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

November 14, 2012

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: SOUTH CAROLINA ELECTRIC AND GAS V.C. SUMER NUCLEAR STATION UNITS 2 AND 3 - NRC INSPECTION REPORT 05200027/2012004, 05200028/2012004, AND NOTICE OF VIOLATION

Dear Mr. Jones:

On September 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your V.C. Summer Nuclear Station Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on October 9, 2012, with Mr. Ron Clary, Vice President New Nuclear Development, 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.

This report documents three findings of very low safety significance that were determined to involve violations of NRC requirements. Also, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. The violations were evaluated in accordance with the NRC Enforcement Policy, Section 2.3 and the temporary enforcement guidance outlined in enforcement guidance memorandum number EGM-11-006. The current Enforcement Policy is included on the NRC's Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the enclosed report. As described in Section 2.3, "Disposition of Violations," of the NRC Enforcement Policy, the violations are cited in the Notice, because for reactor facilities under construction in accordance with 10 CFR Part 52, the site corrective action program must have been demonstrated to be adequate prior to the issuance of non-cited violations for NRC identified violations. As of this inspection, the NRC had not yet made this determination for V.C. Summer Nuclear Station Units 2 and 3.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements. If you contest the violation or

significance of the NOV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Regional Administrator, Region II; (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) NRC Senior Resident Inspector at V.C. Summer Nuclear Station Units 2 and 3.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be 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).

Sincerely,

/RA/

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

Docket Nos.: 05200027, 05200028
License Nos: NPF-93 (Unit 2), NPF-94 (Unit 3)

Enclosure: Inspection Report 05200027/2012004 and 05200028/2012004
w/Attachment: Supplemental Information

cc w/encl: ***(Note: Use normal distribution list***

significance of the NOV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to: (1) the Regional Administrator, Region II; (2) the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) NRC Senior Resident Inspector at V.C. Summer Nuclear Station Units 2 and 3.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be 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).

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Docket Nos.: 05200027, 05200028
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P PUBLICLY AVAILABLE ■NON-PUBLICLY AVAILABLE ☐ SENSITIVE ■ NON-SENSITIVE
ADAMS: ☐ Yes ACCESSION NUMBER: **ML12319A648** P SUNSI REVIEW COMPLETE P FORM 665 ATTACHED

OFFICE	RII:DCP	RII:DCP	RII:DCP	RII:DCP	RII:DCP	RII:DCP	RII:DCI
SIGNATURE	RLJ3	PBD1	MSM4	CBA1	GJK3	MEE	JXK1
NAME	R. Jackson	P. Donnelly	M. Magee	C. Abbott	G. Khouri	M. Ernstes	K. Jonathan
DATE	11/13/2012	11/13/2012	11/14/2012	11/14/2012	1114 /2012	11/14/2012	11/13/2012
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	RII:DCP	RII:DCP	YES NO
OFFICE	RII:DCI	RII:DCI	RII:DCI	RII:DCI	RII:DCI	RII:DCI	RII:DCI
SIGNATURE	EXR4	CNO1	EJP1	AFP1	ASA1	JGV1	GLS3
NAME	E. Heher	C. Oelstrom	E. Patterson	A. Ponko	A. Artayet	j. Vasquez	G. Stirewalt
DATE	11/13/2012	11/14/2012	11/13/2012	11/14/2012	11/13/2012	11/13/2012	11/14/2012
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	Yes NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\CCI\DCP\CPB2\2012\2012 Construction End-Of-Cycle Review Guidance Memo - 11-07-2012 rev2.docx

Letter to Ronald A. Jones from Michael E. Ernstes dated November 14, 2012

SUBJECT: SOUTH CAROLINA ELECTRIC AND GAS V.C. SUMER NUCLEAR STATION UNITS 2 AND 3 - NRC INSPECTION REPORT 05200027/2012004, 05200028/2012004, AND NOTICE OF VIOLATION

DISTRUBUTION w/encl:
Region II Regional Coordinator, OEDO (M. Kotzalas)
M. Brown, NRO
T. Kozak, NRO
M. Tonacci, NRO
D. McGovern, NRO
J. Munday, RII
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NOTICE OF VIOLATION

South Carolina Electric & Gas Company
V.C. Summer Units 2 and 3

Docket Nos.: 052-00027, 052-00028
License Nos.: NPF-93, NPF-94

During an NRC inspection conducted between July 1, 2012, and September 30, 2012, three violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

1. Criterion III, "Design Control," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," requires, in part, that "Measures shall be established to assure that applicable regulatory requirements and the design basis for safety-related structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions."

   Section 3.8.4.4.1, "Seismic Category I Structures," of the V.C. Summer Units 2 and 3 Updated Final Safety Analysis Report (UFSAR) required that Seismic Category I Structural Submodules CA20-29 and CA01-24 be designed in accordance with American Concrete Institute (ACI) 349-01, "Code requirements for Nuclear Safety Related Concrete Structures," and American Institute of Steel Construction (AISC) N690-94, "Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities."

   Contrary to the above, on and before May 10, 2012, the licensee failed to assure that applicable regulatory requirements and the design basis for safety-related systems, structures, and components were correctly translated into specifications, drawings, and instructions. As evidenced by the following examples, the licensee failed to translate the regulatory and design basis requirements established, in part, by ACI 349-01, and AISC N690-94 into specifications, drawings, and instructions for the design and fabrication of Seismic Category I Structural Submodules CA20-29 and CA01-24:

   a. The licensee failed to properly translate design requirements into design specifications, which resulted in Seismic Category I Structural Submodule CA01-24 containing shear studs that exceeded the maximum design spacing as specified by UFSAR Figure 3.8.3.8, Sheet 1 of 3. Specifically, the inspectors identified 5/8 inch shear studs located approximately 8 inches away from the plate edge for the CA01-24 sub-module. Once the adjacent sub-module would be joined to CA01-24, the distance between stud rows adjacent to the seam would exceed the maximum spacing requirements as specified by the UFSAR. As a result, the as-built configuration of Submodule CA01-24 failed to meet UFSAR maximum shear stud spacing requirements due to the spacing of shear studs near the plate edge.

   b. The licensee failed to properly translate design requirements into design specifications which resulted in Seismic Category I Structural Submodule CA20-29 containing shear studs which did not meet the minimum allowable spacing as required by AISC N690-94. Specifically, AISC N690-94 states that the transverse spacing for the 5/8 inch shear studs on submodule CA20-29 should have been no closer than 2.5 inches center to center. However, the as-built configuration of CA20-29 contained two rows of 5/8 inch shear studs that were located approximately 1.75 inches center-to-center.

This violation is associated with a Green SDP ITAAC finding.

2. Criterion III, “Design Control,” of Appendix B, “Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants,” to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities,” requires, in part, that “Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 10CFR50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.”

   Section 6.1.2.1.6 of the UFSAR states “The inorganic zinc coating used on the inside surface (Service Level I coatings) and outside surface (Service Level III coatings) of the containment shell is inspected using a non-destructive dry film thickness test and a MEK rub test.”

   Contrary to the above, on or before July 20, 2012, the licensee failed to ensure that the testing described in the license application was correctly translated into specifications. Specifically, WEC Specification APP-GW-Z0-604 REV 6, Application of Protective Coatings to Systems, Structures, and Components for the AP1000 Reactor Plant, did not include provisions to perform the MEK rub test for either Unit 2 or 3.

   This violation is associated with a Green SDP construction finding.

3. Criterion VII, “Control of Purchased Material, Equipment, and Services,” of Appendix B, “Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants,” to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities,” states, in part, that “Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery.”

   Contrary to the above, as of August 7, 2012, the licensee, through its contractor Shaw, failed to perform adequate examinations of products upon delivery to assure that purchased materials conformed to the procurement documents. Specifically, during source and receipt inspections, Shaw failed to identify that embed plates did not conform to the following procurement documents for embed plates: purchase order 132177-D220.00 and APP-SS01-Z0-003, “Embedded and Miscellaneous Steel, Westinghouse Safety Class C,” Revision 2.

   This violation is associated with a Green SDP construction finding.

