



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

April 29, 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 05200027/2014002 and
05200028/2014002**

Dear Mr. Jones:

On March 31, 2014, 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 on April 23, 2014, with you and other members of your staff.

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 05200027/2014002
and 05200028/2014002
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to R. Jones from Michael E. Ernstes dated April 29, 2014

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 - NRC
INTEGRATED INSPECTION REPORTS 05200027/2014002 and
05200028/2014002

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

Docket Numbers: 5200027
5200028

License Numbers: NPF-93
NPF-94

Report Numbers: 05200027/2014002
05200028/2014002

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: January 1, 2014 through March 31, 2014

Inspectors: A. Artayet, Senior Construction Inspector, DCI
C. Cheung, Construction Project Inspector, DCP
P. Donnelly, Resident Inspector, DCP
D. Failla, Resident Inspector, DCP
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J. Vasquez, Construction Inspector, DCI

Approved by: Michael Ernstes, Chief
Construction Projects Branch 4
Division of Construction Projects

Enclosure

SUMMARY OF FINDINGS

Inspection Report 05200027/2014002, 05200028/2014002; 01/01/2014 through 03/31/2014; 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, Analyses, and Acceptance Criteria (ITAAC) inspections by both regional and resident inspectors. The Nuclear Regulatory Commission's (NRC's) program for overseeing the construction of commercial nuclear power reactors is described in IMC 2506, "Construction Reactor Oversight Process General Guidance and Basis Document."

A. NRC-Identified and Self Revealed Findings

No findings were identified.

B. Licensee-Identified Violations

No findings were identified.

REPORT DETAILS

Summary of Plant Construction Status

During this inspection period, the licensee continued constructing the Auxiliary Building walls, and poured the second layer of Self-Consolidating Concrete (SCC) outside the Containment Vessel Bottom Head (CVBH) for Unit 2. The installation of module CR10 and nuclear island construction is ongoing for Unit 3.

1. CONSTRUCTION REACTOR SAFETY

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

1A01 (Unit 2) ITAAC Number 2.2.01.02a (91) / Family 06F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.02a (91):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The components identified in Table 2.2.1-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built components as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built components identified in Table 2.2.1-1 as ASME Code Section III.

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

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.F-02.02 - Fabrication Records Review
- 65001.11-02.04 - Post Weld Heat Treatment
- 65001.11-02.07 - Offsite Fabrication of Assemblies

The inspectors reviewed an Ishikawajima-Harima Heavy Industries Co., Ltd. (IHI) American Society of Mechanical Engineers (ASME) Form N-2 code data report for the P40 spare penetration sleeve welded to the Unit 2 lower ring S1 course penetration block B2-A5, along with associated records, to determine whether this part was in accordance with the requirements of the Westinghouse Electric Company (WEC) Containment Vessel (CV) Design Specification and 2001 edition including 2002 addenda of ASME Section III, Subsection NE. Specifically, the inspectors reviewed the penetration block and sleeve thicknesses, material specification, tensile strengths, and postweld heat treatment (PWHT) records.

The inspectors reviewed a Unit 2 WEC Procurement Advisory Release, a Chicago Bridge and Iron (CB&I) Nonconformance Report (NCR), and a WEC Deviation Notice to determine whether issues were being identified and documented in accordance with the requirements of the CB&I ASME quality assurance manual for processing nonconformances and 10 CFR 50 Appendix B, Criterion 15, "Nonconforming Materials, Parts, or Components."

b. Findings

No findings were identified.

1A02 (Unit 2) ITAAC No. 2.2.01.03a (93) / Family 06B

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.03a (93):

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 IPs/sections to perform this inspection:

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.11-02.03 - Installation and Welding
- 65001.11-02.05 - Nondestructive Examination
- 65001.11-02.04 - Post Weld Heat Treatment
- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed a sample of records to verify compliance with applicable codes, specifications, and procedure requirements. Specifically, the inspectors reviewed a Certified Material Test Report (CMTR), welder performance qualification records (PQRs), a PWHT record, nondestructive examination (NDE) reports, and a NCR to determine whether traceability and appropriate reviews and approvals were provided for all aspects of the welding activities.

The inspectors reviewed eight IHI magnetic particle examination (MT) reports for the Category D full penetration groove weld joint between the penetration block B2-A5 and P40 spare penetration sleeve to determine whether in-process and final NDE were performed in accordance with the requirements and acceptance criteria of ASME

Section III, Subsection NE, and ASME Section V, Article 7, Magnetic Particle Examination. Specifically, the inspectors reviewed in-process and final MT reports to determine whether verification of the yoke lifting power, visible light source, and surface temperature was performed and evaluated by the proper certification level of NDE personnel.

The inspectors reviewed IHI Welding Procedure Specification (WPS) IT-1120G to verify it was up to date, accurate, and in conformance with the Code requirements. The inspectors also reviewed the specification to determine whether the essential, nonessential, supplementary essential variables were described in accordance with the requirements of ASME Section IX for the semi-automatic Gas Metal Arc Welding (GMAW) process in the PWHT condition.

The inspectors reviewed a Nippon Steel & Sumikin Welding Company CMTR with traceable heat number 9L7978(1) for weld filler metal used to weld the Unit 2 P40 spare penetration sleeve to the lower ring S1 course B2-A5 penetration block to determine whether the chemical analysis and mechanical properties in the PWHT condition were in accordance with the requirements of ASME Section II, Part C, SFA-5.28 for ER80S-G solid welding wire, and ASME Section III, Subsection NE (including Subarticle NCA-3800, Metallic Material Organization's Quality System Program).

The inspectors reviewed two IHI welder qualification records for welding the Unit 2 P40 spare penetration sleeve to the lower ring S1 course B2-A5 penetration block to determine whether the welders were qualified and certified in accordance with the essential variables and testing requirements of ASME Section IX for the semi-automatic pulsed-spray GMAW process. Specifically, the inspectors reviewed the welder qualifications to verify (1) the welders were assigned unique identification numbers, (2) the welders demonstrated their skills by performing specific performance qualification tests, (3) the qualification testing conditions and limits were properly documented, and (4) the appropriate number of test specimens and acceptable test results were achieved.

The inspectors reviewed an IHI PWHT record for the Unit 2 lower ring S1 course penetration block B2-A5 that included three spare penetration sleeves P40, P41, and P42 to determine whether the furnace heating and cooling rates, holding time and temperature, thermocouple locations, and strip chart were in accordance with the stress-relieving requirements of ASME Section III, Subsection NE.

The inspectors reviewed a Unit 2 CB&I NCR for dispositioning a weld repair and providing additional group training for welding operators to determine whether the investigation for full extent of conditions on the remainder of the S1 to S2 circumferential weld and other similar lower ring circumferential welds were performed in accordance with the requirements of the CB&I ASME quality assurance manual.

b. Findings

No findings were identified.

1A03 (Unit 2) ITAAC Number 2.2.01.04a.ii (96) / Family 06Fa. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.04a.ii (96):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
4.a) The components identified in Table 2.2.1-1 as ASME Code Section III retain their pressure boundary integrity at their design pressure.	ii) Impact testing will be performed on the containment and pressure-retaining penetration materials in accordance with the ASME Code Section III, Subsection NE, to confirm the fracture toughness of the materials.	ii) A report exists and concludes that the containment and pressure-retaining penetration materials conform with fracture toughness requirements of the ASME Code Section III.

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

- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed IHI WPS IT-1120G, used to weld the Unit 2 P40 spare penetration sleeve to the lower ring S1 course penetration block B2-A5, to determine whether the supplementary essential variables for control of heat input to ensure fracture toughness were described in accordance with the requirements of ASME Section III, Subsection NE, and Section IX.

The inspectors reviewed a CMTR for solid weld wire ER80S-G [traceable heat No. 9L7978 (1)], used by IHI for welding the Unit 2 P40 spare penetration sleeve to the lower ring S1 course penetration block B2-A5, to determine whether Charpy V-notch and drop weight impact testing results in the PWHT condition were in accordance with the fracture toughness requirements of the ASME Code Section III, Subsection NE.

b. Findings

No findings were identified.

1A04 (Unit 2) ITAAC No. 3.3.00.02a.i.a (760) / Family 01Fa. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.i.a (760):

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.a) A report exists which reconciles deviations during construction and concludes that the as-built containment internal structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

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

- 65001.F-02.02 - Fabrication Records Review
- 65001.F-02.03 - Observation of Fabrication Activities
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection

The inspectors performed a direct inspection of construction activities for the Unit 2 reactor vessel cavity flange (module CA04). The inspectors reviewed drawings, WPSs and supporting PQRs, and fabrication records to determine whether the documents met the requirements of the design specification, design drawings, and American Welding Society (AWS) D1.1, Structural Steel Welding Code.

The inspectors reviewed CMTRs for CA04 flange assembly, to determine whether the procured material met the requirements of ASTM A36/A36M material specification and AWS D1.1.

The inspectors observed assembly, fit-up, and field welding activities for CA04 flange to determine whether the assembly, fit-up, welding, and PWHT were performed in accordance with the design specification and AWS D1.1. The inspectors specifically observed weld numbers VS2-CA04-CAK-002-FW1 and VS2-CA04-CAK-002-FW2.

During the assembly, fit-up, and weld observations, the inspectors reviewed the following:

- the shape, size, dimensions, type, and grade of material conformed to the design specification and drawings

- the associated weld data record to determine whether correct WPS were referenced, hold points were observed, and inspections were performed
- surfaces to be welded met the requirements of AWS D1.1
- weld root spacing was within the tolerances specified on the drawing
- the weld filler material to determine whether the material was in accordance with the WPS
- the welding gas to determine whether the gas was in accordance with the WPS
- that the welder was welding within the WPS variables
- the weld joint was protected from wind and rain in accordance with the general WPS
- preheat and interpass temperatures were monitored and controlled in accordance with the general WPS and the specific WPS
- the weld was traceable to the welder

The inspectors reviewed weld filler material CMTRs for welding material used for CA04 to determine whether the welding material met the requirements of the filler material specification and AWS D1.1.

b. Findings

No findings were identified.

1A05 (Unit 2) ITAAC Number 3.3.00.02a.i.b (761) / Family 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.i.b (761):

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 IPs/sections to perform this inspection:

- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.B-02.04 - Production Controls
- 65001.B-02.06 - Records

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 design documents and applicable procedures. Specifically, the inspectors reviewed activities to determine if:

- structural concrete design and construction were 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 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
- records reflected that completed work met design specifications and acceptance criteria

In addition, the inspectors reviewed the following Engineering and Design Coordination Reports (E&DCR) that changed portions of WEC design specification VS2-CC01-Z0-026, Safety Related Mixing and Delivering Concrete:

- VSG-CC01-GEF-00127, Admixture Control Check
- VSG-CC01-GEF-00136, Fresh Concrete Limits and Ranges
- VSG-CC01-GEF-00140, Air - Fresh Concrete Limits and Ranges

The inspectors reviewed the documents to determine if the changes met the requirements of ACI-349-01, Code Requirements for Nuclear Safety Related Concrete Structures, ACI 237R-07, Self-Consolidating Concrete, and ASME NQA-1-1994, Quality Assurance Requirements for Nuclear Facility Applications.

