license amendment request (LAR) 13-20, "Module Obstructions and Details" as a corrective action to this violation. The NRC approved the amendment on November 18, 2013. (ML13311A261)

The inspectors determined that the licensee took adequate corrective actions to address this violation. No additional findings were identified. VIO 05200027/2012-004-01 is closed.

4AO6 Meetings, Including Exit

.1 Exit Meeting Summary

On January 15, 2014, the NRC inspection team presented the inspection results during an exit meeting with Mr. Alan Torres, SCE&G General Manager for Nuclear Plant Construction, along with other licensee and consortium staff members. The inspectors stated that no propriety information would be included in the inspection report.

## KEY POINTS OF CONTACT

### Licensees and Contractor Personnel

B. Driscoll, CB&I Services QA Manager  
P. Gibbons, SCE&G Civil Construction Engineer  
F. Salter, SCE&G Licensing Engineer  
G. Sanders, SCE&G Licensing Engineer  
B. Tune, SCE&G Civil Construction Engineer  
P. Williamson, Williams Specialty Services QA Manager  
K. Young, SCE&G Civil Construction Supervisor

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Closed

05200027/2012-004-01    VIO    Failure to Translate CA01 and CA20 Design Requirements into Specifications and Drawings (Section 4AO5.1)

## LIST OF DOCUMENTS REVIEWED

### **Section 1A01:**

APP-MV50-Z0-001, Design Specification for Containment Vessel, Revision 8  
164621-13-01, Drawing for Field Edge Preps & Weld Details, Revision 4  
Weld Traveler B2-S7-S8

### **Section 1A02:**

#### Procedures:

WSS-3081-TWI-Z0-604-01, Preparing and Applying Coatings to Service Level I, II and III Surfaces, Revision 4  
AP1000-PQAP-09-02, Qualifying and Certifying Coating Applicators, Revision 1  
WSS-3081-QWI-02-02-01, Qualifying and Certifying Coating/Lining Inspectors, Revision 0  
WSS-3081-QWI-12-01-01, Calibrating Defelsko Dry Film Thickness Gauges, Revision 0

#### Specifications:

APP-GW-Z0-604, Application of Protective Coatings to Systems, Structures and Components for the AP1000 Reactor Plant, Revision 5

#### Corrective Action Documents:

WSS-2013-3081-013, Nonconformance report for applicator qualification documentation not meeting ASTM D4228 requirements, Revision 1  
WSS-2013-3081-015, Nonconformance report for dry film thickness accuracy determination documentation not meeting SSPC-PA-2 requirements, Revision 0

#### Certificates of Conformance:

WSS-3081-COC-43R3, Carboline Carbozinc 11 HSN and Thinner 33 Certificate of Conformance, Revision 0

Calibration Records:

WSS-F-12-01-04, DFT Calibration Record for SN 625839, Revision 0

Work Traveler:

3081-002-011, coating on lower ring of CV unit 2, Revision 0

Inspection Records:

LR-D3, IHI coating inspection record for B2-D3, dated November 28, 2011

WSS-F-10-01-2, Pre/Post Surface Prep Inspection Log for Interior B2-C8 Attachment Plates, dated October 2, 2013

WSS-F-10-01-4, Post Coating Application Inspection Log for Interior B2-C8 Attachment Plates, dated October 16, 2013

Miscellaneous:

Carboline Carbozinc 11 HSN Product Data Sheet

PosiTector 6000 Coating Thickness Gages Instruction Manual V. 7.1

**Section 1A03:**Procedures:

WSS-3081-TWI-Z0-604-01, Preparing and Applying Coatings to Service Level I, II and III Surfaces, Revision 4

AP1000-PQAP-09-02, Qualifying and Certifying Coating Applicators, Revision 1

WSS-3081-QWI-02-02-01, Qualifying and Certifying Coating/Lining Inspectors, Revision 0

WSS-3081-QWI-12-01-01, Calibrating Defelsko Dry Film Thickness Gauges, Revision 0

Specifications:

APP-GW-Z0-604, Application of Protective Coatings to Systems, Structures and Components for the AP1000 Reactor Plant, Revision 5

Corrective Action Documents:

WSS-2013-3081-013, Nonconformance report for applicator qualification documentation not meeting ASTM D4228 requirements, Revision 1

WSS-2013-3081-015, Nonconformance report for dry film thickness accuracy determination documentation not meeting SSPC-PA-2 requirements, Revision 0