Pursuant to the provisions of 10 CFR 2.201, South Carolina Electric and Gas Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory

Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector at the facility that

is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that delete such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 14th day of November, 2012

U.S. NUCLEAR REGULATORY COMMISSION
Region II

Docket Numbers:	05200027; 05200028
License Numbers:	NPF-93 (Unit 2), NPF-94 (Unit 3)
Report Numbers:	05200027/2012-004; 05200028/2012-004
Licensee:	South Carolina Electric and Gas
Facility:	V.C. Summer Nuclear Station Units 2 and 3
Location:	Jenkinsville, SC
Inspection Dates:	July 1, 2012 through September 30, 2012
Inspectors:	R. Jackson, Senior Resident Inspector, DCP P. Donnelly, Resident Inspector, DCP M. Magee, Resident Inspector, DCP C. Abbott, Resident Inspector, DCP A. Artayet, Senior Construction Inspector, DCI B. Davis, Senior Construction Inspector, DCI D. Harmon, Construction Inspector, DCI E. Heher, Construction Inspector, DCI C. Oelstrom, Construction Inspector, DCI E. Patterson, Construction Inspector, DCI A. Ponko, Construction Inspector, DCI S. Smith, Senior Construction Inspector, DCI T. Steadham, Senior Construction Project Inspector, DCP G. Stirewalt, Senior Geologist, DSEA J. Vasquez, Construction Inspector, DCI
Accompanying Personnel:	R. Payne, Summer Intern Engineer (trainee), DCI
Approved by:	Michael Ernstes, Chief Construction Projects Branch 4 Division of Construction Projects

SUMMARY OF FINDINGS

Inspection Report (IR) 05200027/2012004, 05200028/2012004; 07/01/2012 through 09/30/2012; V.C. Summer Nuclear Station Units 2 and 3; Unit 2 ITAAC 760 (3.3.00.02a.i.a), Unit 2 ITAAC 763 (3.3.00.02a.i.d), Quality Assurance Program Implementation During Construction and Pre-Construction Activities.

This report covers a three-month period of inspection by resident inspectors, announced programmatic inspections by regional and headquarters inspectors, and announced Inspections, Tests, Analysis, and Inspection Criteria (ITAAC) inspections by regional inspectors. Three Green findings associated with three notices of violation were identified consistent with the Nuclear Regulatory Commission (NRC) Enforcement Policy, Section 2.3 and the temporary enforcement guidance outlined in enforcement guidance memorandum number EGM 11-006. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter (IMC) 2519P, "Construction Significance Determination Process". Construction Cross Cutting Aspects are determined using IMC 0613P, "Power Reactor Construction Inspection Reports - Pilot." The 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

Cornerstone: Design/Engineering

- Green. The inspectors identified an ITAAC finding of very low safety significance (Green) and associated cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to assure that regulatory requirements and the design basis for systems, structures, and components were correctly translated into drawings and procedures associated with the shear stud spacing for Unit 2 safety related sub-modules. The licensee entered this issue into their corrective action program as PIP-0-L-12-0251 to evaluate the issue and to develop and implement corrective actions to address the violation.

  The performance deficiency was considered more than minor because it could adversely affect the closure of Unit 2 ITAAC 3.3.00.02a.i.a and 3.3.00.02a.i.d and was associated with the Design/Engineering cornerstone. The finding was evaluated under the construction significance determination process as outlined in IMC 2519P, Appendix A. The finding was of very low safety significance (Green) because the performance deficiency did not impair the design function of the structure. The inspectors determined that this finding was not related to any of the construction safety focus component aspects discussed in IMC 0613P. (Section 2503.6)

Cornerstone: Construction/Installation

- Green. The inspectors identified a Green construction finding and cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the failure to ensure that an element of the design basis (methyl ethyl ketone rub test), as specified in the license application, was correctly translated into specifications. This issue was entered into the

- corrective action program as IR-12-216-M010 and CR-2012-00499 to evaluate the issue and to develop and implement corrective actions to address the violation.

  This performance deficiency had greater than minor safety significance because the failure to perform the rub test, if left uncorrected, represented a failure to establish, implement or maintain an adequate process, program, procedure, or quality oversight function that could render the quality of the construction activity unacceptable or indeterminate. Specifically, the rub test, if left unperformed, represented a failure to ensure that the coating would be adequately cured and that the coating would perform its intended safety function. The finding was associated with the construction/installation cornerstone and was evaluated under the construction significance determination process as outlined in IMC 2519P, Appendix A. The inspectors determined the finding was of very low safety significance (Green) because the finding was associated with a system in the low risk column of the risk importance table and was not a repetitive significant condition adverse to quality. The inspectors determined that this finding had a cross-cutting aspect in the area of Baseline Inspection, Resources (A.2.b), because the licensee did not ensure that procedures were available and adequate to assure construction quality. (Section 4OA2.4)

Cornerstone: Procurement/Fabrication

- Green. The inspectors identified a Green construction finding and cited violation of 10 CFR 50, Appendix B, Criterion VII, "Control of Purchased Material, Equipment, and Services," for the licensee's failure to assure that purchased material and equipment (embedded plates), purchased through contractors and subcontractors, conformed to procurement documents. The licensee entered this issue into their corrective action programs as VCS-ND-12-0419 and CR 0-L-2012-0583 to evaluate the issue and to develop and implement corrective actions to address the violation.

  The performance deficiency was considered more than minor because, if left uncorrected, it represented a failure to establish and implement an adequate program and quality oversight function that could render the quality of construction activities unacceptable or indeterminate. The finding was associated with the procurement/fabrication cornerstone and was evaluated under the construction significance determination process as outlined in IMC 2519P, Appendix A. The inspectors determined the finding was of very low safety significance (Green) because the finding: (1) was associated with a structure (basemat) in the intermediate risk column of the risk importance table; and (2) impaired a portion of the structures design function. The inspectors determined that this finding had a cross-cutting aspect in the area of Baseline Inspection, Work Control (A.4.c), because the licensee did not ensure supervisory and management oversight of work activities, including contractors, such that construction quality is supported. (Section 4OA2.9)

B. Licensee-Identified Violations

A violation of very low safety significance that was identified by the licensee was reviewed by the inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

1. CONSTRUCTION REACTOR SAFETY

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

2503 Inspection, Tests, Analysis, and Acceptance Criteria (ITAAC)-Related Work Inspections

.1 ITAAC Number 91 / Family 06F (Unit 2)

a. Inspection Scope

During the week of July 23, 2012, the inspectors performed a direct inspection of construction activities on the Unit 2 containment vessel associated with ITAAC Number 91 (2.2.01.02a):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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 to perform these inspections:

- 65001.F, “Inspection of the ITAAC-Related Design and Fabrication Requirements,” Section 02.03;
- 65001.06, “Inspection of ITAAC-Related Installation of Mechanical Components,” Sections 02.01 and 02.02; and
- 65001.11, “Construction Inspection Program Inspection of ITAAC-Related Containment Integrity and Containment Penetrations,” Sections 02.01 thru 02.05.

The inspectors reviewed 16 Certified Material Test Reports (CMTRs) to determine if materials for four shell plates and eight mechanical penetrations (P06 through P10, P12, P37 and P38 that included two insert plates, eight sleeves, and three pipes) met the requirements of American Society of Mechanical Engineers (ASME) Code Section II, Part A and Section III, Subsection NE.

The inspectors reviewed the record of a Quality Control (QC) Inspector to determine if his nondestructive examination (NDE) liquid penetrant examination (PT) Level II personnel certification met the requirements of Chicago Bridge and Iron’s (CB&I’s) Written Practice for NDE personnel qualifications.

The inspectors reviewed CB&I performance qualification test records for two welders and two welding operators who welded full penetration butt joints on the S1 lowest shell

course to determine if they were qualified and certified in accordance with the requirements of ASME Section IX.

The inspectors reviewed a CB&I postweld heat treatment (PWHT) procedure that referenced two procedures used for welding thermocouples and insulation pins to the pressure boundary of the shell to determine if the procedures were in accordance with the requirements of ASME Section III, Subsection NE.

The inspectors reviewed a sample of three IHI design reports documented on ASME N-2 data report forms for the Unit 2 S1 lowest shell course plates B2-A4, B2-A5, and B2-A12 (included eight mechanical penetrations P06 thru P10, P12, P37 and P38) to determine if those nuclear parts were constructed in accordance with the requirements of ASME Section III, Subsection NE and the Westinghouse Electric Company (WEC) design and material specifications.

b. Findings

No findings were identified.

.2 ITAAC Number 93 / Family 06B (Unit 2)

a. Inspection Scope

During the week of July 23, 2012, the inspectors performed a direct inspection of CB&I construction activities on the Unit 2 containment vessel associated with ITAAC Number 93 (2.2.01.03a):

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

The inspectors used the following NRC inspection procedures to perform these inspections:

- 65001.B, “Inspection of the ITAAC-Related Welding Program,” Sections 02.01 through 02.06;
- 65001.F, Section 02.03;
- 65001.06, Sections 02.01 and 02.02; and
- 65001.11, Sections 02.01 thru 02.05.

Procurement and Receipt Inspection:

The inspectors reviewed 16 CMTRs on the following items that were receipt inspected to determine if the chemical composition and mechanical properties (including applicable strength, impact testing, grain size, carbon equivalency, Brinnell hardness, heat

treatment, and degassing process) met the requirements of the ASME Section III, Subsection NE code and WEC containment vessel design and material specifications:

- Lower ring S-1 lowest course plates B2-A4, -A5, -A11 and -A12 of the shell; and
- 8 mechanical penetration sleeves P06 through P10, P12, P37 and P38 welded by IHI to shell plate B2-A12.