The inspectors observed the placement of SCC within the shield building area of the nuclear island from elevation 72'-6" to 78'-6". Specifically, the inspectors performed observations of activities in the field to determine if:

- reinforcing steel was located properly in the structures, secured, free of excess rust, and had proper clearances
- Quality Control (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
- proper finishing, curing, and temperature monitoring techniques and equipment were utilized

b. Findings

No findings were identified.

1A06 (Unit 2) ITAAC Number 3.3.00.02a.i.c (762) / Family 01Fa. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.i.c (762):

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 IPs/sections to perform this inspection:

- 65001.01-02.01 - Procedures
- 65001.01-02.04 - Key Dimensions and Volumes
- 65001.01-02.05 - Steel Structures
- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.02 - Installation Records Review
- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed a field inspection of construction activities associated with the non-radiologically controlled area of the Auxiliary Building for VC Summer Unit 2. The inspectors applied the guidance contained 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 performed a field inspection of construction activities associated with the following wall sections:

- wall section along column line 11 between column lines J and K
- wall section along column line I between column lines 10 and 11
- wall section along column line Q between column lines 7.3 and 10
- wall section along column lines J and K between column lines 10 and 11
- wall section along column line L between column lines 7.3 and 11

The inspectors performed several independent measurements, on these walls, to verify adequate installation of horizontal and vertical reinforcing steel bars, shear reinforcement, wall dowel bars, and mechanical bar splices. The inspectors reviewed several implementing procedures, design drawings, specifications, and interviewed licensee personnel to determine if design processes were performed in compliance with applicable instructions and procedures. In addition, the inspectors reviewed various documents including work packages, design specifications, corrective action requests, NCRs, and E&DCRs associated with rebar installation to determine if:

- contractors performing safety-related work used approved implementing procedures that described administrative and procedural controls, approved work processes, and inspection requirements
- equipment used for process monitoring, tests, and/or data collection was calibrated and maintained in accordance with approved calibration procedures and vendor requirements
- surveying and measuring equipment was properly maintained, calibrated, or certified by a qualified Measurement and Test Equipment (M&TE) program
- personnel performing surveys or measurements were qualified and knowledgeable
- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings
- records reflected that completed work met design specifications and acceptance criteria
- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program
- reinforcing steel bars, including bar splices, were properly located in the structure and within the formworks, were secured and free of concrete or excessive rust, and have proper clearances
- problems identified during the inspection were entered into the licensee/constructor corrective action program in accordance with program requirements
- NCRs and other design deviation documents associated with SSCs that were classified as "repair" or "use-as-is" were dispositioned in accordance with applicable codes, standards, regulations, and quality and technical requirements
- the storage conditions of items met applicable quality and technical requirements
- the licensee, vendor and fabrication personnel had established an effective method for tracking, evaluating, and dispositioning changes or modifications, and that they were appropriately resolved

- as-built records reflected the as-built facility and furnished documentary evidence that the applicable quality and technical requirements were met
- key building critical dimensions and materials satisfied design specifications, requirements, and relevant ITAAC
- as-built deviations and nonconformances were properly evaluated, and that for those changes to the licensing basis that require NRC review (e.g. changes to Tier 2* or Tier 1 information), a License Amendment Request was submitted to the NRC, and NRC approval was obtained via a this amendment or a Preliminary Amendment Request approval

b. Findings

No findings were identified.

1A07 (Unit 2) ITAAC Number 3.3.00.02a.i.d (763) / Family 01F

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.i.d (763):

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.d) A report exists which reconciles deviations during construction and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

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

- 65001.01-02.01 - Procedures
- 65001.01-02.05 - Steel Structures
- 65001.01-02.06 - Records
- 65001.01-02.07 - Identification and Resolution of Problem
- 65001.F-02.01 - Design Document Review
- 65001.F-02.02 - Fabrication Records Review
- 65001.02-02.01 - Inspection of Concrete Placement
- 65001.02-02.07 - Problem Identification and Resolution
- 65001.A.02.01 - Observation of in-Process Installation Activities
- 65001.A.02.02 - Installation Records Review

- 65001.A.02.03 - Independent Assessment/Measurement Inspection
- 65001.A.02.04 - Review As-built Deviations/Nonconformance

The inspectors performed a field inspection of construction activities associated with the radiologically controlled area of the Auxiliary Building for VC Summer Unit 2. The inspectors observed construction activities associated with module CA20 and wall section along column line 1 within the radiologically controlled area of the auxiliary building on and above 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.A, "ITAAC Attributes for As-Built Inspection," and IP 65001.F, "Inspection of the ITAAC-Related Design and Fabrication Requirements."

The inspectors reviewed several design drawings, specifications and interviewed licensee personnel to verify that the construction activities were conducted in accordance with design documents and applicable procedures. The inspectors performed observations and independent measurements on wall section along column line 1, between column line J-2 and column line K-2, for the proposed Unit 2 nuclear island structures. Specifically, the inspectors performed a field inspection of reinforcing steel to verify adequate installation of horizontal and vertical reinforcing steel bars, shear reinforcement, and wall dowel bars. In addition, the inspectors reviewed various documents including work packages, design specifications, corrective action requests, NCRs, and E&DCRs associated with rebar installation to determine if:

- contractors performing safety-related work used approved implementing procedures that described administrative and procedural controls, approved work processes, and inspection requirements
- equipment used for process monitoring, tests, and/or data collection was calibrated and maintained in accordance with approved calibration procedures and vendor requirements
- surveying and measuring equipment was properly maintained, calibrated, or certified by a qualified M&TE program
- personnel performing surveys or measurements were qualified and knowledgeable
- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings
- records reflected that completed work met design specifications and acceptance criteria
- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program
- reinforcing steel bars, including bar splices, were properly located in the structure and within the formworks, were secured and free of concrete or excessive rust, and have proper clearances
- problems identified during the inspection were entered into the licensee/constructor corrective action program in accordance with program requirements
- NCRs and other design deviation documents associated with SSCs that were classified as "repair" or "use-as-is" were dispositioned in accordance with applicable codes, standards, regulations, and quality and technical requirements
- the storage conditions of items met applicable quality and technical requirements

- the licensee, vendor and fabrication personnel had established an effective method for tracking, evaluating, and dispositioning changes or modifications, and that they were appropriately resolved
- as-built records reflected the as-built facility and furnished documentary evidence that the applicable quality and technical requirements were met
- key building critical dimensions and materials satisfied design specifications, requirements, and relevant ITAAC
- as-built deviations and nonconformances were properly evaluated, and that for those changes to the licensing basis that require NRC review (e.g. changes to Tier 2* or Tier 1 information), a License Amendment Request was submitted to the NRC, and NRC approval was obtained via a this amendment or a Preliminary Amendment Request approval

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- 65001.B-02.01 - Program and Procedures Review
- 65001.B-02.02 - Welding Procedure Qualification
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls

The inspectors performed field inspections of construction activities associated with ITAAC 763 (3.3.00.02a.i.d) for the VC Summer Unit 2 site. The inspectors applied the guidance of IP 65001.B, "Inspection of ITAAC Related Welding Program". The inspection covered welding activities associated with the CA-20 module. Specifically, the inspectors observed on-going machine welding activities between EI. 117' and EI. 135' associated with sub-modules located along Column line L-2, and between column lines 2 and 3 of the radiologically controlled area. In addition, the inspectors reviewed welding specifications, applicable Sub-module assembly drawings, WPSs, PQRs, equipment calibration records, and personnel qualification records. The inspectors reviewed the previously mentioned documents to determine if:

- contractors/subcontractors with responsibilities in the selected area of welding had approved procedures describing administrative controls and work processes
- WPSs were qualified in conformance with AWS D1.6-1999, "Structural Welding Code – Stainless Steel"
- the type and number of qualification tests required to qualify a WPS for a given thickness were specified and conformed to the requirements of the applicable Code
- WPS specified base materials to be welded, thickness of material to be joined, type of joint, type of weld, size of weld, and position of welding

- WPS specified all the applicable essential, nonessential supplementary variables referenced in the Code. Also, the range of the WPS variables were obtained from PQR's
- welder performance qualification tests are fully documented
- the welder has used the welding process within the last six months to maintain their qualification

The inspectors observed on-going welding activities to determine if:

- the temperature of the base material at the joint prior to welding met the preheat requirements of the WPS
- each weld was traceable to the welder

The inspectors also reviewed:

- Ultrasonic Testing (UT) and visual testing procedures to determine if the testing methods and acceptance criteria were in conformance with engineering specifications and AWS D1.6-1999, "Structural Welding Code – Stainless Steel"

b. Findings

No findings were identified.

1A09 (Unit 2) ITAAC Number 3.3.00.02a.ii.c (766) / Family 01A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.02a.ii.c (766):

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.	ii) An inspection of the as-built concrete thickness will be performed.	ii.c) A report exists that concludes that as-built concrete thicknesses of the non-radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.

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

- 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.A.02.02 - Installation Records Review
- 65001.A.02.04 - Review As-built Deviations/Nonconformance
- 65001.A.02.03 - Independent Assessment/Measurement Inspection

The inspectors performed a field inspection of construction activities associated with the non-radiologically controlled area of the Auxiliary Building for VC Summer Unit 2. 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 observed as-built condition of several wall sections along column lines 11, I, Q, J, K, and L within the non-radiologically controlled area of the auxiliary building on and above elevation 66'-6" as it relates to this ITAAC. Specifically, the inspectors verified as-built wall thicknesses of the following wall sections:

- wall section along column line 11 between column lines J and K
- wall section along column line I between column lines 10 and 11
- wall section along column line Q between column lines 7.3 and 10
- wall section along column lines J and K between column lines 10 and 11
- wall section along column line L between column lines 7.3 and 11

In addition, the inspectors reviewed various documents including work packages, design specifications, corrective action requests, NCRs, and E&DCRs associated with rebar installation to determine if:

- contractors performing safety-related work used approved implementing procedures that described administrative and procedural controls, approved work processes, and inspection requirements
- equipment used for process monitoring, tests, and/or data collection was calibrated and maintained in accordance with approved calibration procedures and vendor requirements
- surveying and measuring equipment was properly maintained, calibrated, or certified by a qualified M&TE program
- personnel performing surveys or measurements were qualified and knowledgeable
- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings
- records reflected that completed work met design specifications and acceptance criteria
- the licensee was identifying problems at an appropriate threshold and entering them into the corrective action program
- as-built records reflected the as-built facility and furnished documentary evidence that the applicable quality and technical requirements were met
- key building critical dimensions and materials satisfied design specifications, requirements, and relevant ITAAC
- as-built deviations and nonconformances were properly evaluated, and that for those changes to the licensing basis that require NRC review (e.g. changes to Tier 2* or Tier 1 information), a License Amendment Request was submitted to the NRC, and NRC approval was obtained via a this amendment or a Preliminary Amendment Request approval

b. Findings

No findings were identified.

1A10 (Unit 2) ITAAC Number 3.3.00.05a (784) / Family 02C

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.05a (784):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
5.a) Exterior walls and the basemat of the nuclear island have a water barrier up to site grade.	An inspection of the as-built water barrier will be performed during construction.	A report exists that confirms that a water barrier exists on the nuclear island exterior walls up to site grade.