Certificates of Conformance:

WSS-3081-COC-43R3, Carboline Carbozinc 11 HSN and Thinner 33 Certificate of Conformance, Revision 0

Calibration Records:

WSS-F-12-01-04, DFT Calibration Record for SN 625839, Revision 0

Work Traveler:

3081-002-011, coating on lower ring of CV unit 2, Revision 0

Inspection Records:

LR-D3, IHI coating inspection record for B2-D3, dated November 28, 2011

WSS-F-10-01-2, Pre/Post Surface Prep Inspection Log for Interior B2-C8 Attachment Plates, dated October 2, 2013

WSS-F-10-01-4, Post Coating Application Inspection Log for Interior B2-C8 Attachment Plates, dated October 16, 2013  
 INT-B2-B10-001, Williams Specialty Services Dry Film Thickness Inspection Report for B2-B10, dated November 20, 2013  
 INT-B2-A10-001, Williams Specialty Services Dry Film Thickness Inspection Report for B2-A10, dated November 20, 2013

Miscellaneous:

Carboline Carbozinc 11 HSN Product Data Sheet  
 PosiTector 6000 Coating Thickness Gages Instruction Manual V. 7.1

**Section 1A04:**

Material Receipt Reports:

132177-MRR-05807, Certificate of Conformance for #14 couplers, lots 6877, 7013, 6997, 6965, 6990, 6905, Revision 0  
 132177-MRR-07986, Certificate of Conformance for #14 rebar, heat no. V069302, Revision 0

Design Specifications:

APP-CR01-Z0-010, Specification for Supply and Installation of Mechanical Splices for Reinforcing Steel, Revision 6  
 APP-CR01-Z0-011, Safety Related Reinforcing Steel, Revision 4  
 VS2-CC01-Z0-027, Safety Related Concrete Testing Services, Revision 4  
 VS2-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel, Revision 4

Procedures:

CSI 3-44-4, Mechanical Splicing of Reinforcing Steel, Revision 4

Drawings:

VS2-1000-CR-903, Nuclear Island Basemat Reinforcement Section, Revision 1

**Section 1A05:**

Drawings:

VS2-0000-C9-001, AP1000 Concrete General Notes, Revision 8  
 VS2-0000-C9-002, AP1000 Concrete General Notes, Revision 4  
 VS2-1000-CCK-001, Nuclear Island Basemat Concrete Finish Legend, Revision 7  
 VS2-1000-CR-902, Nuclear Island Basemat Reinforcement Section, Revision 10  
 VS2-1000-CR-903, Nuclear Island Basemat Reinforcement Section, Revision 10  
 VS2-1000-CR-906, Nuclear Island Basemat Concrete Reinforcement Annulus Tunnel Wall Details, Revision 5  
 VS2-1010-CR-107, Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Construction Joints, Revision 2

Specifications:

VS2-CC01-Z0-026, Safety Related Mixing and Delivering Concrete, Westinghouse Safety Related Class C "Nuclear Safety Related, Revision 4  
 VS2-CC01-Z0-027, Safety Related Concrete Testing Services, Westinghouse Safety Class C "Nuclear Safety Related, Revision 4

VS2-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel Westinghouse Seismic Category I and II, Safety Class C “Nuclear Safety Related”, Westinghouse Seismic Category III, Safety Class C, Revision 4

Procedures:

CSI 3-30-3, Batch Plant and Delivery Equipment – Testing, Calibration, and Certification, 3/5/2012

CSI 3-33-4, Concrete Field Testing and Curing Records, 10/22/2013

CSI 3-36-2, Field Adjustment of Fresh Concrete, 8/21/2013

CSI 3-39-0, Fresh Concrete In-Process Waiver Instruction, 10/22/2013

NCSP 3-30-0, Concrete Mixing and Delivery, 5/7/2008

NCSP 3-31-1, Concrete Placement, 5/24/2012

CAP Documents:

CAR 2013-2136

CAR 2013-2134

CAR 2013-2135

**Section 1A06:**

Work Packages:

WP# VS2-CA20-S4W-02002, Revision 0, Assemble CA20 Submodules 12, 13, and 14 along J2

WP# VS2-CA20-S4W-01002, Revision 0, Unit 2 Module CA20 Assembly of Sub-modules CA20-07B to CA20-12, CA20-08B to CA20-14, CA20-07A to CA20-03 and CA-12, and CA20-08A to CA20-05 and CA20-14