Procedure Reviews:

The inspectors reviewed procedure CMS-830-15-PR-45162, Liquid Penetrant Examination Color Contrast, Solvent Removable, ASME Section III, Division 1, Revision 1 to determine if it was prepared and approved in accordance with the requirements of the CB&I Nuclear Quality Assurance Manual (NQAM) and ASME Section V – Article 6 for liquid penetrant examinations.

The inspectors reviewed procedure CMS-830-15-WI-81026, Calibration of Temperature Recorders, Revision 1 to determine if it was prepared and approved in accordance with the requirements of the CB&I NQAM and ASME Section III, Subsections NE and NCA.

The inspectors reviewed the following welding procedures to determine they were prepared and approved in accordance with the requirements of ASME Section III, Subsection NE for PWHT operations:

- WPS “TAU’” Revision 1 for the temporary attachment of type “K” thermocouples; and
- WPS “PIN’” Revision 1, for the temporary attachment of insulation pins.

The inspectors reviewed CMS-164621-830-15-PR-000001, Post Weld Heat Treat Procedure Shell Course S1 Vertical Seams, Revision 1, to determine if the contents for electric resistance heating were in accordance with the requirements of ASME Section III, Subsection NE for the minimum heat band width, heating rate, holding temperature and time, and cooling rate.

Welder/Operator Qualifications:

The inspectors reviewed performance qualification records for two manual welders using shielded metal arc welding and two welding operators using mechanized flux-cored arc welding (FCAW) to determine if welding personnel were qualified and maintained their skills to perform welding activities on field welds “N” and “D” for the S1 lowest shell course in accordance with the requirements of ASME Section III, Subsection NE and Section IX.

Production Controls:

The inspectors reviewed a weld traveler after completion of field weld “N” (shell plates A11 to A12) for the S1 lowest shell course to determine if welding operators and weld filler metals were documented for traceability, and that the QC, WEC and Authorized Nuclear Inspector established inspection hold/witness points were completed in accordance with the requirements of the CB&I NQAM and ASME Section III, Subsection NE.

The inspectors reviewed shell plate material thickness measurements recorded in the weld traveler for field weld “N” to determine if the recorded thicknesses were in accordance with the WEC containment vessel design specifications.

The inspectors observed in-process welding of field weld “D” (shell plates A4 to A5) for the S1 lowest shell course to determine if field welding activities met the requirements of the welding procedure using a weld traveler with established inspection hold/witness points in accordance with the requirements of the CB&I NQAM and ASME Section III, Subsection NE, including weld interpass cleanliness.

The inspectors reviewed the Preheat-Interpass Monitoring Log – Traveler System for field weld “D” to determine if preheat and interpass temperatures were monitored by QC personnel in accordance with procedure CMS-720-03-PR-09651, Preheat/Interpass Temperature Control, and ASME Section III, Subsection NE.

The inspectors reviewed a calibration record for the digital temperature data logger (S/N 14121) to determine if the PWHT recorder was calibrated in accordance with the requirements of the CB&I NQAM and calibration procedure, and ASME Section III, Subsection NCA-3858.

The inspectors reviewed the PWHT strip charts of field welds “N” and “M” (shell plates A10 to A11) accepted by the CB&I Quality Manager to determine if electric resistance heating controls were in accordance with ASME Section III, Subsection NE and the CB&I NQAM and PWHT procedures.

Inspections/Nondestructive Examinations:

The inspectors observed in-process PT (after PWHT) of field weld “N” (shell plates A11 to A12) for the S1 lowest shell course to determine if examination activities met the requirements of the CB&I NDE-PT procedure CMS-830-15-PR-45162 and ASME Section V – Article 6 for PT.

The inspectors reviewed the following for field weld “N”:

- “Visual Acuity and Shades of Gray Discrimination Test” records for the NDE-PT Level II QC Inspector-728683 to determine if he was certified in accordance with the CB&I Written Practice and ASME Section V, Article 6 and 9;
- Before and after PWHT X-ray radiography reports (VCS-U2-2012-RT-083 and VCS-U2-2012-RT-091, respectively) signed by a CB&I Level II film examiner to determine
- if the contents of the radiography reports were in accordance with ASME Section V, Article 2 for radiographic examination;
- Before and after PWHT X-ray films (including film density) to determine if radiography was performed and accepted in accordance with ASME Section V, Article 2 and ASME Section III – Subsection NE-5000, respectively.
- PT report VCS-U2-2012-PT-011 signed by a CB&I Level II QC Inspector to determine if the contents of the PT report were in accordance with ASME Section V, Article 6.

The inspectors reviewed final CB&I X-ray films (including film density and geometric unsharpness) and radiography reports signed by a Level II examiner for the following full

penetration butt joint welds on the Unit 2 containment vessel bottom head to determine if X-ray radiography was performed and accepted in accordance with ASME Section III, Subsection NE-5000:

- P11 fuel transfer tube penetration insert plate to shell (radiographic examination report VCS-U2-2012-RT-068);
- BH1 longitudinal seam Joint "A" (RT report VCS-U2-2012-RT-071); and
- BH1 to BH2 circumferential weld (RT report VCS-U2-2012-RT-080).

b. Findings

No findings were identified.

.3 ITAAC Number 93 / Family 06B (Unit 2)

a. Inspection Scope

During the week of August 27, 2012, the inspectors performed a direct inspection of CB&I construction activities on the Unit 2 containment vessel associated with ITAAC Number 93 (2.2.01.03a):

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

The inspectors used the following NRC inspection procedures to perform these inspections:

- 65001.B, Sections 02.04 and 02.05;
- 65001.F, Section 02.03;
- 65001.06, Sections 02.01 and 02.02; and
- 65001.11, Sections 02.03, 02.04, and 02.05.

Procurement and Receipt Inspection:

The inspectors reviewed six CMTRs on the following items that were receipt inspected and installed onsite to determine if the chemical composition and mechanical properties (including applicable strength, impact testing, grain size, carbon equivalency, Brinell hardness, heat treatment and degassing process) met the requirements of ASME Section III, Subsection NE code and WEC containment vessel design and material specifications:

- lower equipment hatch HO2 insert plate and sleeve;
- mechanical penetration sleeves P05, P27 and P28 welded by IHI to shell plate B2-A13; and

- Lincoln Electric flux cored wire.

The inspectors reviewed the magnetic particle examination records performed by IHI prior to shipment for the following items that were receipt inspected and installed onsite to determine if the tests were performed properly, if they were performed both before and after PWHT, and if they were performed in accordance with ASME Section III, Subsection NE code requirements:

- lower equipment hatch HO2 insert plate; and
- mechanical penetration sleeves P05, P27 and P28 in shell plate B2-A13.

Procedure Reviews:

The inspectors reviewed procedure, CMS-720-03-PR-09651, Preheat / Interpass Temperature Control, Revision 3, to determine if the in-process preheat and interpass temperature activities performed met applicable welding procedures and ASME Section III, Subsection NE requirements.

The inspectors reviewed procedure CMS-830-15-PR-45162, Liquid Penetrant Examination Color Contrast, Solvent Removable, ASME Section III, Division 1, Subsection NE, Revision 1, to determine if the procedure complied with ASME Section III, Subsection NE requirements.

Welder/Operator Qualifications:

The inspectors reviewed performance qualification records for two welders using FCAW on welds “E” and “F” for the containment vessel ring 1 B2-A5 Lower Equipment Hatch insert plate to determine if the welding personnel were qualified and maintained their skills to perform welding activities in accordance with the requirements of ASME Section III, Subsection NE, and Section IX.

Production Controls:

The inspectors observed in-process FCAW activities for the containment vessel ring 1 B2-A5 lower equipment hatch weld seams “E” and “F” to determine if the field welding activities met the requirements of the appropriate welding procedure. The inspectors reviewed controlled weld travelers B2A-S1-E-H02 and B2A-S1-F-H02 to determine if welding operators and weld filler metals were documented for traceability, and the QC, WEC, and Authorized Nuclear Inspector established inspection hold/witness points were completed in accordance with the requirements of the CB&I NQAM and ASME Section III, Subsection NE. In addition, the inspectors observed welding was performed under conditions suitable for welding and appropriate consideration was given to inclement conditions, such as rain.

The inspectors reviewed the Preheat-Interpass Monitoring Log – Traveler System and observed welders and QC personnel in-process activities for welds “E” and “F” to determine whether adequate checks were being performed on the weld joint prior to welding and were in accordance with the procedure CMS-720-03-PR-09651, Preheat/Interpass Temperature Control and ASME Section III, Subsection NE.