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

- 65001.02-02.05 - Water Barriers for Foundations and Buildings

The inspectors performed a walkdown of the warehouse storage facility and the construction site storage trailer to ensure materials associated with the vertical waterproof membrane (primer, liquid membrane and sheet membrane) were adequately stored and handled per licensee and manufacturer requirements.

The inspectors observed surface preparation and in-process installation activities to determine if the requirements of the following drawings were met:

- VS2-1000-XE-026, VC Summer Unit 2 Nuclear Island Waterproof Membrane Cross Sections, Revision 2
- VS2-1000-XE-800010, VC Summer Unit 2 Nuclear Island & Turbine Building Waterproof Membrane Installation Details Sheet 1, Revision 4
- VS2-1000-XE-800011, VC Summer Unit 2 Nuclear Island & Turbine Building Waterproof Membrane Installation Details Sheet 2, Revision 2.

As installation activities were in-process, the inspectors observed the installation in various stages of progression. The inspectors observed surface preparation, including cleaning, patching, and priming. Additionally, the inspectors observed the sheet membrane installation to verify the as-installed condition matches the applicable design drawing. The inspectors performed independent measurements of key installation dimensions for membrane overlap and liquid membrane corner and edge troweling.

b. Findings

No findings were identified.

1A11 (Unit 3) ITAAC Number 2.2.01.02a (91) / Family 06Fa. Inspection Scope

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

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed the CMTRs for CV penetration P11 (fuel transfer tube insert plate) to determine whether insert plate, insert tube, and weld filler material met the requirements of the design specification and ASME Section III Subsection NE. The inspectors also reviewed the CMTRs for penetration P11 to determine whether the mechanical test results met the requirements of ASME Section III Subsection NE.

The inspectors reviewed penetration P11 supplier welding records to determine whether the requirements of ASME Section III Subsection NE were met. The inspectors reviewed CMTRs for the CVBH plates (A3-C16-2 and A3-C17-1) to determine whether the material and mechanical testing results met the requirements of the design specification and ASME Section III Subsection NE.

The inspectors observed fit-up, tack, and welding activities for penetration P11 (fuel transfer tube insert plate) to determine whether the welding was performed in accordance with the drawings, CV design specification, and ASME Code Section III, Subsection NE.

b. Findings

No findings were identified.

1A12 (Unit 3) ITAAC Number 2.2.01.02a (91) / Family 06Fa. Inspection Scope

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

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.F-02.02 - Fabrication Records Review
- 65001.11-02.03 - Installation and Welding
- 65001.11-02.04 - Post Weld Heat Treatment
- 65001.11-02.05 - Nondestructive Examination
- 65001.11-02.07 - Offsite Fabrication of Assemblies
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls

- 65001.B-02.05 - Inspection

The inspectors reviewed IHI and CB&I records for the CVBH subassemblies and parts and lower ring shell parts to verify that applicable codes, standards, specifications, and procedure requirements were met, proper reviews and approvals were documented, and traceability of materials, welders, and welding operators was provided for welding activities. Specifically, the inspectors reviewed purchase orders and CMTRs for pressure retaining shell plates and penetration sleeves, CMTRs for weld filler metals, welder performance qualifications records, welding procedures, NDE reports, and Certificate of Compliances (CoC) of a thermocouple and NDE liquid penetrant testing materials used to fabricate the following:

- BH1, BH2, and BH3 course plates for the bottom head
- temporary attachment of a column stub to the bottom head
- permanent attachment of an electrical attachment pad to the bottom head
- S1 course shell plate for the lower ring

The inspectors reviewed six ASME Form N-2 Data Reports from IHI for the following CV items and welded parts:

- BH1 A3-A1-1 crown plate
- BH1 A3-A2-3 knuckle plate
- BH3 plate A3-C3-1 welded to plate A3-C3-2
- P11 fuel transfer tube penetration sleeve welded to the BH3 A3-C33 insert plate for the bottom head
- P19 Reactor Coolant System to Normal Residual Heat Removal pump outlet mechanical penetration sleeve welded to the BH3 A3-C34-1 insert plate for the bottom head
- S1 course shell plate B3-A2 welded to three E27, E28, and E29 electrical penetration sleeves of the lower ring

In addition, the inspectors reviewed twelve CMTRs (two for each of the BH3, BH2, and BH1 bottom head courses; one for the S1 course shell plate; one for each of the three electrical penetration sleeves; and two for the P19 insert shell plate and mechanical penetration sleeve) to determine whether the applicable dimensions, basic oxygen furnace degassing process, chemical compositions, mechanical properties (tensile and yield strength, minimum percent elongation and reduction of area, carbon equivalency, and Brinell hardness), and heat treatment were in accordance with the requirements of the:

- ASME Section III, Subsection NE (including Subarticle NCA-3800, Metallic Material Organization's Quality System Program)
- Updated Final Safety Analysis Report (UFSAR) with reference to 10 CFR Part 50, Appendix B, and 10 CFR 21 applicability
- WEC CV design specification APP-MV50-Z0-001
- CB&I material procurement specifications MS-SA-350 LF2-2773 for penetration sleeves, and MS-SA-738B-2888 and MS-SA-738B-2889 for shell plates

The inspectors reviewed the following documentation associated with a CB&I weld traveler (with completed hold point signatures) for a temporary attachment between the

column stub A3-C52 and bottom head BH3 plate A3-C9 to determine whether welding of the Category D full penetration groove weld joint was performed and accepted in accordance with the requirements of ASME Section III, Subsection NE:

- two CMTRs for traceable lot numbers 2K018P03 and 2K019T02 of AWS Classification E9018 manufactured and tested in accordance with the requirements of ASME Section II, Part C, SFA-5.5, Specification for Low-Alloy Steel Electrodes for Shielded Metal Arc Welding (SMAW), and CB&I weld filler metal procurement specification CMS-830-15-SP-12043
- a CMTR for traceable lot number 967Z of AWS Classification E91TG-H4 manufactured and tested in accordance with the requirements of ASME Section II, Part C, SFA-5.29, Specification for Low-Alloy Steel Electrodes for Flux-cored Arc Welding (FCAW), and CB&I weld filler metal procurement specification CMS-830-15-SP-12049
- six certified records for three welders, with traceable identification numbers, qualified and tested in accordance with the essential variables and acceptance criteria of ASME Section IX, Article III, Welding Performance Qualifications
- MT report of the completed weld that included verifications of the yoke lifting power, surface temperature, and visible light source performed in accordance with the requirements of ASME Section V, Article 7, Magnetic Particle Examination

The inspectors reviewed the following documentation associated with a CB&I weld traveler (with completed hold point signatures) for a permanent attachment between the electrical attachment pad 35-5 and bottom head BH3 plate A3-C9 to determine whether welding of the continuous fillet weld was performed and accepted in accordance with the requirements of ASME Section III, Subsection NE:

- a CMTR for electrical pad plate 35-5 with traceable heat number A9B083 manufactured and tested in accordance with the requirements of ASME Section II, Part A, SA-36, Specification for Carbon Structural Steel
- two CMTRs for traceable lot numbers 2F220T04 and 2H116M02 of AWS Classification E9018 manufactured and tested in accordance with the requirements of ASME Section II, Part C, SFA-5.5, Specification for Low-Alloy Steel Electrodes for SMAW, and CB&I weld filler metal procurement specification CMS-830-15-SP-12043
- three certified records for a welder, with a traceable identification number, qualified and tested in accordance with the essential variables and acceptance criteria of ASME Section IX, Article III, Welding Performance Qualifications
- MT report of the completed weld that included verifications of the yoke lifting power, surface temperature, and visible light source performed in accordance with the requirements of ASME Section V, Article 7, Magnetic Particle Examination

The inspectors reviewed two CB&I purchase orders with three CoCs to determine whether NDE material Sherwin DR-60 cleaner/remover, DP-51 penetrant, and D-100 developer (with traceable batch numbers 218-E4, 39-B47, and 211-C6, respectively) were procured in accordance with the requirements of ASME Section V, Article 6, paragraph T-641, to perform liquid penetrant examinations (PT).

The inspectors reviewed a CoC from TE Wire & Cable, LLC to determine whether a type K thermocouple (with traceability number 279113) used for PWHT was in accordance with the requirements of the American National Standards Institute (ANSI) MC96.1-82 for calibration.

The inspectors reviewed the latest revisions of the CB&I WPSs for SMAW, FCAW, and submerged arc welding (SAW) to determine whether changes were in accordance with the requirements of ASME Section IX and did not affect the essential variables of the applicable welding processes that necessitate additional qualification.

b. Findings

No findings were identified.

1A13 (Unit 3) ITAAC Number 2.2.01.03a (93) / Family 06B

a. Inspection Scope

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

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.B-02.04 - Production Controls
- 65001.11-02.03 - Installation and Welding
- 65001.F-02.03 - Observation of Fabrication Activities

The inspectors performed a direct inspection of construction activities associated with ITAAC No. 93 (2.2.01.03a) for the Unit 3 CV. The inspectors observed fit-up, tack, and welding activities for penetration P11 (fuel transfer tube insert plate) to determine whether the welding was performed in accordance with the drawings, CV design specification, and ASME Code Section III, Subsection NE. The inspectors reviewed CMTRs for the P11 penetration sleeve, P11 insert plate, and weld material to determine whether the material met the requirements of ASME Code Section III, Subsection NE. The inspectors reviewed fabrication records for the P11 penetration sleeve to insert plate, welds WA3-P11-L and WA3-P11-N, and associated NDE records to determine whether the penetration was fabricated in accordance with the design specification and ASME Code Section III, Subsection NE.

The inspectors observed field welding of CVBH vertical seam and girth seam joints to determine whether the welding was performed in accordance with the design specification and ASME Code Section III, Subsection NE. The inspectors reviewed CMTRs for the CVBH BH3 plates to determine whether the material met the requirements of ASME Code Section III, Subsection NE.

Specifically, the inspectors observed welding of the following CVBH joints:

- BH2 vertical joint Y (plates B24 to B10)
- BH2 to BH3 girth seam
- BH1 seam A (plates A3-A2-1 to A3-A1-1)

The inspectors observed field welding of CV lower ring vertical joint D (plates B3A4 to B3A5) to determine whether the welding was performed in accordance with the design specification and ASME Code Section III, Subsection NE.

During the weld observations, the inspectors reviewed the following:

- the associated weld data record to determine whether correct WPS were referenced, hold points were observed, and inspections were performed
- weld root spacing was within the tolerances specified on the drawing
- tack welds to be incorporated into the final weld were free of defects and met the requirements of ASME Code Section III
- observed that the welder was welding within the WPS variables
- the weld joint was protected from wind and rain in accordance with the general WPS for the FCAW process
- examined the welding gas to determine whether the gas was in accordance with the WPS
- preheat and interpass temperatures were monitored and controlled in accordance with the general WPS for the FCAW process, SAW, and the specific WPS
- the weld was traceable to the welder

The inspectors observed PWHT and reviewed PWHT records for weld joint L of the CV lower ring to determine whether the PWHT was performed in accordance with the design specification and ASME Code Section III, Subsection NE.