WP# VS2-CA20-S4W-02001, Revision 0, Assemble CA20 Submodules 10, 11, and 12 along Wall J-2

WP# VS2-CA20-S4W-02150, Revision 0, Assemble U2 CA20 Submodules 10, 15, and 18

Westinghouse Miscellaneous:

APP-CA20-GEF-1080, CA20-12 Rework of Fillet Weld Modifications

VS2-CA20-GNR-000003, Revision 0, CA20-04 Removal of Temporary Welds Ground Beyond Flush

**Section 1A07:**

Codes:

N690, “American National Standard Specification for the Design, Fabrication, and Erection of Steel Safety-related Structures for Nuclear Facilities,” 1994 edition

AWS D1.1, “Structural Welding Code – Steel,” 2000 edition

AWS D1.6, “Structural Welding Code – Stainless Steel,” 1999 edition

Records:

VS2-CA20-SLW-001, Revision 0, “CA20 Sub-Assembly 1 Faceplate Weld Repairs”

AWS D1.1 Welder Qualification WPS Report, 11/20/2013

APP-CA20-GEF-990, “CA20-01 Faceplate Weld Rework for SV3 and VS2 Plants”, Revision 0

Drawings:

VS2-CA20-S5-17003, “Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-17 Structural Outline Horizontal Sections / Views”, Revision 0

VS2-CA20-S5-17004, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-17 Structural Outline Vertical Sections / Views", Revision 0  
 VS2-CA20-S5-17006, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-17 Structural Outline Specific Details", Revision 0  
 VS2-CA20-S5-20002, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-20 Breakdown", Revision 0  
 VS2-CA20-S5-20003, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-20 Structural Outline Horizontal Sections / Views", Revision 0  
 VS2-CA20-S5-20004, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-20 Structural Outline Vertical Sections / Views", Revision 0  
 VS2-CA20-S5-20005, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-20 Structural Outline Specific Details", Revision 0

Welding Procedures:

WPS2-1.1T71, GTAW, Revision 3  
 WPS2-1M02, GMAW, Revision 2

**Section 1A08:**

Drawings:

VS3-0000-C9-001, AP1000 Concrete General Notes, Revision 2  
 VS3-0000-C9-002, AP1000 Concrete General Notes, Revision 1  
 VS3-0000-C9-003, AP1000 Concrete and Reinforcing General Notes, Revision 0  
 VS3-1000-CR-002, Nuclear Island Basemat Top Reinforcement, Revision 2  
 VS3-1010-CR-001, Nuclear Island Basemat Dowel Plan at El. 66'6" Shield Building North-East Quadrant, Revision 1  
 VS3-1010-CR-002, Nuclear Island Basemat Dowel Plan at El. 66'6" Shield Building South-East Quadrant, Revision 1  
 VS3-1010-CR-003, Nuclear Island Basemat Dowel Plan at El. 66'6" Shield Building South-West Quadrant, Revision 1  
 VS3-1010-CR-004, Nuclear Island Basemat Dowel Plan at El. 66'6" Shield Building North-West Quadrant, Revision 1  
 VS3-1010-CR-007, Nuclear Island Basemat Dowel Plan at El. 66'6" Auxiliary Building Area 3, Revision 1  
 VS3-1010-CR-008, Nuclear Island Basemat Dowel Plan at El. 66'6" Auxiliary Building Area 4, Revision 1  
 VS3-CR01-C8-800023, Nuclear Island Basemat Wall Dowels – Plan, Revision 0

Specifications:

VS3-SS01-Z0-003, Design Specification for Embedded and Miscellaneous Steel, Revision 0  
 VS2-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel Westinghouse Seismic Category I and II, Safety Class C "Nuclear Safety Related", Westinghouse Seismic Category III, Safety Class C, Revision 4

E&DCRs:

APP-1010-GEF-044, Changes to Basemat Reinforcement Drawings, Revision 0  
 VS2-CR01-GEF-000011, Unit 3 Nuclear Island Layer 2 Hooks, Revision 0

N&Ds:

VS3-CR01-GNR-000022, FNC #7 Containment Clear Cover, Revision 0

**Section 1A09:**Design Specifications:

- VS2-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, Revision 4
- VS3-CC01-Z0-026, Safety Related Mixing and Delivering Concrete, Westinghouse Safety Class C "Nuclear Safety Related", Revision 4
- VS3-CC01-Z0-27, Safety Related Concrete Testing Services, Westinghouse Safety Class C "Nuclear Safety Related", Revision 4