The inspectors reviewed the certificate of compliance for the Tempilstik temperature indicators used by the welders and the QC personnel in the field to determine whether they were in compliance with the controlled weld traveler and ASME Section III, Subsection NE requirements.

The inspectors reviewed the dimensional inspection reports contained in the weld travelers for the Lower Equipment Hatch to determine if the hatch insert plate was installed in accordance with the requirements of drawing number 164621, drawing 21, sheet 1, Lower Equipment Hatch H02 – Field Details, revision 1.

The inspectors reviewed the calibration records for the Leica Total Station (S/N 1610667) and Panametrics MG2 digital ultrasonic thickness gage (S/N 100833511) to determine if the survey equipment used to perform the dimensional inspection was calibrated in accordance with the requirements of CB&I NQAM and appropriate calibration procedures.

The inspectors interviewed the authorized nuclear inspector prior to his visual inspection of the completed containment vessel ring 1 B2-A5 lower equipment hatch weld seam “E” to determine if his inspection criteria would include prohibiting cracks and lack of fusion, and only permit undercuts, porosity and undersized welds as allowed by ASME Section III code.

The inspectors observed a qualified inspector performing PT of the completed containment vessel ring 1 B2-A5 equipment hatch weld seam “F” to determine if the testing was performed in accordance with procedure CMS-830-15-PR-45126 and ASME Section III, Subsection NE.

The inspectors reviewed the calibration records for the light meter (S/N Q559078) and infrared thermometer (S/N 16032703) used by the qualified inspector during the PT to determine if they were calibrated in accordance with the requirements of the CB&I NQAM and the appropriate calibration procedure.

The inspectors reviewed the certificates of compliance for the penetrant, cleaner and developer used by the examiner during the PT to determine if the materials met the requirements of procedure CMS-720-03-PR-03601 and ASME Section V, Article 6.

b. Findings

No findings were identified.

.4 ITAAC Number 93 / Family 06B

a. Inspection Scope

During the weeks of July 9 and 16, 2012, the inspectors performed a direct inspection of CB&I construction activities on the Unit 2 containment vessel associated with ITAAC Number 93 (2.2.01.03a):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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 nondestructive examination of pressure boundary welds.

The inspectors used the following NRC inspection procedures to perform these inspections:

- 65001.06, Sections 02.01 and 02.02;
- 65001.B, Sections 02.01, 02.02, 02.04, 02.05, and 02.06; and
- 65001.11, Sections 02.03 and 02.05.

Procedure Reviews:

The inspectors reviewed implementing procedure, CB&I CMS 164621-830-15-PR-000001, Post-Weld Heat Treatment Procedure Shell Course S1 Vertical Seams, Revision 1, to determine if the in-process PWHT activities were completed in accordance with ASME Section III, Subsection NE.

The inspectors reviewed two CB&I Welding Procedure Specifications (WPSs) for the capacitor discharge process for installation of the thermocouples and insulation pins to determine if the procedures were in conformance with the ASME Section III, Subsection NE, were available to the welding operator, current and accurate, and implemented in accordance with the PWHT implementing procedure.

Production Controls:

The inspectors observed in-process welding activities to determine if the welding was within the parameters permitted by the associated WPS. The inspectors observed in process FCAW activities for the containment vessel ring 1 joining plates B2-A6 to B2-A7 for weld seam “H” of the S1 course to determine if they were performed in accordance with the controlled weld traveler, B2A-S1-H, Revision 2, and with appropriate references to procedures, drawings, and QC hold points. The inspectors interviewed QC personnel to ensure adequate checks were being performed on the weld joint prior to welding, and were in accordance with the CB&I procedures and requirements of ASME Section III, Subsection NE. The inspectors observed base metal preheat temperatures were checked prior to and during welding to determine if the work activities were completed in accordance with the WPS. The inspectors observed interpass temperature monitoring by welders and QC personnel to determine if the temperatures were within the limits required by the WPS. The inspectors interviewed QC personnel and confirmed measurements taken to ensure essential variables such as heat input were monitored, recorded, reviewed and within allowable ranges as required by the WPS.

The inspectors observed in-process PWHT activities for containment vessel ring 1 weld seam "N" of the S1 course to determine if the in-process activities were completed in accordance with the CB&I PWHT implementing procedures and ASME Section III, Subsection NE. The inspectors observed the in-process activities to determine if:

- they were performed in accordance with weld traveler BSA-S1-N, Revision 0;
- weld plate fit-up and dead loads were removed in accordance with the general specifications;
- heating pads and thermocouples were installed in accordance with the Shell Course S1 Vertical Seams PWHT, Revision 1; and
- temperature recorders were calibrated in accordance with CMS-830-15-WI-81026 Calibration of Temperature Recorders, Revision 1 and CMS-830-15-WI-81025 Calibration of Millivolt Potentiometers, Revision 1.

In addition, the inspectors interviewed PWHT installation personnel and observed the heat treatment controls for heating and cooling rates, holding temperatures, holding times, and time-temperature strip charts were monitored in accordance with the PWHT procedure.

Inspections/Nondestructive Examination:

The inspectors reviewed in-process radiography for the containment vessel ring 1, course 1 to determine if the NDE activities were in accordance with CMS-830-15-PR-45154, Radiographic Examination ASME Section III, Division 1 – Subsection NE, Revision 1. The inspectors reviewed the weld traveler for the vertical weld joining plates B2-A7 to B2-A8 for weld seam "J" to verify that the appropriate inspections were included, in accordance with the applicable ASME Code and CB&I Quality Assurance Program Document (QAPD) requirements. The inspectors evaluated the radiography in-process setup and practices to determine if the methods met the ASME Code.

b. Findings

No findings were identified.

.5 ITAAC Number 96 / Family 06F (Unit 2)

a. Inspection Scope

During the week of July 23, 2012, the inspectors performed a direct inspection of construction activities on the Unit 2 containment vessel associated with ITAAC Number 96 (2.2.01.04a.ii):

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

	to confirm the fracture toughness of the materials.	Code Section III.

The inspectors used NRC inspection procedure 65001.F, Section 02.03, to perform these inspections.

The inspectors reviewed a sample of CMTRs for four shell plates and five mechanical penetrations (consisting of two insert plates and five sleeves) to determine if impact testing for pressure retaining materials for Unit 2 were in accordance with the fracture toughness requirements of the WEC containment vessel design specification and ASME Section III, Subsection NE.

The inspectors reviewed ten CMTRs from JFE Steel and SEO Koatsu Kogyo for the following items:

- lower ring S-1 lowest course plates B2-A4, -A5, -A11 and -A12 of the shell; and
- five mechanical penetration sleeves (including two insert plates) for P06, P07, P10, P12, and P38 welded by IHI to shell plate B2-A12.

b. Findings

No findings were identified.

.6 ITAAC Numbers 760 and 763 / Family 01F (Unit 2)

a. Inspection Scope

During this inspection period, the inspectors performed an in-office inspection of construction activities associated with ITAAC Numbers 760 (3.3.00.02a.i.a) and 763 (3.3.00.02a.i.d):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
760) 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.	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.	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.

763) 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.	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.	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 reviewed the licensee's response to Unresolved Item (URI) 5200027/2012-003-001 to determine if a violation of regulatory requirements existed. The inspectors compared the as-found specifications, drawings, and procedures against the requirements of the Updated Final Safety Analysis Report (UFSAR) and applicable codes to determine if the sub-modules conformed to the approved design.

b. Findings

Failure to Translate CA01 and CA20 Design Requirements Into Specifications and Drawings

Introduction: The inspectors identified an ITAAC finding of very low safety significance (Green) and associated cited violation (VIO) of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to assure that regulatory requirements and the design basis for systems, structures, and components were correctly translated into drawings and procedures. Specifically, the licensee failed to ensure that the shear stud spacing for the Unit 2 containment internal structures (CA01) CA01-24 and the auxiliary building (CA20) CA20-29 sub-modules met the approved design.

Description: As described in inspection report 05200027/2012-003 (ML12219A188), the inspectors opened URI 05200027/2012-003-001 because of concerns with the stud spacing associated with safety related sub-modules. As part of that URI, the inspectors identified the following issues of concern:

- During a review of the design requirements for seismic category I structural submodule CA01-24, the inspectors determined that it was required to be designed in accordance with maximum spacing requirements as specified by the UFSAR which referred to WEC design calculation APP-1100-SUC-003, Revision 3. This calculation specified that 5/8-inch studs should be placed in a 6-inch by 6-inch pattern. During a review of the as-built configuration of Unit 2 submodule CA01-24, the inspectors identified 5/8 inch shear studs located approximately 8-inches away from the plate edge. When the adjacent submodule would later be joined to CA01-24, the distance between stud rows adjacent to the seam would exceed the maximum spacing requirements as specified by the UFSAR. The inspectors determined that the drawings did not reflect the approved design and that the 5/8-inch studs were not installed in accordance with the approved design.