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- 65001.06-02.01 - General Installation
- 65001.06-02.02 - Component Welding
- 65001.B-02.03 - Welder Qualification
- 65001.B-02.04 - Production Controls
- 65001.B-02.05 - Inspection
- 65001.11-02.03 - Installation and Welding
- 65001.11-02.05 - Nondestructive Examination
- 65001.11-02.04 - Post Weld Heat Treatment
- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed IHI and CB&I records for the CVBH and lower ring shell to verify that applicable codes, standards, specifications, and procedure requirements were met, proper reviews and approvals were documented, and traceability of materials,

welders, and welding operators was provided for welding activities. Specifically, the inspectors reviewed a variation of CMTRs, WPSs, welder PQRs, PWHT records, NDE reports, and weld travelers to verify that:

- the material yield strength, tensile strength, elongation, chemical composition, carbon equivalency, Brinell hardness, heat treatment, and applicable NDE requirements were met
- WPSs were up to date, accurate, and in conformance with the ASME Code requirements (including applicable preheat, interpass, and PWHT temperatures)
- each welder was assigned a unique identification number and demonstrated their skill by performing specific performance qualification tests, the qualification testing conditions and qualification limits were fully documented, and the appropriate number of acceptable test results were achieved
- PWHT heating and cooling rates, holding time and temperature, thermocouple locations, and strip chart were in accordance with the ASME Code requirements
- final NDE was performed and found acceptable in accordance with the applicable sections of the ASME Code
- when applicable, the welding process was controlled by a traveler which specified the steps completed for the weldment, materials used, and also documented QC inspections

For welding the BH3 lower knuckle plates A3-C3-1 and A3-C3-2, the inspectors reviewed:

- the applicable IHI weld list documenting the WPS, welding material traceability numbers, and welders used during production
- welder PQRs for four welders
- a radiographic examination report
- a leak test report

For welding the P11 (fuel transfer tube insert plate) to penetration sleeve, the inspectors reviewed:

- the applicable IHI weld list documenting the WPS, welding material traceability numbers, and welders used during production
- the IHI weld checklist documenting fit-up, back chipping, and weld completion examination
- welder PQRs for six welders
- two UT reports

For welding the P19 mechanical penetration insert plate to sleeve, the inspectors reviewed:

- the applicable IHI weld list documenting the WPS, welding material traceability numbers, and welders used during production
- WPS I-11X3G
- a CMTR for weld filler metal heat No. 0P7522(1)
- a welder PQR
- eight MT report
- a leak test report

For welding the E27, E28, and E29 electrical penetration sleeves to the lower ring S1 course shell plate B3-A2, the inspectors reviewed:

- the applicable IHI weld list documenting the WPS, welding material traceability numbers, and welders used during production
- WPS IT-1121G
- welder PQRs for two welders
- eight MT reports
- an IHI PWHT record

In addition, the inspectors reviewed eight Seo Koatsu Kogyo Co., Ltd., heat treatment strip charts for water quenching and tempering of the penetration sleeves (two each for P19, E27, E28, and E29) to determine whether the holding times and temperatures were in accordance with the requirements of the ASME Section II, Part A, SA-350 Grade LF2, Class 1 material specification. The inspectors also reviewed Seo Koatsu Kogyo Co., Ltd., UT Report G24315-002U and MT Report G24315-002M to determine whether the straight-beam and angle-beam techniques for UT and MT of the P19 mechanical penetration sleeve and E27, E28, and E29 electrical penetration sleeves were performed in accordance with ASME SA-388, Practice for Ultrasonic Examination of Heavy Steel Forgings and ASME Section III, Subsection NE, NE-2552 and NE-2545 for UT and MT respectively.

For welding the P11 (fuel transfer tube insert plate) to the bottom head BH3 plate, the inspectors reviewed:

- CB&I weld filler metal procurement specification CMS-830-15-SP-12043 for SMAW
- the applicable CB&I weld traveler including spread sheets with completed hold point signatures (including traceability of welder stencils and weld filler metals)
- fifteen welder PQRs for five welders on SMAW and FCAW processes
- a CMTR for weld filler metal
- two RT reports with films (including reshoots of three weld repair locations)

For welding the P19 mechanical penetration insert plate to the bottom head BH3 plate, the inspectors reviewed:

- the applicable CB&I weld traveler including spread sheets with completed hold point signatures (including traceability of welder stencils and weld filler metals)
- a welder PQR
- a CMTR for weld filler metal
- three MT reports
- two RT reports with films (including a reshoot of one weld repair location)
- a leak test report

For welding the bottom head horizontal round seam BH2 to BH3, the inspectors reviewed:

- CB&I weld filler metal procurement specification CMS-830-15-SP-12049 for FCAW and CMS-830-15-SP-12044 through 12046 for SAW

- the applicable CB&I weld traveler including spread sheets with completed hold point signatures (including traceability of welder stencils and weld filler metals)
- forty-two welder PQRs for twelve welders on SMAW, FCAW, and machine SAW processes
- five CMTRs for weld filler metals and flux
- two MT reports for excavated repair areas
- two RT reports with films between vertical welds W to X and B to C (including a reshoot of one weld repair at RT location markers 4-5 between vertical welds B to C)
- a leak test report

For welding the lower ring S1 course vertical seam "J" (plates A6 to A11), the inspectors reviewed:

- the applicable CB&I weld traveler including spread sheets with completed hold point signatures (including traceability of welder stencils and weld filler metals)
- five welder PQRs for two welders
- a PT report before PWHT
- a PWHT strip chart displaying heating and cooling rates as well as hold time and temperature
- the calibration of PWHT data acquisition recorder DAQ4
- a RT report with films

For welding the lower ring S1 course vertical seam "K" (plates A10 to A11), the inspectors reviewed:

- the applicable CB&I weld traveler including spread sheets with completed hold point signatures (including traceability of welder stencils and weld filler metals)
- a PT report before PWHT (including CoCs for cleaner, penetrant, and developer)
- a PWHT strip chart displaying heating and cooling rates as well as hold time and temperature
- a RT report with films

For welding the bottom head horizontal round seam BH1 to BH2, the inspectors reviewed:

- two RT reports with films (between BH2 vertical A and D welds, including a reshoot of weld repair between RT location markers 1-2 for B-C)

b. Findings

No findings were identified.

1A15 (Unit 3) ITAAC Number 2.2.01.04a.ii (96) / Family 06Fa. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.04a.ii (96). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.F-02.02 - Fabrication Records Review

The inspectors reviewed a total of twelve CMTRs (two each for each of the bottom head BH3, BH2, BH1 course plates; two for the P19 mechanical penetration insert plate and sleeve; and four for the lower ring S1 course shell plate B3-A2 with the E27, E28, and E29 electrical penetration sleeves) to determine whether the Charpy V-notch and applicable drop weight impact testing of pressure retaining materials were performed in accordance with the fracture toughness requirements of ASME Section III, Subsection NE; WEC CV design specification APP-MV50-Z0-001; and CB&I material procurement specifications MS-SA-350 LF2-2773, MS-SA-738B-2888, and MS-SA-738B-2889.

The inspectors reviewed a total of eleven CMTRs for Unit 3 weld filler metals (two for ER80S-G welding wire from Nippon Steel & Sumikin Welding Company, six for Atom Arc E9018 electrodes from ESAB; two for Outershield 91K2-HSR wire from Lincoln Electric; and one for ENi4 wire from ESAB) to determine whether the Charpy V-notch and applicable drop weight impact testing of pressure retaining materials were performed in accordance with the fracture toughness requirements of ASME Section III, Subsection NE, WEC CV design specification APP-MV50-Z0-001, and applicable CB&I material procurement specifications CMS-830-15-SP-12043 through -12046 and CMS-830-15-SP-12049.

b. Findings

No findings were identified.

1P01 Quality Assurance Implementation, Appendix 10 Inspection of Criterion X – Inspection (35007)a. Inspection Scope

The inspectors observed CB&I's receipt inspection of the Unit 2 accumulators. The inspector verified that the person conducting the inspection was a qualified QC inspector, and had the current procedure and appropriate drawings to perform the inspection. The inspectors verified that the item was accurately marked to reflect its inspection status. In addition, the inspectors later observed that the Unit 2 accumulators were appropriately tagged following the receipt inspection with the updated inspection status. The inspectors also reviewed inspection report Q445-14-0092 to determine if the requirements of Quality Standard (QS) 14.2, "Inspection Report System," were met.

b. Findings

No findings were identified.

1P02 Quality Assurance Implementation, Appendix 13 Inspection of Criterion XIII – Handling, Storage and Shipping (35007)

a. Inspection Scope

The inspectors performed a walkdown of several of the CB&I controlled storage areas, including warehouses, to determine whether CB&I had controlled the storage of safety-related equipment to prevent damage or deterioration. Specifically, the inspectors observed the storage areas to determine whether CB&I was adequately implementing Section 13, "Handling Storage, and Shipping," of SWSQAP 1-74A, "CB&I Standard Nuclear Quality Assurance Program," Revision B; and QS 13.11, "Material/Equipment Storage," Revision C. The inspectors examined the following items in the CB&I designated storage areas for compliance with program requirements:

- CA20 Submodules CA20_26 and CA20_27
- Unit 2 Accumulators and spare parts
- Unit 2 Core Makeup Tanks and spare parts
- Unit 2 Nuclear Island rebar
- Unit 3 CV Ring 1 plates

The inspectors observed various storage areas to ensure the following storage requirements were properly implemented:

- storage areas were properly designated
- materials were properly segregated to avoid deleterious effects
- pipes and penetrations were properly sealed
- materials were properly supported
- applicable storage level requirements were met for temperature and exposure

In addition, the inspectors reviewed APP-MT02-VHM-001, "AP1000 Accumulator Tank Technical Manual: Instructions for Receipt Inspection, Storage and Assembly", and APP-MT01-VHM-001, "AP1000 Core Makeup Tank Technical Manual: Instructions for Receipt Inspection, Storage and Assembly", to determine if the components in the field were being stored in accordance with specified requirements.

b. Findings

No findings were identified.

1P03 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 nonconformance and disposition reports (N&Ds), to determine whether the conditions were adequately reviewed and accepted, rejected, repaired, or reworked in accordance with the Quality Assurance 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, Rev. 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 selected the following evaluations of nonconforming items that the licensee either rejected, repaired, reworked or accepted through evaluation:

- VS2-CC01-GNR-000100, "Layer A Concrete Consistency"
- VS2-1010-GNR-000001, "Layer A Identify Cold Joint"
- APP-CA04-GNR-850005, "CA04 Top Flange Width and Length Issues," Rev.0

In addition, the inspectors observed coring activities associated with VS2-CC01-GNR-000100. Specifically, the inspectors observed coring activities to determine if the cores were obtained in accordance with WEC specification VS2-CC01-Z0-027, "Safety Related Concrete Testing Services," and ASTM C42-10, "Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete." The inspectors observed compressive strength testing at the site CB&I civil lab to determine if the testing was performed and the results were recorded in accordance with ASTM C39-10, "Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens."

b. Findings

No findings were identified.