Procedures:

- CSI 3-30-3, Batch Plant and Delivery Equipment – Testing, Calibration, and Certification, 3/5/2012
- CSI 3-31-4, Concrete Batch Plant Operations, 9/4/2013
- CSI 3-32-4, Concrete Batch Plant Mix and Material Control, 9/9/2013
- CSI 3-33-4, Concrete Field Testing and Curing Records, 10/22/2013
- CSI 3-34-2, Concrete Pumping Correlation Testing, 6/17/2013
- CSI 3-35-1, Concrete Strength (Maturity Method) Estimating, 7/9/2013
- CSI 3-36-2, Field Adjustment of Fresh Concrete, 8/21/2013
- CSI 3-39-0, Fresh Concrete In-Process Waiver Instruction, 10/22/2013
- NCSP 3-30-0, Concrete Mixing and Delivery, 5/7/2008
- NCSP 3-31-1, Concrete Placement, 5/24/2012
- QSI 11.1, Testing of Reinforcing Bars, Mechanical Splices, and Sampling and Testing of Concrete, and Concrete Related Materials, Revision 4, 10/29/2013

Drawings:

- APP-0000-C9-001, Revision 7
- APP-0000-C9-002, Revision 4
- APP-1000-CR-001, Revision 7
- APP-1000-CR-002, Revision 10
- APP-1000-CR-003, Revision 11
- APP-1000-CR-005, Revision 12
- APP-1000-CR-010, Revision 5
- APP-1000-CR-901, Revision 10
- APP-1000-CR-904, Revision 6
- APP-1000-CR-910, Revision 5
- APP-1010-CR-001, Revision 1
- APP-1010-CR-002, Revision 2
- APP-1010-CR-003, Revision 2
- APP-1010-CR-004, Revision 2
- APP-1010-CR-006, Revision 2
- APP-1010-CR-007, Revision 2
- APP-1010-CR-008, Revision 2
- APP-1010-CR-009, Revision 2
- APP-1010-CR-010, Revision 2
- APP-1010-CR-011, Revision 3
- APP-1210-CR-901, Revision 6
- APP-1210-CR-902, Revision 5
- APP-1210-CR-903, Revision 7
- APP-1210-CR-907, Revision 5

APP-1210-CR-908, Revision 2  
 APP-1211-CE-001, Revision 6  
 APP-1212-CE-001, Revision 6  
 APP-1212-CE-002, Revision 6  
 APP-1212-CE-003, Revision 6  
 APP-1215-CE-005, Revision 10  
 APP-1215-CE-006, Revision 5  
 APP-1215-CE-007, Revision 5  
 APP-1215-CE-008, Revision 0  
 APP-1215-CEX-005, Revision 0  
 APP-1215-CEX-006, Revision 0

E&DCRs:

VS3-1000-GEF-000034, Revision 0  
 VS3-1010-GEF-000003, Revision 0  
 VS3-CR01-GEF-000019, Revision 0  
 VS3-CR01-GEF-000009, Revision 0  
 VS3-CR01-GEF-000016, Revision 0  
 VSG-CC01-GEF-000106, Revision 0  
 APP-0000-GEF-034, Revision 0  
 APP-1000-GEF-099, Revision 0  
 APP-1000-GEF-031, Revision 0  
 APP-1010-GEF-041, Revision 0  
 APP-1010-GEF-042, Revision 0  
 APP-1210-GEF-186, Revision 0  
 APP-CE01-GEF-025, Revision 0

Miscellaneous:

Report No. RPT-VCSC-226, Revision 0, AMEC Periodic Testing Constituent Testing of Fine Aggregate, October 9, 2013  
 Report No. RPT-VCSC-223, Revision 0, AMEC Periodic Constituent Testing of Fly Ash (400 ton), October 9, 2013  
 Report No. RPT-VCSC-225, Revision 0, AMEC Periodic Constituent Testing of Site Batch Water, October 9, 2013  
 Report No. RPT-VCSC-202, Revision 0, AMEC Periodic Constituent Testing of Cement, August 19, 2013  
 Report No. RPT-VCSC-227, Revision 0, AMEC Periodic Constituent Testing of #67 Coarse Aggregate, October 9, 2013

**Section 1A10:**

Drawings:

VS3-0000-C9-001, AP1000 Concrete General Notes, Revision 2  
 VS3-0000-C9-002, AP1000 Concrete General Notes, Revision 1  
 VS3-0000-C9-003, AP1000 Concrete and Reinforcing General Notes, Revision 0  
 VS3-1000-CR-002, Nuclear Island Basemat Top Reinforcement, Revision 2  
 VS3-1010-CR-005, Nuclear Island Basemat Dowel Plan at El. 66'6" Auxiliary Building Area 1, Revision 1  
 VS3-1010-CR-006, Nuclear Island Basemat Dowel Plan at El. 66'6" Auxiliary Building Area 2, Revision 1  
 VS3-1000-CR-003, Nuclear Island Basemat Shear Reinforcement, Revision 4

VS3-CR01-C8-800023, Nuclear Island Basemat Wall Dowels – Plan, Revision 0  
 VS3-CR01-C8-800039, Nuclear Island Basemat Shear, Sump & Pit Reinforcement, Revision 1

Specifications:

VS3-SS01-Z0-003, Design Specification for Embedded and Miscellaneous Steel, Revision 0  
 VS2-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel Westinghouse  
 Seismic Category I and II, Safety Class C “Nuclear Safety Related”, Westinghouse Seismic  
 Category III, Safety Class C, Revision 4

E&DCRs:

APP-1000-GEF-066, Response to CAPs 12-339-M028, Revision 0  
 APP-1000-GEF-044, Changes to Basemat Reinforcement Drawings, Revision 0  
 VSG-CR01-GEF-000047, Circumferential Bars of Unit 3, Revision 0  
 VS3-1000-GEF-000036, T-Heads in Web of Sump Legs, Revision 0  
 VS3-CR01-GEF-000011, Unit 3 Nuclear Island Layer 2 Hooks

N&Ds:

VS3-CR01-GNR-000005, Unit 3 Sump Rebar, Revision 0  
 VS3-CR01-GNR-000008, Unit 3 Arc Strike Layer 1, Revision 0  
 VS3-CR01-GNR-000007, #9’s Standard Hook Dimension, Revision 0

**Section 1A11:**

Design Specifications:

VS2-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, Revision 4  
 VS3-CC01-Z0-026, Safety Related Mixing and Delivering Concrete, Westinghouse Safety Class  
 C “Nuclear Safety Related”, Revision 4  
 VS3-CC01-Z0-27, Safety Related Concrete Testing Services, Westinghouse Safety Class C  
 “Nuclear Safety Related”, Revision 4

Procedures:

CSI 3-30-3, Batch Plant and Delivery Equipment – Testing, Calibration, and Certification,  
 3/5/2012  
 CSI 3-31-4, Concrete Batch Plant Operations, 9/4/2013  
 CSI 3-32-4, Concrete Batch Plant Mix and Material Control, 9/9/2013  
 CSI 3-33-4, Concrete Field Testing and Curing Records, 10/22/2013  
 CSI 3-34-2, Concrete Pumping Correlation Testing, 6/17/2013  
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**LIST OF ACRONYMS**

|       |   |
|-------|---|
| ACI   | American Concrete Institute                           |
| ADAMS | Agencywide Documents Access & Management System       |
| AISC  | American Institute of Steel Construction              |
| ASME  | American Society of Mechanical Engineers              |
| ASTM  | American Society of Testing and Materials             |
| AWS   | American Welding Society                              |
| CA04  | Reactor Vessel Cavity Module                          |
| CA20  | Auxiliary Building Module                             |
| CB&I  | Chicago Bridge and Iron                               |
| CFR   | Code of Federal Regulations                           |
| CoC   | Certificate of Conformance                            |
| CVBH  | Containment Vessel Bottom Head                        |
| E&DCR | Engineering and Design Coordination Report            |
| EPC   | Engineering, Procurement, and Construction            |
| IP    | Inspection Procedure                                  |
| ITAAC | Inspections, Tests, Analysis, and Acceptance Criteria |
| N&D   | Nonconformance and Disposition Report                 |
| NRC   | Nuclear Regulatory Commission                         |
| NRMCA | National Ready Mix Concrete Association               |
| QA    | Quality Assurance                                     |
| QC    | Quality Control                                       |
| QS    | Nuclear Quality Standard                              |
| SCC   | Self-Consolidating Concrete                           |
| SSC   | Structures, Systems, and Components                   |
| UFSAR | Updated Final Safety Analysis Report                  |
| VIO   | Violation   |
| WPS   | Welding Procedure Specification                       |