- During a review of the design requirements for seismic category I structural submodule CA20-29, the inspectors determined that it was required to be designed in accordance with AISC N690-94 per UFSAR Section 3.8.4.4.1. AISC N690-94 stated that the minimum center-to-center spacing of stud connectors shall be 6 diameters along the longitudinal axis of the supporting composite beam and 4 diameters transverse to the longitudinal axis of the supporting composite beam. Therefore, the transverse spacing for the 5/8-inch shear studs on submodule CA20-29 should have been no closer than 2.5-inches center to center. During a review of the as-built configuration of Unit 2 submodule CA20-29, the inspectors identified that two rows of 5/8-inch shear studs were located approximately 1.75-inches center-to-center. The inspectors determined that the drawings did not reflect the approved design and that the shear studs were not installed in accordance with the approved design.

The inspectors noted that the submodules discussed above had not been installed in the nuclear island during this inspection period.

Analysis: The licensee's failure to assure that regulatory requirements and the design basis for systems, structures, and components were correctly translated into drawings and procedures associated with sub-module stud spacing was a performance deficiency. The performance deficiency was considered more than minor because, if left uncorrected, the failure to assure that regulatory requirements and the design basis for the auxiliary building and containment internal structures were correctly translated into specifications and instructions could adversely affect the closure of an ITAAC. The performance deficiency was associated with the Design/Engineering cornerstone.

The finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 2 ITAACs 763, and 760. Specifically, the acceptance criteria for these two ITAAC required that a report exists which concludes that the as-built

structures in the radiologically controlled area of the auxiliary building and the as-built containment internal structures, respectively, conform to the approved design. However, the as-built configuration of seismic category I structural submodules CA20-29 and CA01-24 did not conform to the approved design; therefore, these examples represented structural deviations that would not have been reconciled by the licensee.

The inspectors assessed the ITAAC finding in accordance with Inspection Manual Chapter (IMC) 2519P, Construction Significance Determination Process – Pilot, Appendix A and determined that the finding was of very low safety significance (Green) because it did not impair the design function of either the nuclear island auxiliary building or containment internal structures and was assigned to Row 1 of the risk importance table.

The inspectors screened the finding for a possible construction safety focus component aspect in accordance with Appendix F, "Construction Safety Focus Components and Aspects," of IMC 0613P, "Power Reactor Construction Inspection Reports - Pilot." The inspectors determined that this finding was not related to any of the construction safety focus component aspects discussed in IMC 0613P.

Enforcement: Criterion III, "Design Control," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code

of Federal Regulations (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities,” requires, in part, that “Measures shall be established to assure that applicable regulatory requirements and the design basis for safety-related structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions.”

Figure 3.8.3.8, Sheet 1 of 3 of the VC Summer Units 2 & 3 UFSAR specifies the maximum shear stud spacing for Seismic Category I Structural Submodules. Section 3.8.4.4.1, “Seismic Category I Structures,” of the VC Summer Units 2 and 3 UFSAR required that Seismic Category I Structural Submodules, specifically CA20-29 and CA01-24; be designed in accordance with UFSAR and AISC N690-94, “Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities.”

Contrary to the above, on and before October 2, 2012, the licensee failed to assure that applicable regulatory requirements and the design basis for safety-related systems, structures, and components were correctly translated into specifications, drawings, and instructions. As evidenced by the following examples, the licensee failed to translate the regulatory and design basis requirements established, in part, by UFSAR, and AISC N690-94 into specifications, drawings, and instructions for the design and fabrication of Seismic Category I Structural Submodules CA20-29, and CA01-24:

1. The licensee failed to properly translate design requirements into design specifications, which resulted in Seismic Category I Structural Submodule CA01-24 containing shear studs that exceeded the maximum design spacing as specified by UFSAR Figure 3.8.3.8, Sheet 1 of 3. Specifically, Figure 3.8.3.8, Sheet 1 of 3 specifies that 5/8-inch studs should be placed in a 6-inch by 6-inch pattern. However, the as-built configuration of Submodule CA01-24 contained 5/8-inch shear studs located approximately 8 inches away from the plate edge.

2. The licensee failed to properly translate design requirements into design specifications which resulted in Seismic Category I Structural Submodule CA20-29 containing shear studs which did not meet the minimum allowable spacing as required by AISC N690-94. Specifically, AISC N690-94 states that the transverse spacing for the 5/8-inch shear studs on Submodule CA20-29 should have been no closer than 2.5-inches center to center. However, the as-built configuration of CA20-29 contained two rows of 5/8-inch shear studs that were located approximately 1.75-inches center-to-center.

Because the licensee’s corrective action program has not yet been determined by the NRC to be effectively implemented, this violation (VIO 05200027/2012004-01, “Failure to Translate CA01 and CA20 Design Requirements Into Specifications and Drawings”), is being cited, consistent with Section 2.3.2 of NRC Enforcement Policy.

The licensee entered these issues into their corrective action program as Primary Identification Program (PIP) 0-L-12-0251 to evaluate the issue and implement corrective actions to address the violation. As described in Section 4OA3.1 of this report, URI 05200027/2012003-01 is closed.

.7 ITAAC Number 760 / Family 01F (Unit 2)

a. Inspection Scope

During the week of September 10, 2012, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 760 (3.3.00.02a.i.a):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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.	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.	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 inspection procedures to perform these inspections:

- 65001.01, “Inspection of ITAAC-Related Foundation and Buildings,” Section 02.01;
- 65001.02, “Inspection of ITAAC-Related Installation of Structural Concrete,” Section 02.02;
- 65001.A, “ITAAC Attributes for As-Built Inspection,” Section 02.02; and
- 65001.F, Section 02.03..

Concrete Batching and Delivery:

The inspectors reviewed project specifications and procedures associated with the concrete batching plant and performed direct observations of concrete batching. The inspectors performed these activities to determine if the batching plant was being operated and controlled within project specifications, procedures, and applicable codes. Specifically, the inspectors reviewed the batch plant National Ready Mixed Concrete Association certification to verify the batch plant had been inspected and certified as required by WEC safety-related concrete specifications. The inspectors reviewed testing and calibration records associated with the water meters, aggregate scales, and cement scales to verify that all measuring equipment associated with the batching process was calibrated and maintained at the specified frequencies. The inspectors also reviewed the storage and transportation processes of all concrete constituents to verify that the materials were being stored and transported in manner that was not detrimental to the materials and prevented contamination and segregation. The inspectors observed the

receipt inspection and reviewed CMTRs for the concrete constituent material on site to verify that the concrete constituents received met the applicable requirements.
Laboratory Testing:

The inspectors reviewed project specifications and procedures associated with the onsite testing laboratory and performed direct observations of testing to determine if the testing laboratory was being operated and controlled within the applicable requirements. Specifically, the inspectors observed moisture tests for concrete aggregates and the capping of concrete test specimens to ensure the tests were conducted in accordance with the applicable American Society of Testing Materials standards. The inspectors reviewed the calibration of the testing equipment being used to verify all equipment was calibrated and maintained within the prescribed frequencies. The qualification of personnel conducting tests was verified by the inspectors and the process for qualification was also reviewed to verify adequacy. The inspectors verified that the output for each test was adequately documented, evaluated, and maintained in accordance with quality procedures.

b. Findings

No findings were identified.

.8 ITAAC Number 761 / Family 01F (Unit 2)

a. Inspection Scope

During the week of September 10, 2012, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 761 (3.3.00.02a.i.b):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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.	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.	A report exists which reconciles deviations during construction and concludes that the as-built shield building structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.

The inspectors used the following NRC inspection procedures to perform these inspections:

- 65001.01, Section 02.01;
- 65001.02, Sections 02.01 and 02.02;
- 65001.A, Section 02.02; and
- 65001.F, Sections 02.02 and 02.03.

The inspectors reviewed activities related to concrete batching and delivery as well as laboratory testing as described in Section 2503.7 of this report.

Reinforcing Steel and Embedment Placement:

The inspectors focused on activities associated with the design and construction of the basemat beneath the shield building. The inspectors reviewed documents, interviewed licensee personnel, and observed installation of reinforcing steel to verify:

- implementing procedures, specifications, and drawings adequately address the requirements of applicable American Concrete Institute (ACI) standards;
- structural concrete construction was being accomplished under controlled conditions and in conformance with design requirements;
- applicable documentation for selected design changes was complete and accurate;
- materials received for on-site fabrication (bending) of reinforcing steel met design procurement documents;
- contractors performing safety-related work have approved implementing procedures that describe administrative and procedural controls, approved work processes, and inspection requirements;
- placement of reinforcing steel was performed in accordance with the applicable specifications, codes, drawings, and procedures; and
- records associated with receipt of safety-related reinforcing steel confirmed the requisite material characteristics, performance tests, and other specification requirements.