1P04 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 IPs 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 50.55(e)) of conditions adverse to quality
- complete and accurate identification of the problem in a timely manner commensurate with its significance and ease of discovery
- 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
- 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
- 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 "List of 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 50.55(e) and 10 CFR 21
- the identification and correction of design deficiencies were being adequately addressed
- extent of condition was being adequately addressed
- appropriate corrective actions were developed and implemented

b. Findings

No findings were identified.

4. OTHER INSPECTION RESULTS4AO6 Meetings, Including Exit

.1 Exit Meeting.

On April 23, 2014, the NRC inspectors presented the inspection results to Mr. R. Jones along with other licensee and consortium staff members. The inspectors stated that no proprietary information would be included in the inspection report.

KEY POINTS OF CONTACT

Licenses and Contractor Personnel

R. Driscoll, Quality Manager, CB&I
P. Fleming, Project Manager, CB&I
K. Hollenbach, Project Director, CB&I
R. Jones, Vice President, New Nuclear Operations, SCE&G
Z. Ashcraft, Construction Supervisor, SCE&G
N. Kellenberger, ITAAC Licensing Manager, SCE&G
A. Rice, Licensing Manager, SCE&G
B. Stokes, General Manager of Engineering, SCE&G
R. Thompson, ITAAC Supervisor, SCE&G
A. Torres, General Manager of Nuclear Construction, SCE&G
B. Bedford, ITAAC Manager, WEC
J. Cole, Licensing, WEC
W. Hutchins, Consortium Licensing Manager, WEC
C. Levesque, VP & Consortium Project Director, WEC
B. McIntyre, Consortium Licensing Director, WEC
D. Walters, Containment Vessel Lead, WEC

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

Section 1A01:

IHI ASME Data Report Form N-2 for spare penetration P40 welded to the Unit 2 lower ring S1 course penetration block B2-A5 (S/N IN-4819 & 2732)
WEC APP-MV50-Z0-001, AP1000 Containment Vessel Design Specification, Rev. 8
WEC APP-MV50-V1-018, AP1000 CV Mechanical Penetration Sleeves, Rings, Rev. 7

WEC Procurement Advisory Release 4500286170-1222-A, issue date 02/21/2014
CB&I Nonconformance Report VCS-056, dated 10/30/2013
WEC Deviation Notice VS2-MV50-GNR-017 (45 pages), Rev. 0, dated 2/12/14

Section 1A02:

IHI WPS No. IT-1120G, Rev. 0, dated April 15, 2010 for P40 spare penetration
IHI Welder Performance Qualification Test (WPQ) for welders W-1925 and W-1963 for P40 spare penetration
CMTR RINJQ-229-2-1, Heat No. 9L7978(1), Nippon Steel & Sumikin Welding Company, SFA-5.28, ER80S-G, dated 5/31/2012 for P40 spare penetration
IHI, PWHT Record No. 004-SRB-014 for Unit 2 lower ring S1 course penetration block B2-A5 with spare penetration P40
IHI MT-004-EP-WB2-P40-N-S, Magnetic Particle Examination Record for weld edge preparation of CV lower ring sleeve

Enclosure

IHI MT-004-EP-WB2-P40-N-P, Magnetic Particle Examination Record for weld edge preparation of CV lower ring plate
 IHI MT-004-EP-WB2-P40-F, Magnetic Particle Examination Record for weld edge preparation of CV lower ring sleeve
 IHI MT-004-RP-WB2-P40-N, Magnetic Particle Examination Record for root pass of CV lower ring penetration block
 IHI MT-004-BG-WB2-P40-N, Magnetic Particle Examination Record for back gouge of CV lower ring penetration block
 IHI MT-004-BR-WB2-P40-N, Magnetic Particle Examination Record for back groove root pass of CV lower ring penetration block
 IHI MT-004-BP-WB2-P40-N, Magnetic Particle Examination Record before PWHT of CV lower ring penetration block
 IHI MT-004-AP-WB2-P40-N, Magnetic Particle Examination Record after PWHT of CV lower ring penetration block
 CB&I Nonconformance Report VCS-057, dated 10/30/2013

Section 1A03:

IHI WPS No. IT-1120G, Rev. 0, dated April 15, 2010 for P40 spare penetration
 CMTR RINJQ-229-2-1, Heat No. 9L7978(1), Nippon Steel & Sumikin Welding Company, SFA-5.28, ER80S-G, dated 5/31/2012 for P40 spare penetration

Section 1A04:

Drawings

VS2-CA04-CAK-002, Module CA04 Top Flange Weld Map, Rev.A
 Work Order
 VS2-CA04-CAW-002, Assemble and install top flange assembly onto CA04 module, Rev.0
 Welding Procedure Specifications
 WPSS2-1.1F02, Flux Core Arc Welding, Rev.1
 Certified Material Test Reports
 430000-CMTR-13-000284, CA04 Flange Plate, ASTM A36, April 11, 2013
 132177-FPR12-3465 Rev.0, E71T-12M H4 flux core material, heat 1111N, February 20, 2012
 Corrective Action Documents
 CR-NND-14-00291, inappropriate use of the N690 code provision within N&D justification, Rev.0
 IR 14-084-M026, inappropriate use of the N690 code provision within N&D justification, Rev.0
 CR-NND-14-00251, incorrect tensile specimen used for AWS D1.1 PQR, Rev.0
 CAR-2014-0346, incorrect tensile specimen used for AWS D1.1 PQR, Rev.0
 VS2-CA04-GNR-000018, incorrect tensile specimen used for AWS D1.1 PQR, Rev.0
 APP-CA04-GNR-850005, CA04 Top Flange Width and Length Issues, Rev.0

Section 1A05:

Drawings

VS2-0000-C9-001, AP1000 Concrete General Notes, Rev 8
 VS2-0000-C9-002, AP1000 Concrete General Notes, Rev 4
 VS2-1000-CCK-001, Nuclear Island Basemat Concrete Finish Legend, Rev 7
 VS2-1000-CR-902, Nuclear Island Basemat Reinforcement Section, Rev 10
 VS2-1000-CR-903, Nuclear Island Basemat Reinforcement Section, Rev 10

VS2-1000-CR-906, Nuclear Island Basemat Concrete Reinforcement Annulus Tunnel Wall Details, Rev 5
 VS2-1010-CR-107, Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Construction Joints, Rev 2

Codes

ACI-349-01, Code Requirements for Nuclear Safety Related Concrete Structures
 ACI 237R-07, Self-Consolidating Concrete
 ASME NQA-1-1994, Quality Assurance Requirements for Nuclear Facility Applications
 E&DCRs
 VSG-CC01-GEF-00127, Admixture Control Check, Rev 0
 VSG-CC01-GEF-00136, Fresh Concrete Limits and Ranges, Rev 0
 VSG-CC01-GEF-00140, Air - Fresh Concrete Limits and Ranges, Rev 0

Specifications

VS2-CC01-Z0-026, Safety Related Mixing and Delivering Concrete, Rev 3

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
 NCSP 3-30-0, Concrete Mixing and Delivery, 5/7/2008
 NCSP 3-31-1, Concrete Placement, 5/24/2012
 QSI 11.4, Field Determination of Initial Set of Concrete, 3/19/2014

Section 1A06:

Drawings

APP-0000-C9-001, Rev. 8 Concrete General Notes
 APP-1200-CR-950, Rev. 13, Auxiliary Building Areas 5 & 6
 APP-1210-CR-950, Rev. 4, Auxiliary Building Areas 5 & 6 Reinforced Concrete Wall 1 details
 APP-1200-CR-913, Rev. 22, Auxiliary Building Areas 1 & 2 Walls M and L Elevation
 APP-1210-CR-913, Rev. 6, Auxiliary Building Areas 1 & 2 Reinforced Concrete Walls L & M details EL. 66'-6"
 APP-1216-CC-601, Rev. 3, Auxiliary Building Concrete Outline Area 6 Floor EL. 66'-6"
 APP-1215-CC-501, Rev. 3, Auxiliary Building Concrete Outline Area 5 Floor EL. 66'-6"
 APP-1214-CC-401, Rev. 6, Auxiliary Building Concrete Outline Area 4 Floor EL. 66'-6"
 APP-1213-CC-301, Rev. 3, Auxiliary Building Concrete Outline Area 3 Floor EL. 66'-6"
 APP-1212-CC-201, Rev. 5, Auxiliary Building Concrete Outline Area 2 Floor EL. 66'-6"
 APP-1211-CC-101, Rev. 5, Auxiliary Building Concrete Outline Area 1 Floor EL. 66'-6"
 APP-1210-CC-950, Rev. 1, Auxiliary Building Concrete Outline Area 5 and 6 EL. 66'-6"
 APP-1210-CC-954, Rev. 2, Auxiliary Building Concrete Outline Area 5 EL. 66'-6", Section E
 APP-1210-CC-932, Rev. 2, Auxiliary Building Concrete Outline Areas 3 & 4 EL. 66'-6", Section F
 APP-1210-CC-911, Rev.4, Auxiliary Building Concrete Outline Area 2 EL. 66'-6", Section D
 APP-1210-CC-917, Rev. 3, Auxiliary Building Concrete Outline Area 1 & 2 EL. 66'-6", Section K

E&DCRs

APP-1200-GEF-300, Rev.0, Splices for Walls Below Elevation 82'-6"
 APP-1210-GEF-193, Rev.0, Location of Horizontal Reinforcement splices near construction joint between walls J and 7.3

Procedures

CSI 3-24-6, Rev. 6 Site Specific Field Surveying Instructions
 NCSP-PCN-3-24-2-A, Rev.2, Field Surveying

CAR's

2013-1925
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Instructions

CSI 2-19-9 Rev. C, Work Package Planning, Development, Approval, and Closure

Section 1A07:Drawings

APP-0000-C9-001, Rev. 8 Concrete General Notes
 APP-1200-CR-950, Rev. 13, Auxiliary Building Areas 5 & 6
 APP-1210-CR-950, Rev. 4, Auxiliary Building Areas 5 & 6 Reinforced Concrete Wall 1 details
 APP-1200-CR-913, Rev. 22, Auxiliary Building Areas 1 & 2 Walls M and L Elevation
 APP-1210-CR-913, Rev. 6, Auxiliary Building Areas 1 & 2 Reinforced Concrete Walls L & M details El. 66'-6"
 APP-1216-CC-601, Rev. 3, Auxiliary Building Concrete Outline Area 6 Floor EL. 66'-6"
 APP-1215-CC-501, Rev. 3, Auxiliary Building Concrete Outline Area 5 Floor EL. 66'-6"
 APP-1214-CC-401, Rev. 6, Auxiliary Building Concrete Outline Area 4 Floor EL. 66'-6"
 APP-1213-CC-301, Rev. 3, Auxiliary Building Concrete Outline Area 3 Floor EL. 66'-6"
 APP-1212-CC-201, Rev. 5, Auxiliary Building Concrete Outline Area 2 Floor EL. 66'-6"
 APP-1211-CC-101, Rev. 5, Auxiliary Building Concrete Outline Area 1 Floor EL. 66'-6"
 APP-1210-CC-950, Rev. 1, Auxiliary Building Concrete Outline Area 5 and 6 EL. 66'-6"
 APP-1210-CC-954, Rev. 2, Auxiliary Building Concrete Outline Area 5 EL. 66'-6", Section E
 APP-1210-CC-932, Rev. 2, Auxiliary Building Concrete Outline Areas 3 & 4 EL. 66'-6",
 Section F
 APP-1210-CC-911, Rev.4, Auxiliary Building Concrete Outline Area 2 EL. 66'-6", Section D
 APP-1210-CC-917, Rev. 3, Auxiliary Building Concrete Outline Area 1 & 2 EL. 66'-6", Section K

E&DCRs

APP-1200-GEF-300, Rev.0, Splices for Walls Below Elevation 82'-6"
 APP-1210-GEF-193, Rev.0, Location of Horizontal Reinforcement splices near construction joint between walls J and 7.3

Procedures

CSI 3-24-6, Rev. 6 Site Specific Field Surveying Instructions
 NCSP-PCN-3-24-2-A, Rev.2, Field Surveying

CAR's

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 2013-1647

Instructions

CSI 2-19-9 Rev. C, Work Package Planning, Development, Approval, and Closure

Section 1A08:Specifications

APP-VW20-Z0-023, Welding Specification for ASTM A240 UNS S32101 Duplex Stainless Steel Plate, Rev. 3

Procedures

WPS5-10H.10HM70, Rev. 3

WPS5-10H.10HT70, Rev. 1

100-UT-311, Ultrasonic Examination of Welds In Accordance with the AWS Structural Welding Code D1.6, Rev. 1

Procedure Qualification Records

D-2010-10, Rev.0

SP107, Rev. 1

CMTR's

EPL001-10-06-17972-1, Duplex Stainless Plate
0103718.R00, Stainless Steel Plate Hot Rolled
4932810, 0.035 Blue Max LNM 4462 N33SSP

Drawings

APP-GW-S9-104, Structural Modules General Notes-IV, Rev. 3

VS2-CA20-VWK-195, CA20_27 and CA20_28 – Seam 2728 Assembly Weld Map Sketch,
Rev. C

Calibration Records

3268-101-CV-001

Welder Qualification Records

RLP6957

SCM8630

Section 1A09:Drawings

APP-0000-C9-001, Rev. 8 Concrete General Notes

APP-1200-CR-950, Rev. 13, Auxiliary Building Areas 5 & 6

APP-1210-CR-950, Rev. 4, Auxiliary Building Areas 5 & 6 Reinforced Concrete Wall 1 details

APP-1200-CR-913, Rev. 22, Auxiliary Building Areas 1 & 2 Walls M and L Elevation

APP-1210-CR-913, Rev. 6, Auxiliary Building Areas 1 & 2 Reinforced Concrete Walls L & M details El. 66'-6"

APP-1216-CC-601, Rev. 3, Auxiliary Building Concrete Outline Area 6 Floor EL. 66'-6"

APP-1215-CC-501, Rev. 3, Auxiliary Building Concrete Outline Area 5 Floor EL. 66'-6"

APP-1214-CC-401, Rev. 6, Auxiliary Building Concrete Outline Area 4 Floor EL. 66'-6"

APP-1213-CC-301, Rev. 3, Auxiliary Building Concrete Outline Area 3 Floor EL. 66'-6"

APP-1212-CC-201, Rev. 5, Auxiliary Building Concrete Outline Area 2 Floor EL. 66'-6"

APP-1211-CC-101, Rev. 5, Auxiliary Building Concrete Outline Area 1 Floor EL. 66'-6"

APP-1210-CC-950, Rev. 1, Auxiliary Building Concrete Outline Area 5 and 6 EL. 66'-6"

APP-1210-CC-954, Rev. 2, Auxiliary Building Concrete Outline Area 5 EL. 66'-6", Section E

APP-1210-CC-932, Rev. 2, Auxiliary Building Concrete Outline Areas 3 & 4 EL. 66'-6",
Section F

APP-1210-CC-911, Rev.4, Auxiliary Building Concrete Outline Area 2 EL. 66'-6", Section D

APP-1210-CC-917, Rev. 3, Auxiliary Building Concrete Outline Area 1 & 2 EL. 66'-6", Section K

E&DCRs

APP-1200-GEF-300, Rev.0, Splices for Walls Below Elevation 82'-6"

APP-1210-GEF-193, Rev.0, Location of Horizontal Reinforcement splices near construction joint
between walls J and 7.3

Procedures

CSI 3-24-6, Rev. 6 Site Specific Field Surveying Instructions

NCSP-PCN-3-24-2-A, Rev.2, Field Surveying

CAR's

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Instructions

CSI 2-19-9 Rev. C, Work Package Planning, Development, Approval, and Closure

Section 1A10:

VS2-1000-XE-026, VC Summer Unit 2 Nuclear Island Waterproof Membrane Cross Sections,
Revision 2

VS2-1000-XE-800010, VC Summer Unit 2 Nuclear Island & Turbine Building Waterproof
Membrane Installation Details Sheet 1, Revision 4

VS2-1000-XE-800011, VC Summer Unit 2 Nuclear Island & Turbine Building Waterproof
Membrane Installation Details Sheet 2, Revision 2

Section 1A11:

Certified Material Test Reports

PNQS-11-103, P-11 Penetration Sleeve, dated August 25, 2011

PNQS-11-104, P-11 Insert Plate, dated December 19, 2011

PNQS-11-080, A3-C16-2 BH3 Plate, dated August 26, 2011

PNQS-11-049, A3-C17-1 BH3 Plate, dated August 26, 2011

2-52858-00-1-A, E9018M-H4R, dated August 1, 2012

5283090, Outersield 91KS-HSR 33SP, dated May 22, 2013

Weld Documents

CMTR RINJQ-229-2-5, Weld WA3-P11-L documentation, Rev 3

CMTR RINJQ-229-2-6, Weld WA3-P11-N documentation, Rev 3

NDE Reports

MT-004-EP-WA3-P11-L

MT-004-EP-WA3-P11-N-S

MT-004-EP-WA3-P11-N-P

MT-004-RP-WA3-P11-N

MT-004-BG-WA3-P11-L

MT-004-BG-WA3-P11-N

MT-004-BR-WA3-P11-N
 MT-004-BP-WA3-P11-N
 MT-004-AP-WA3-P11-N
 MT-004-EP-3-P11-S
 MT-004-EP-A3-C33-1

Section 1A12:

IHI ASME Form N-2 Data Report for the BH1 A3-A1-1 crown plate (S/N IN-4855 and NB-2760)
 IHI ASME Form N-2 Data Report for the BH1 A3-A2-3 knuckle plate (S/N IN-4856 and NB-2786)
 IHI ASME Form N-2 Data Report for the BH3 plate A3-C3-1 welded to plate A3-C3-2 (S/N IN-4859 and NB-2750)
 IHI ASME Form N-2 Data Report for the BH3 A3-C33 insert plate welded to the sleeve for the P11 fuel transfer tube penetration (S/N IN-4889 and NB-2848)
 IHI ASME Form N-2 Data Report for the BH3 A3-C34-1 insert plate welded to the sleeve for the P19 RCS to RHR pump outlet mechanical penetration (S/N IN-4890 and NB-2849)
 IHI ASME Form N-2 Data Report for the bottom ring first course S1 shell plate B3-A2 welded to the E27, E28, and E29 electrical penetration sleeves (S/N IN-5001 and NB-2858)
 WEC APP-MV50-Z0-001, AP1000 Containment Vessel Design Specification, Rev. 8
 CMTR PNQS-11-035, Heat No. KA2955, Lot No. 1995371, Kobe Steel, Ltd., for BH3 lower knuckle plate A3-C3-1, dated 2011-08-26
 CMTR PNQS-11-067, Heat No. KA2917, Lot No. 1882651, Kobe Steel, Ltd., for BH3 lower knuckle plate A3-C3-2, dated 2011-08-26
 CMTR PNQS-11-013, Heat No. KB6684, Lot No. 2059151, Kobe Steel, Ltd., for BH2 knuckle plate A3-B5, dated 2011-08-09
 CMTR PNQS-11-020, Heat No. KB6433, Lot No. 1846401, Kobe Steel, Ltd., for BH2 knuckle plate A3-B12, dated 2011-08-09
 CMTR PNQS-11-001, Heat No. KB6433, Lot No. 1851981, Kobe Steel, Ltd., for BH1 crown plate A3-A1-1, dated 2011-08-09
 CMTR PNQS-11-007, Heat No. KB6435, Lot No. 1851551, Kobe Steel, Ltd., for BH1 knuckle plate A3-A2-3, dated 2011-08-09
 CMTR PNQS-11-104, Heat No. KB9135, Lot No. 2527371, Kobe Steel, Ltd., for P19 mechanical penetration insert plate A3-C34-1, dated 2011-12-19
 CMTR G24315-002CM, Heat No. AH14801, Seo Koatsu Kogyo Co., Ttd., for P19 mechanical penetration sleeve 3-P19-S, dated Aug. 10, 2012
 CMTR PNQS-12-115, Heat No. KB5046, Lot No. 3759651, Kobe Steel, Ltd., for S1 shell plate B3-A2, dated 2012-09-26
 CMTR G23719-024CM, Heat No. AF72101, Lot No. 2-E27-S, Seo Koatsu Kogyo Co., Ttd., for E27 electrical penetration sleeve, dated Oct. 18, 2011
 CMTR G23719-025CM, Heat No. AF72201, Lot No. 2-E28-S, Seo Koatsu Kogyo Co., Ttd., for E28 electrical penetration sleeve, dated Oct. 18, 2011
 CMTR G23719-026CM, Heat No. AF72301, Lot No. 2-E29-S, Seo Koatsu Kogyo Co., Ttd., for E29 electrical penetration sleeve, dated Oct. 18, 2011
 CB&I MS-SA-350 LF2-2773, Material Specification for SA 350 LF2 Class 1 Steel Forgings, Rev. 5
 CB&I MS-SA-738B-2888, Material Specification for SA-738 Grade B Steel Plate AP1000 Nuclear Containment Vessel (Shell & Head Plate Below Stiffener EL 131'-9), up to 2 1/2", Rev. 3
 CB&I MS-SA-738B-2889, Material Specification for SA-738 Grade B Steel Plate AP1000 Nuclear Containment Vessel, > 2" to 4", Rev. 4

CB&I Weld Traveler A3C-BH3-2-CSW for temporary column stub A3-C52 attachment weld, dated 9/24/2012

ESAB CMTR for Lot No. 2K018P03 for Atom Arc 9018, dated 11/03/2011 for column stub A3-C52

ESAB CMTR for Lot No. 2K019T02 for Atom Arc 9018, dated 11/03/2011 for column stub A3-C52

Lincoln Electric CMTR for Lot No. 967Z for Outershield 91K2-HSR, dated 5/17/2013 with CB&I diffusible hydrogen level recertification letter for column stub A3-C52

CB&I CMS-830-15-SP-12049, Welding Material Specification for Low-Alloy Steel Flux Cored (Outershield 91K2-HSR), Rev. 3

CB&I Welder Performance Qualification Record (six total) for three welders 041, 097, and 351 for column stub A3-C52

CB&I Report of Magnetic Particle Examination - Nuclear VCS-U3-2012-MT-018 for column stub A3-C52