The inspectors reviewed a sample of construction drawings, specifications, CMTRs, and procurement documents associated with the basemat beneath the shield building to determine whether construction activities were in conformance with regulatory requirements and licensee commitments. The inspectors reviewed design documents, Engineering and Design Coordination Reports (E&DCRs), and other design changes to determine whether design deviations were appropriately identified and addressed in a manner that would support closure of the ITAAC.

b. Findings

No findings were identified.

.9 ITAAC Number 762 / Family 01F (Unit 2)

a. Inspection Scope

During the week of September 10, 2012, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 762 (3.3.00.02a.i.c):

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

The inspectors used the following NRC inspection procedures to perform these inspections:

- 65001.01, Section 02.01;
- 65001.02, Sections 02.01 and 02.02;
- 65001.A, Section 02.02; and
- 65001.F, Sections 02.02 and 02.03.

The inspectors reviewed activities related to concrete batching and delivery as well as laboratory testing as described in Section 2503.7 of this report. For the reinforcing steel and embedment placement, the inspectors focused on activities associated with the design and construction of the basemat beneath the non-radiologically controlled area of the auxiliary building in a similar manner as described in Section 2503.8 of this report for the basemat beneath the shield building.

b. Findings

Introduction: The inspectors identified an URI related to the anchorage and spacing of the t-headed shear reinforcement in the 18-inch thick section of the basemat beneath the elevator pit in the non-radiologically controlled area of the auxiliary building.

Description: Section 3.8.4.4.1 of the UFSAR stated, in part, that the design and analysis procedures for the Seismic Category I structures were in accordance with ACI 349 for concrete structures.

Section 12.6.2 of ACI 349-01 required that mechanical anchorages be designed in accordance with Appendix B – Steel Embedments. Additionally, Section 3.8.5.5 of the UFSAR stated, in part, that the design and construction of anchors conformed to the procedures and standards of Appendix B to ACI 349-01.

Section 11.5.3 of ACI 349-01 required, in part, that stirrups or other bars used as shear reinforcement be anchored at both ends to develop the design yield strength of the reinforcement.

Section 11.5.4.1 of ACI 349-01 required, in part, that the spacing of shear reinforcement placed perpendicular to the axis shall not exceed “d/2” in non-prestressed members. The variable “d” was defined in Section 11.0 of ACI 349-01 as the “distance from extreme compression fiber to centroid of longitudinal tension reinforcement…”

Based on a review of the design drawings, product literature, and independently generated calculations, the inspectors questioned whether the t-headed shear reinforcement in the 18-inch thick section of the basemat beneath the elevator pit in the non-radiologically controlled area of the auxiliary building met the requirements of the UFSAR and ACI 349-01. Specifically, the inspectors could not verify that the reinforcement was adequately anchored as required by ACI 349-01 and that the spacing met the code prescribed maximum. As a result, the inspectors requested that the licensee provide their original calculations for review, demonstrating that the anchorage and spacing of the t-headed shear reinforcement was in conformance with code requirements and licensee commitments.

This issue of concern is unresolved pending the inspectors’ review and evaluation of the licensee’s calculations to determine if a performance deficiency exists. (URI 05200027/2012-004-002, Shear Stirrup Anchorage and Spacing in Nuclear Island Basemat). The licensee initiated PIP 0-L-12-0610 to address this issue.

The inspectors concluded that this URI also affected Unit 2 ITAAC 3.3.00.02a.i.d as described in Section 2503.10 of this report.

.10 ITAAC Number 763 / Family 01F (Unit 2)

a. Inspection Scope

During the week of September 10, 2012, the inspectors performed a direct inspection of construction activities associated with Unit 2 ITAAC Number 763 (3.3.00.02a.i.d):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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.	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.	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 inspection procedures to perform these inspections:

- 65001.01, Section 02.01;
- 65001.02, Sections 02.01 and 02.02;
- 65001.A, Appendix 1, Section 02; and
- 65001.F, Sections 02.01 and 02.02.

The inspectors reviewed activities related to concrete batching and delivery as well as laboratory testing as described in Section 2503.7 of this report. For the reinforcing steel and embedment placement, the inspectors focused on activities associated with the design and construction of the basemat beneath the radiologically controlled area of the auxiliary building in a similar manner as described in Section 2503.8 of this report for the basemat beneath the shield building.

b. Findings

The inspectors determined that URI 05200027/2012-004-002, Shear Stirrup Anchorage and Spacing in NI Basemat, as described in Section 2503.9 of this report, was also related to this ITAAC. For this ITAAC, the areas of concern related to the anchorage and spacing of the t-headed shear reinforcement in the 18-inch thick sections of the

basemat beneath the elevator and sump pits in the radiologically controlled area of the auxiliary building.

.11 ITAAC Number 763 / Family 01F (Unit 2)

a. Inspection Scope

During the week of August 6, 2012, the inspectors reviewed the licensee's programs and procedures controlling welding and NDE for on-site module fabrication in support of the inspectors' verification of Unit 2 ITAAC Number 763 (3.3.00.02a.i.d):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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.	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.	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 inspection procedures to perform these inspections:

- 65001.01, Section 02.05; and
- 65001.B, Sections 02.01, 02.02, 02.03, and 02.06.

The inspectors reviewed the procedures to determine if the procedures complied with the applicable provisions of the QAPD and the American Welding Society (AWS) structural steel welding code, AWS D1.1-2000.

The inspectors verified that contractors/subcontractors with on-site module welding and NDE-related responsibilities had approved procedures describing administrative controls and work processes. The inspectors reviewed the procedures to determine if:

- procedures prescribed adequate methods of quality assurance to ensure the as-built condition of structures, systems, and components meet engineering requirements;
- the identification of welds and welders was maintained for each weld;
- welding procedures and welders were qualified in accordance with AWS Code requirements and other codes or standards referenced by the product specifications;
- NDE methods and acceptance criteria complied with the applicable AWS Code and other codes or standards referenced by the product specifications;
- equipment and gauges used for process monitoring were calibrated and maintained; and
- procedures were established for ensuring craft and quality assurance inspection personnel performing quality related welding and examination activities were qualified to perform their assigned work.

The inspectors reviewed WPS 2-1.1-M71, Revision 0, to determine if:

- the WPS was qualified in conformance with the applicable AWS Code requirements;
- the WPS was available, current and accurate;
- welding positions qualified for the WPS were in accordance with the applicable AWS Code;
- the type and number of qualification tests required to qualify the WPS for a given thickness, diameter, or both were specified and conformed to the requirements of the applicable AWS Code; and
- the WPS specified all the applicable essential variables referenced in the AWS Code and the specific range of values of the WPS variables was obtained from one or more procedure qualification records.

The inspectors reviewed welder qualifications to determine if:

- welding personnel demonstrated their skill by performing specific performance qualification tests prescribed by the applicable AWS Code;
- performance qualification tests were fully documented and the welder qualification procedures included adequate provisions to verify the identity of the welder being tested;
- performance qualification expirations complied with the applicable AWS Code; and

- welders who were qualified for a given process were required to re-qualify if an essential variable for the process was changed beyond the limits specified in the applicable AWS Code.

The inspectors also determined whether quality assurance records were reviewed and approved by the proper authorities and were stored and maintained in such a manner as to demonstrate conformance with applicable AWS Codes, standards, and procedure requirements.

b. Findings

No findings were identified.

.12 ITAAC Number 763 / Family 01F (Unit 2)

a. Inspection Scope

During the week of September 10, 2012, the inspectors performed a direct inspection of construction activities associated with Unit 2 ITAAC Number 763 (3.3.00.02a.i.d):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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.	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.	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 inspection procedures to perform these inspections:

- 65001.01, Section 02.01;
- 65001.02, Sections 02.01 and 02.02;
- 65001.A, Appendix 1, Section 02; and
- 65001.F, Sections 02.01 and 02.02.

The inspectors reviewed activities related to concrete batching and delivery as well as laboratory testing as described in Section 2503.7 of this report. For the reinforcing steel and embedment placement, the inspectors focused on activities associated with the design and construction of the basemat beneath the radiologically controlled area of the auxiliary building in a similar manner as described in Section 2503.8 of this report for the basemat beneath the shield building.

b. Findings

The inspectors determined that URI 05200027/2012-004-002, Shear Stirrup Anchorage and Spacing in NI Basemat, as described in Section 2503.9 of this report, was also related to this ITAAC. For this ITAAC, the areas of concern related to the anchorage and spacing of the t-headed shear reinforcement in the 18-inch thick sections of the basemat beneath the elevator and sump pits in the radiologically controlled area of the auxiliary building.