CB&I Weld Traveler A3C-BH3-35-5 for permanent electrical pad 35-5 attachment weld, dated 12/10/2013

Lincoln Structural Solutions CMTR for heat no. A9B083 for 3/8" thick A36 plate, dated 01/12/12

ESAB CMTR for Lot No. 2F220T04 for Atom Arc 9018, dated 08/01/2012 for electrical pad 35-5

ESAB CMTR for Lot No. 2H116M02 for Atom Arc 9018, dated 11/01/2011 for electrical pad 35-5

CB&I CMS-830-15-SP-12043, Welding Material Specification for Low-Alloy Steel Covered Electrode (AA9018), Rev. 3

CB&I Welder Performance Qualification Record (three total) for welder 838 for electrical pad 35-5

CB&I Report of Magnetic Particle Examination - Nuclear VCS-U3-2012-MT-028 for electrical pad 35-5

CB&I Purchase Order No. 777251, Sherwin DR-60 cleaner/remover and D-100 developer for NDE-PT of materials, Rev. 0, 8/2/2012

CB&I Purchase Order No. 833492, Sherwin DP-51 penetrant for NDE-PT of materials, Rev. 1, 7/25/2013

Weldstar Certificate of Compliance, for Sherwin DP-51 penetrant, Batch No. 39-B47, dated August 1, 2013

Precision Images Certificate of Compliance, for Sherwin DR-60 cleaner/remover, Batch No. 218-E4, dated August 8, 2012

Precision Images Certificate of Compliance, for Sherwin D-100 developer, Batch No. 211-C6, dated August 8, 2012

TE Wire & Cable, C of C, Traceability No. 279113, Part No. FW3111, Lot. No. 12766-197 for Q/QS-20-KK type K thermocouple per ANSI-MC96.1-82, dated 5/21/2012

CB&I WPS E9018M H4R, Rev. 8, Welding Procedure Specification for E9018M H4R for SMAW

CB&I WPS E91TG-H4, Rev. 10, Welding Procedure Specification for E91TG-H4 for FCAW

CB&I WPS ENi4 / OK 10.72, Rev. 7, Welding Procedure Specification for ENi4 / OK 10.72 for SAW

Section 1A13:

Certified Material Test Reports

PNQS-11-103, CMTR for P11 penetration sleeve, Heat KB6684, August 26, 2011.

PNQS-11-104, CMTR for P11 insert plate, Heat KB9135, December 19, 2011.

PNQS-11-080, CMTR for BH3 plate A3-C16-2, Heat KA2917, August 28, 2011.

PNQS-11-049, CMTR for BH3 plate A3-C17-1, Heat KB6647, August 26, 2011.

2-52858-00-0-A, CMTR for E9018M-H4R, Heat 58890C, August 1, 2012.

5283090, CMTR for Outershield 91K2-HSR-33SP, Heat 1075G, May 22, 2013.

Fabrication Records

WR-004-WA3-P11-L, IHI weld for P11 penetration sleeve to insert plate, Rev.0

WR-004-WA3-P11-N, IHI weld for P11 penetration sleeve to insert plate, Rev.0

IHI P11 MT reports: MT-004-EP-WA3-P11-L; MT-004-EP-WA3-P11-N-S; MT-004-EP-WA3-P11-N-P; MT-004-RP-WA3-P11-N; MT-004-BG-WA3-P11-L; MT-004-BG-WA3-P11-N; MT-004-BR-WA3-P11-N; MT-004-BP-WA3-P11-N; MT-004-AP-WA3-P11-N; MT-004-EP-3-P11-S; MT-004-EP-A3-C33-1

RT-004-WA3-P11-L, IHI RT of weld WA3-P11-L, Rev.0

IHI P11 UT reports: UT-004-BP-WA3-P11-N; UT-4-AP-WA3-P11-N

VCS-U3-2013-MT-045, CB&I MT report for P11 insert plate, November 21, 2013

Post Weld Heat Treatment Records

164621HT22152, PWHT for weld join L, work order 04882, SC#'s: 14214, 15177, 15129, 16058, 16060, 16055, 10138, 16059, 16065, 15147, 16022, performed on February 20, 2014.

Drawing 164621-SK101 Rev.2; SK102 Rev.1; SK103 Rev.1; SK104 Rev.2; SK106 Rev.1; SK110 Rev.2; SK112 Rev.1

Section 1A14:

IHI Weld List WL-004-WA3-C3-1 for BH3 lower knuckle plates A3-C3-1 and A3-C3-2

IHI Welder Performance Qualification Test (WPQ) for welders W-1822, W-2556, W-2565, and W-2567 for BH3 lower knuckle plate A3-C3

IHI Radiographic Examination Record RT-004-WA3-C3-1 after completion of welding for knuckle plate A3-C3, dated Mar. 19, 2012

IHI Leak Testing Record L-004-WA3-C3-1 vacuum box test after welding A3-C3-1,2 for bottom head, dated 3/26/12

IHI UT-004-BP-WA3-P11-N, Ultrasonic Examination Record before PWHT of CV bottom head penetration inside sleeve

IHI UT-004-AP-WA3-P11-N, Ultrasonic Examination Record after PWHT of CV bottom head penetration block inside sleeve

IHI Welding Procedure Specification I-11X3G, Rev. 0, dated Jan. 25, 2012 for P19 mechanical penetration

CMTR RINJQ-229-2-6, Heat 0P7522(1), Nippon Steel & Sumikin Welding Company, SFA-5.28, ER80S-G of 0.047 inch diameter, dated 5/31/2012 (Mitsui Steel Certificate correction) for P19 penetration

IHI MT-004-EP-WA3-P19-N-S, Magnetic Particle Examination Record for weld edge preparation of CV bottom head penetration block

IHI MT-004-EP-WA3-P19-N-P, Magnetic Particle Examination Record for weld edge preparation of CV bottom head insert plate

IHI MT-004-EP-3-P19-S, Magnetic Particle Examination Record for weld edge preparation of CV bottom head penetration block sleeve

IHI MT-004-RP-WA3-P19-N, Magnetic Particle Examination Record for root pass of CV bottom head penetration block

IHI MT-004-BG-WA3-P19-N, Magnetic Particle Examination Record for back gouge of CV bottom head penetration block

IHI MT-004-BR-WA3-P19-N, Magnetic Particle Examination Record for back groove root pass of CV bottom head penetration block

IHI MT-004-BP-WA3-P19-N, Magnetic Particle Examination Record before PWHT of CV bottom head penetration block

IHI MT-004-AP-WA3-P19-N, Magnetic Particle Examination Record after PWHT of CV bottom head penetration block

IHI Leak Testing Record L-004-U3-WA3-P19-N vacuum box test after welding A3-C3-1,2 for bottom head penetration block, dated 10/19/12

IHI Welding Procedure Specification IT-1121G, Rev. 0, dated Jan. 25, 2012 for the P27 thru P29 electrical penetration

CMTR RINJQ-229-3-2, Heat 0R7544(1), Nippon Steel & Sumikin Welding Company, SFA-5.28, ER80S-G of 0.047 inch diameter, dated 7/4/2012 for the P27 thru P29 electrical penetration

IHI MT-004-EP-WB3-E27 thru E29-N, Magnetic Particle Examination Record for weld edge preparation of CV lower ring penetration sleeves

IHI MT-004-RP-WB3-E27 thru E29-N, Magnetic Particle Examination Record for root pass of CV lower ring

IHI MT-004-BG-WB3-E27 thru E29-N, Magnetic Particle Examination Record for back gouge of CV lower ring

IHI MT-004-BR-WB3-E27 thru E29-N, Magnetic Particle Examination Record for back groove root pass of CV lower ring

IHI MT-004-BP-WB3-E27 thru E29-N, Magnetic Particle Examination Record before PWHT of CV lower ring

IHI MT-004-AP-WB3-E27 thru E29-N, Magnetic Particle Examination Record after PWHT of CV lower ring

IHI MT-004-EP-3-E27 thru E29-S-2, Magnetic Particle Examination Record for weld edge preparation after PWHT of CV lower ring penetration sleeves

IHI MT-004-SM-3-E27 thru E29-S, Magnetic Particle Examination Record for surface of base material of CV lower ring penetration sleeves

IHI, PWHT Record No. 004-SRB-039 for Unit 3 lower ring S1 course shell plate B3-A2 with electrical penetrations E27 thru E29

CB&I Weld Traveler A3C-P11 for welding P11 insert plate to bottom head BH3 plate, dated 10/2/2013

ESAB CMTR for Lot No. 2F219P07, Atom Arc 9018, dated 7/26/2012 for welding P11 and P19 insert plates to BH3 plate

CB&I CMS-830-15-SP-12043, Welding Material Specification for Low-Alloy Steel Covered Electrode (AA9018), Rev. 3

CB&I Welder Performance Qualification Records (fifteen total) for 5 welders (003, 370, 594, 628, and 898) for P11 insert plate to BH3 plate

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-004 for P11 insert plate to BH3 plate

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-055 for three repair location on P11 insert plate to BH3 plate

CB&I Weld Traveler A3C-P19 for welding P19 mechanical penetration insert plate to the bottom head BH3 plate, dated 10/14/2013

CB&I Welder Performance Qualification Record for welder 720 for P19 insert plate to BH3 plate

CB&I Report of Magnetic Particle Examination - Nuclear VCS-U3-2014-MT-001 and -007 (weld repair excavation at RT location 4-5) for P19 insert plate to BH3 plate

CB&I Report of Magnetic Particle Examination - Nuclear VCS-U3-2014-MT-038 of weld buildup for wide weld root opening

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-001 for P19 insert plate to BH3 plate

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-056 for one repair location on P19 insert plate to BH3 plate

CB&I Report of Leak Test - Nuclear VCS-U3-2014-SFT-013 for P19 insert plate to BH3 plate
 CB&I Weld Traveler A3-BH2-BH3 for round weld seam joining BH2 to BH3 plates, dated 8/28/2013

ESAB CMTRs for Lot Nos. 2F220T04, Atom Arc 9018, dated 8/01/2012, for round weld seam joining BH2 to BH3 plates, and S1 vertical welds "J" and "K"

ESAB CMTRs for Lot Nos. 2K016F07, Atom Arc 9018, dated 11/03/2011, for round weld seam joining BH2 to BH3 plates

ESAB CMTR for Heat No. 093101, Spoolarc ENi4, dated 6/09/2011, for round weld seam joining BH2 to BH3 plates

Stork Herron Testing Laboratories CMTR LTE001-11-03-22505-1, for as-welded Heat No. ENi4/093101 with NDE-RT, all weld metal chemical analysis, and tensile and Charpy V-notch testing, 3/31/2011

Stork Herron Testing Laboratories CMTR LTE001-11-04-22634-1, for PWHT Heat No. ENi4/093101 with NDE-RT, all weld metal chemical analysis, and tensile and Charpy V-notch testing, 4/4/2011

Stork Herron Testing Laboratories CMTR LTE001-11-05-25400-1, for PWHT Heat No. ENi4/093101, with all weld metal chemical analysis and tensile testing, 5/11/2011