.13 ITAAC Number 763 / Family 01F (Unit 2)

a. Inspection Scope

During the week of July 16, 2012, the inspectors performed a field inspection of construction activities in the modular assembly building associated with ITAAC Number 763 (3.3.00.02a.i.d):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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.	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.	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 inspection procedures to perform these inspections:

- 65001.01, Sections 02.05, 02.06, 02.07; and
- 65001.F, Sections 02.01, 02.02, 02.03, and 02.04.

The inspectors conducted field measurements on sub-modules, reviewed documents, and interviewed licensee personnel to assess the implementation of the portion of the QA program specific to design and fabrication activities, and to determine whether:

- design and fabrication was completed in accordance with applicable specifications, drawings, and approved procedures;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- licensee records established an adequate basis for the acceptance of ITAAC with design and fabrication attributes;
- fabrication activities were performed by qualified personnel;

- records reflected that completed work meets design specifications and acceptance criteria;
- an adequate marking system was used to maintain the identity of material in the storage areas and that the structural steel sub-modules were protected from corrosion;
- the licensee confirmed that components inspected conformed to design drawings and that deviations were being addressed in accordance with procedure requirements;
- nonconforming conditions identified by the licensee were being appropriately resolved; and
- the licensee, vendor, and fabricator personnel had established an effective method for tracking, evaluating, and dispositioning changes or modifications to the component designs.

The inspectors performed independent measurements on the following structural wall sub-modules for the proposed Unit 2 radiologically controlled area of the auxiliary building:

- CA20-01, which will be located on the intersection between Column Line J-1 and Column Line 2, when installed at its final location;
- CA20-02, which will be located along Column Line J-1, between Column Lines 2 and 3, when installed at its final location;
- CA20-06, which will be located along Column Line 2, between Column Lines J-1 and J-2, when installed at its final location.

Specifically, the inspectors measured headed stud spacing and dimensions, module plate thickness, angle and channel used to construct module trusses, and truss spacing. The inspectors also observed reinforcing steel placement, general module assembly, and stud welds.

The inspectors reviewed various documents within the work packages and inspection packages for the selected modules, such as sub-assembly drawings, material traceability logs, design drawings, and specifications, to verify:

- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings;
- certified mill test reports, or a certified report of tests, made by the fabricator or qualified testing laboratory were available;
- fit-up tolerances for length, depth, and straightness of structural members were as specified; and
- records reviewed were approved and correctly stored and maintained in accordance with procedure requirements.

The inspectors also reviewed non-conformance reports and corrective action reports associated with the sub-modules to determine whether:

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

b. Findings

No findings were identified.

.14 ITAAC Number 767 / Family 01A (Unit 2)

a. Inspection Scope

During the week of July 16, 2012, the inspectors performed a direct inspection of construction activities associated with ITAAC Number 767 (3.3.00.02a.ii.d):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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.	An inspection of the as-built concrete thickness will be performed.	A report exists that concludes that the as-built concrete thicknesses of the radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.

The inspectors used the following NRC inspection procedures to perform these inspections:

- 65001.01, Sections 02.01, 02.05, 02.06, and 02.07;
- 65001.A, Sections 02.03, 02.04; and
- 65001.A, Appendix 1, Sections 01 and 02.

The inspectors used IPs 65001.01 and 65001.A, “ITAAC Attributes for As-built Inspection,” to conduct field measurements to determine if the plate separation in the sub-module assembly conformed to the required concrete thicknesses of the building sections. The inspectors also observed work activities to verify if structural steel installations were being accomplished under controlled conditions and in conformance with design requirements.

The inspectors performed independent measurements on structural wall sub-modules CA20-01, CA20-02, and CA20-06 for the proposed Unit 2 radiologically controlled area of the auxiliary building:

The inspectors reviewed various documents within the work packages and inspection packages for the selected modules, such as sub-assembly drawings, material traceability logs, design drawings, and specifications, to verify:

- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings;
- certified mill test reports, or a certified report of tests, made by the fabricator or qualified testing laboratory were available;

- fit-up tolerances for length, depth, and straightness of structural members were as specified; and
- records reviewed were approved and correctly stored and maintained in accordance with procedure requirements.

The inspectors also reviewed non-conformance reports and corrective action reports associated with the sub-modules to determine whether:

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

b. Findings

No findings were identified.

.15 ITAAC Number 784 / Family 02C (Unit 2)

a. Inspection Scope

During this inspection period, the inspectors conducted a field inspection to determine if construction activities associated with Unit 2 ITAAC Number 784 (3.3.00.05a) were being conducted in accordance with the licensing basis:

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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 NRC inspection procedure 65001.02, Sections 02.05 and 02.06, to perform these inspections.

The inspectors reviewed activities related to the coefficient of friction membrane qualification and to installation activities related to the design requirement contained in the UFSAR. The inspectors reviewed the qualification test reports to determine if the testing was performed in accordance with requirements contained in the UFSAR and whether the test results complied with the applicable acceptance criteria.

The inspectors reviewed the installation specification to determine if the field installation procedures and design details adequately duplicated the testing program and processes utilized in the laboratory. The inspectors also independently visually inspected the roughness of the supporting concrete surface using industry standards specified in the material qualification reports. The inspectors directly observed the application of the waterproofing membrane to verify the installation activities were being conducted per Shaw project specification VSG-AT01-Z0-800000, “Waterproofing Membrane Installation (Horizontal Application),” Revision 3. The inspectors directly observed the seam weld process used at the joints between the sheets of the waterproofing materials and

reviewed drawing VSG-1000-XE-800000, “Waterproofing Membrane Installation Plan,” Revision 0, to determine if the membrane seams were located per the specified design.

The inspectors reviewed a sample of installation release cards from work package VS2-1000-ATW-001-(i), “Nuclear Island Horizontal Waterproof Membrane Installation” to determine whether they were consistent with applicable quality and technical

requirements. The inspectors observed a Shaw quality control walk-down of a completed waterproof membrane section to determine if the walk-down was performed in accordance with procedures and if it adequately identified conditions adverse to quality.

The inspectors observed storage facilities for the waterproof membrane materials to determine if storage conditions met requirements of the procurement specifications. A sample of Shaw corrective action reports (CAR) related to field and laboratory testing was reviewed. The inspectors reviewed Shaw nonconformance and disposition reports (N&D), and licensee condition reports (CRs) related to waterproof membrane installation activities to verify adequate disposition.

b. Findings

No findings were identified.

2504 Program Inspections

4. OTHER ACTIVITIES

OA2 Quality Assurance Program Implementation During Construction and Pre-Construction Activities (IP 35007)

.1 Appendix 1, Inspection of Criterion I – Organization

a. Inspection Scope

The inspectors examined documents and records and interviewed personnel to verify implementation of the licensee’s organizational structure, responsibilities, and authorities. Specifically, the inspectors interviewed five personnel who performed specific QA functions to determine whether they had an adequate understanding of the program and their roles. The inspectors verified whether that they were sufficiently independent and had organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. The inspectors also interviewed personnel to determine how delegation of authorities were documented. The inspectors examined documentation of the five most recent delegations to determine if the delegation was performed in accordance with license procedures and commitments in the QAPD.

The following inspection samples were completed:

- A1.03.02: 5 specific QA interview samples
- A1.03.02: 5 delegations of authority samples

b. Findings

No findings were identified.

.2 Appendix 3, Inspection of Criterion III – Design Control

a. Inspection Scope

The inspectors reviewed geologic mapping activities for consistency with regulatory requirements and the associated Unit 3 license condition. Specifically, the inspectors reviewed the Unit 3 excavation activities to ensure that they were performed in accordance with the commitments in Section 2.5 of the combined license application and in accordance with Regulatory Guide 1.208. To make this determination, the inspectors:

- observed the licensee's geologic mapping of foundation grade level bedrock in the Unit 3 nuclear island excavation;
- directly examined rock types and tectonic structures in the Unit 3 excavation, as well as the preliminary geologic maps prepared by the licensee; and
- examined the foundation bedrock surface to assess blast damage.

The inspectors performed these activities to determine if:

- the geologic characteristics reported in the UFSAR accurately described the rock types and tectonic structures that occurred in the Unit 3 excavation;
- any potentially detrimental geologic features that could affect site suitability existed; and
- blast damage was minimal and did not result in any degradation of the foundation bedrock units.

Because the final geologic maps were not complete by the close of this inspection period, the inspectors could not review the final maps and associated data.

As this was an interim inspection of the Unit 3 geological mapping activities, no samples were completed.

b. Findings

No findings were identified.