ESAB CMTR for Lot No. ME022012, OK Flux 10.72, dated 6/14/2011, for round weld seam joining BH2 to BH3 plates

CB&I CMS-830-15-SP-12044, Welding Material Specification for Low-Alloy Submerged Arc Electrode - ENi4, Rev. 1

CB&I CMS-830-15-SP-12045, Welding Material Specification for Submerged Arc Welding Flux - ESAB OK Flux 10.72 , Rev. 3

CB&I CMS-830-15-SP-12046, Welding Material Testing Specification Certification for ENi4 Electrode & ESAB OK Flux 10.72, Rev. 5

Lincoln Electric CMTR for Lot No. 1075G, Outershield 91K2-HSR (with diffusible hydrogen level recertification), dated 5/22/2013, for round weld seam joining BH2 to BH3 plates and S1 vertical welds "J" and "K"

CB&I CMS-830-15-SP-12049, Welding Material Specification for Low-Alloy Steel Flux Cored Electrode (Outershield 91K2-HSR), Rev. 3

CB&I Welder Performance Qualification Records (forty-two total) for 12 welders (003, 370, 594, 628, and 898) for round weld seam joining BH2 to BH3 plates

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-024 between vertical welds W to X for round weld seam joining BH2 to BH3 plates (with list of welders)

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-042 between vertical welds B to C for round weld seam joining BH2 to BH3 plates (with list of welders)

CB&I Reports of Magnetic Particle Examination - Nuclear VCS-U3-2014-MT-031 (outside weld repair excavation) between BH2 verts. B to C at RT location markers 4-5) for round weld seam joining BH2 to BH3 plates

CB&I Reports of Magnetic Particle Examination - Nuclear VCS-U3-2014-MT-033 (inside, weld repair excavation) between BH2 verts. B to C at RT location markers 4-5) for round weld seam joining BH2 to BH3 plates

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-064 for BH2 to BH3 round Seam at RT location markers 4-5 between vertical welds B to C (with list of welders 628 and 529)

CB&I Report of Leak Test - Nuclear VCS-U3-2014-SFT-018 for round weld seam joining BH2 to BH3 plates

CB&I Weld Traveler B3A-S1-J for welding of lower ring S1 course vertical seam "J", dated 11/12/2013

CB&I Welder Performance Qualification Records (five total) for 2 welders (029 and 727) for lower ring S1 course vertical seam "J"

CB&I Liquid Penetrant Examination Report No. VCS-U3-2014-PT-002, prior to PWHT for lower ring S1 course vertical seam "J"

CB&I PWHT Record for SC14214, Unit 3 lower ring S1 weld 101-J (vertical seam "J"), 2/11/2014

CB&I PWHT Report of Calibration for Serial No. SC14214, Data Acquisition Recorder (Model DAQ4) with calibration due 8/5/2014

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-016 for lower ring S1 course vertical seam "J"

CB&I Weld Traveler B3A-S1-K for welding of lower ring S1 course vertical seam "K", dated 11/12/2013

CB&I Liquid Penetrant Examination Report No. VCS-U3-2014-PT-003, prior to PWHT for lower ring S1 course vertical seam "K"

CB&I PWHT Record for SC14214, Unit 3 lower ring S1 weld 101-K (vertical seam "K"), 2/18/2014

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-017 for lower ring S1 course vertical seam "K"

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-051 for BH1 Joint A Longitudinal Seam

CB&I Radiographic Examination Report - Nuclear VCS-U3-2014-RT-072 for BH1 to BH2 Round Seam between BH2 Verts. A and D

CB&I CMS-830-15-45154, Radiographic Examination, ASME Section III, Division 1 - Subsection NE, Rev. 1

Section 1A15:

CMTR PNQS-11-035, Heat No. KA2955, Lot No. 1995371, Kobe Steel, Ltd., for BH3 lower knuckle plate A3-C3-1, dated 2011-08-26

CMTR PNQS-11-067, Heat No. KA2917, Lot No. 1882651, Kobe Steel, Ltd., for BH3 lower knuckle plate A3-C3-2, dated 2011-08-26

CMTR PNQS-11-013, Heat No. KB6684, Lot No. 2059151, Kobe Steel, Ltd., for BH2 knuckle plate A3-B5, dated 2011-08-09

CMTR PNQS-11-020, Heat No. KB6433, Lot No. 1846401, Kobe Steel, Ltd., for BH2 knuckle plate A3-B12, dated 2011-08-09

CMTR PNQS-11-001, Heat No. KB6433, Lot No. 1851981, Kobe Steel, Ltd., for BH1 crown plate A3-A1-1, dated 2011-08-09

CMTR PNQS-11-007, Heat No. KB6435, Lot No. 1851551, Kobe Steel, Ltd., for BH1 knuckle plate A3-A2-3, dated 2011-08-09

CMTR PNQS-11-104, Heat No. KB9135, Lot No. 2527371, Kobe Steel, Ltd., for P19 mechanical penetration insert plate A3-C34-1, dated 2011-12-19

CMTR G24315-002CM, Heat No. AH14801, Seo Koatsu Kogyo Co., Ttd., for P19 mechanical penetration sleeve 3-P19-S, dated Aug. 10, 2012

CMTR PNQS-12-115, Heat No. KB5046, Lot No. 3759651, Kobe Steel, Ltd., for S1 shell plate B3-A2, dated 2012-09-26

CMTR G23719-024CM, Heat No. AF72101, Lot No. 2-E27-S, Seo Koatsu Kogyo Co., Ttd., for E27 electrical penetration sleeve, dated Oct. 18, 2011

CMTR G23719-025CM, Heat No. AF72201, Lot No. 2-E28-S, Seo Koatsu Kogyo Co., Ttd., for E28 electrical penetration sleeve, dated Oct. 18, 2011

CMTR G23719-026CM, Heat No. AF72301, Lot No. 2-E29-S, Seo Koatsu Kogyo Co., Ttd., for E29 electrical penetration sleeve, dated Oct. 18, 2011

CMTR RINJQ-229-2-6, Heat 0P7522(1), Nippon Steel & Sumikin Welding Company, SFA-5.28, ER80S-G of 0.047 inch diameter, dated 5/31/2012 (Mitsui Steel Certificate correction) for P19 penetration

CMTR RINJQ-229-3-2, Heat 0R7544(1), Nippon Steel & Sumikin Welding Company, SFA-5.28, ER80S-G of 0.047 inch diameter, dated 7/4/2012 for the P27 thru P29 electrical penetration

ESAB CMTR for Lot No. 2K018P03, Atom Arc 9018, dated 11/03/2011 for column stub A3-C52

ESAB CMTR for Lot No. 2K019T02, Atom Arc 9018, dated 11/03/2011 for column stub A3-C52

ESAB CMTR for Lot No. 2F220T04, Atom Arc 9018, dated 08/01/2012 for electrical pad 35-5

ESAB CMTR for Lot No. 2H116M02, Atom Arc 9018, dated 11/01/2011 for electrical pad 35-5

ESAB CMTR for Lot No. 2F219P07, Atom Arc 9018, dated 7/26/2012 for welding P11 and P19 insert plates to BH3 plate

ESAB CMTR for Lot No. 2K016F07, Atom Arc 9018, dated 11/03/2011, for round weld seam joining BH2 to BH3 plates

Lincoln Electric CMTR for Lot No. 967Z for Outershield 91K2-HSR, dated 5/17/2013 with CB&I diffusible hydrogen level recertification letter for column stub A3-C52

Lincoln Electric CMTR for Lot No. 1075G, Outershield 91K2-HSR (with diffusible hydrogen level recertification), dated 5/22/2013, for round weld seam joining BH2 to BH3 plates and S1 vertical welds "J" and "K"

ESAB CMTR for Heat No. 093101, Spoolarc ENi4, dated 6/09/2011, for round weld seam joining BH2 to BH3 plates

Section 1P01:

QS 14.2, Inspection Report System, Revision K

F-Q445-001, Receipt Inspection Procedure, Revision 5

Q445-14-0092, Unit 2 Accumulators Receipt Inspection Report

Section 1P02:

CB&I Procedures

SWSQAP 1-74A Section 13, Handling Storage, and Shipping, Rev B

QS 13.11, Material/Equipment Storage, Rev C

WEC Specifications

APP-MT01-VHM-001, AP1000 Core Makeup Tank Technical Manual: Instructions for Receipt Inspection, Storage and Assembly, Rev 0

APP-MT02-VHM-001, AP1000 Accumulator Tank Technical Manual: Instructions for Receipt Inspection, Storage and Assembly, Rev 0

Section 1P03:

Nonconformance and Disposition Reports

VS2-CC01-GNR-000100, Layer A Concrete Consistency

Codes and Specifications

VS2-CC01-Z0-027, Safety Related Concrete Testing Services, Rev 4

ASTM C42-10, Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

ASTM C39-10, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

CB&I Procedures

QS 15.1, "Nonconformance & Disposition Report," Rev 4

Section 1P04:

CB&I

CAR 2014-0056, Weld performed with unqualified welding procedure

CAR 2013-2087, Missed final VT hold point

CAR 2014-005, Bypassed Weld Engineering hold points

CAR 2013-2132, CB&I CAR to support resolution of SCANA CR-NND-13-01384

CAR 2013-2071, Welding with wrong welding procedure

CAR 2013-2057, CA20_13/14 Plug Piece Tack Welds Installed Against the Incorrect Weld Data Sheets

CAR 2013-1966, Lifting Lug vs. Fit-up Temporary Attachment Welding Confusion

CAR 2014-0346, Incorrect tensile specimen used for weld PQR

CAR 2013-2136, SCC Placement Implementation Challenges

CAR 2013-2133, Definition of Cold Joint

WEC

IR-14-084-M026

SCE&G

CR-NND-13-01384

CR-NND-13-01387

CR-NND-13-01370

CR-NND-13-01351

CR-NND-14-00019

CR-NND-14-00251

CR-NND-14-00291

LIST OF ACRONYMS

ADAMS	Agencywide Document Access and Management System
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
AWS	American Welding Society
CB&I	Chicago Bridge and Iron
CMTR	Certified Material Test Report
CoC	Certificate of Conformance
CV	Containment Vessel
CVBH	Containment Vessel Bottom Head
E&DCR	Engineering and Design Coordination Reports
EPC	Engineering, Procurement, and Construction
FCAW	Flux-cored Arc Welding
GMAW	Gas Metal Arc Welding
IHI	Ishikawajima-Harima Heavy
IP	Inspection Procedure
ITAAC	Inspections, Tests, Analyses, and Acceptance Criteria
M&TE	Measurement and Test Equipment
MT	Magnetic Particle Examination
N&D	Nonconformance and Disposition Reports
NCR	Nonconformance Report
NDE	Nondestructive Examination
NRC	Nuclear Regulatory Commission
PAR	Publicly Available Records
PQR	Performance Qualification Records
PT	Liquid Penetrant Examination
PWHT	Postweld Heat Treatment
QC	Quality Control
SAW	Submerged Arc Welding
SCC	Self-Consolidating Concrete
SMAW	Shielded Metal Arc Welding
SSC	Structures, Systems, and Components
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Examination
WEC	Westinghouse Electric Company
WPS	Welding Procedure Specification