.3 Appendix 3, Inspection of Criterion III – Design Control

a. Inspection Scope

The inspectors reviewed the licensee's implementing documents associated with design change control to verify conformance with the NRC-approved QAPD and FSAR. In addition, the inspectors reviewed samples of completed design changes and field changes in order to verify conformance with implementing documents. The inspectors reviewed drawings, E&DCRs, test reports, and technical reports associated with installation and design of the waterproof membrane and reinforcing steel in the NI basemat. The inspectors reviewed these documents to verify if:

the design and design changes received the proper level of engineering review in accordance with licensee procedures;

- the design and design changes were incorporated into their respective documents in accordance with licensee procedures;
- affected design documents remained applicable, with valid design assumptions;
- seismic evaluations were acceptable; and
- applicable design and licensing documents were updated in accordance with licensee procedures.

The inspectors reviewed the following procedures related to design control to perform the above verifications:

- WEC 3.4.1, "Change Control for the AP1000 Program," Rev. 0
- NEPP 4-13-3, "Engineering and Design Coordination Report," Rev. 3
- APP-GW-GAP-420, "Engineering Design and Coordination Report," Rev. 6

The inspectors also reviewed licensee procedures for performing screenings and evaluations for changes to the facility made pursuant to 10 CFR 50.59 and for performing departure evaluations pursuant to 10 CFR 50.52, Appendix D, Section VIII. The inspectors reviewed the procedures to determine if the procedures were consistent with the applicable regulatory requirements. The inspectors reviewed the departure evaluations for the following activities to determine if the evaluations were performed in accordance with licensee procedures and the applicable regulations:

- LCE-12-002—CA Modular Liner Plate Material Change;
- LCE-12-006—WLS Containment Sump module and PSS containment atmosphere monitor seismic requirements;
- LCE-12-026—DCD clarification needed to support construction;
- LCE-12-29—Basemat Design Clarification; and
- LCE-12-030—RNS Pump Seal cooler-nozzle change.

The inspectors verified that drawings issued for construction related to the north end of the nuclear island basemat reinforcing steel were in compliance with section 3.8 of the UFSAR and design specification APP-CR01-Z0-011.

The inspectors reviewed four E&DCR's related to containment vessel coating applications, two conditional releases for coating application, and a design change proposal associated with the protective coating of the bottom head of the containment vessel to verify that those documents reflected the design changes described in design specification APP-GW-Z0-604. In addition the inspectors interviewed personnel from WEC responsible for design changes to determine if the proper turnover of design information from the design authority to the licensee was distributed in accordance with WEC procedures.

The inspectors reviewed work package VS2-1000-CRW-001, "Nuclear Island Basemat Stick Built Rebar," and the approved design changes to drawings to determine if the changes were implemented in the field and if those applicable design changes were posted to the drawings maintained in the field. Specifically, the inspectors reviewed the implementation of the following E&DCRs:

- APP-1000-GEF-005

- APP-CR01-GEF-005
- VS2-1000-GEF-000002
- VS2-1000-GEF-000003

The inspectors reviewed the above E&DCRs to determine if adequate licensing applicability screening was performed in accordance with APP-GW-GAP-420, "Engineering and Design Coordination Report," Revision 6. Specifically, whether approved and implemented E&DCRs were appropriately reviewed to identify any impact to the applicable licensing basis documents and were in accordance with 10CFR52, Appendix D, "Design Certification Rule for the AP1000 Design." The inspectors also reviewed these E&DCRs to determine if the affected installation specification was reviewed to ensure its continued applicability and that all design input assumptions remained valid.

The following inspection samples were completed:

- A3.03.02: 7 design change and 6 field change samples

b. Findings

No findings were identified.

.4 Appendix 3, Inspection of Criterion III – Design Control

a. Inspection Scope

The inspectors reviewed the containment vessel bottom head coating product data, the traveler for applying the carbozinc coating, daily inspection reports, film thickness logs, temperature, and thickness measuring equipment calibrations to determine if the containment vessel in-process activities were in compliance with WEC design specification APP-GW-Z0-604, Revision 5. The inspectors reviewed qualifications for coating inspectors to determine if the inspectors were qualified in accordance of American Society of Testing Materials D4537-04a.

The inspectors reviewed three E&DCRs associated with the coating specifications, six requests for information, the coating critical attribute test report, a critical characteristic deviation notice, a conditional release for coating use, two corrective action reports, the vendor's coating application procedure, and the certificate of conformance associated with the coating design specification to determine if the coating critical attributes were implemented into the work instructions for the coating application. In addition, the inspectors interviewed coating inspectors and WEC design personnel to determine if the proper controls were implemented for the material specification substitutions to include the appropriate level of engineering review.

The following inspection samples were completed:

- A3.03: 1 samples

b. Findings

Failure to Transfer Containment Coating Testing Requirements into Specifications

Introduction: The inspectors identified a construction finding of very low safety significance (Green) and associated VIO of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for the licensee's failure to ensure that an element of the design basis, a methyl ethyl ketone (MEK) rub test, as specified in the license application, was correctly translated into specifications.

Description: While preparing for future coating inspection activities, the inspectors reviewed the design basis for the containment coating application contained in the UFSAR and the associated implementating specification. Specifically, Section 6.1.2.1.6 of the UFSAR stated, "The inorganic zinc coating used on the inside surface (Service Level I coatings) and outside surface (Service Level III coatings) of the containment shell is inspected using a nondestructive dry film thickness test and a MEK rub test. These inspections are performed after the initial application and after recoating. Long term surveillance of the coating is provided by visual inspections performed during refueling outages. Other inspections are not required."

WEC Specification APP-GW-Z0-604, Revision 6, Application of Protective Coatings to Systems, Structures, and Components for the AP1000 Reactor Plant, did not include provisions for an MEK rub test for either Unit 2 or Unit 3; however, the MEK rub test was required to determine the degree of coating cure. The licensee initiated Issue Report (IR) 12-216-M010 and CR 2012-0499 to address this issue. The licensee was also unable to find any other implementing document that would have ensured that the MEK rub test was performed.

Analysis: The inspectors determined that the licensee's failure to include the design basis (MEK rub test) in specification APP-GW-Z0-604, was contrary to the requirements of 10 CFR 50 Appendix B, Criterion III and was a performance deficiency. The performance deficiency was determined to be more than minor because the failure to perform the MEK rub test, if left uncorrected, represented a failure to establish, implement or maintain an adequate process, program, procedure, or quality oversight function that could render the quality of the construction activity unacceptable or indeterminate. Specifically, the MEK rub test, if left unperformed, represented a failure to ensure that the coating would be adequately cured and that the coating would perform its intended safety function.

The inspectors concluded this construction finding was associated with the Construction/Installation Cornerstone, in accordance with IMC 2519P. The inspectors determined the finding was of very low safety significance (Green) because the finding was associated with the passive containment cooling system which is in the low risk column of the risk importance table and was not a repetitive significant condition adverse to quality.

In accordance with IMC 0613P, Appendix F, the inspectors determined that this finding had a cross-cutting aspect in the area of Baseline Inspection, Resources (A.2.b), because the licensee did not ensure that procedures were available and adequate to assure construction quality. Specifically, the licensee failed to assure that the MEK rub test was included in the coating installation specification.

Enforcement: 10 CFR 50, Appendix B, Criterion III, Design Control, states in part that, "Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2 and as specified in the license application,

for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions."

Section 6.1.2.1.6 of the UFSAR states "The inorganic zinc coating used on the inside surface (Service Level I coatings) and outside surface (Service Level III coatings) of the containment shell is inspected using a nondestructive dry film thickness test and a MEK rub test."

Contrary to the above, on or before July 20, 2012, the licensee failed to ensure that the testing described in the license application was correctly translated into specifications. Specifically, WEC Specification APP-GW-Z0-604 REVISION 6, Application of Protective Coatings to Systems, Structures, and Components for the AP1000 Reactor Plant, did not include provisions to perform the MEK rub test.

This is a violation which has been evaluated under the risk significance determination process as having very low safety significance (Green). Because the licensee's corrective action program has not yet been demonstrated to be effectively implemented, this violation is being cited in the enclosed Notice of Violation, consistent with the NRC Enforcement Policy (VIO 05200027/2012-004-003, 05200028/2012-004-003, Failure to Transfer Containment Coating Testing Requirements into Specifications)

This issue was entered into the corrective action program as WEC IR 12-216-M010 and CR-2012-0499.

.5 Appendix 4, Inspection of Criterion IV – Procurement Document Control

a. Inspection Scope

The inspectors reviewed QA implementing documents for procurement document control of the reinforcing steel for the Unit 2 nuclear island basemat and horizontal waterproof membrane to ensure conformance with the NRC-approved QAPD and commitments in the UFSAR. The inspectors also reviewed the following 4 procurement documents to determine whether measures were established to communicate technical and quality requirements, including the requirements of Appendix B to 10 CFR Part 50, 10 CFR Part 21, and the QAPD:

- purchase order 132177-J40000
- purchase order 132177-J700.09
- 1322177-E-C-00002
- 1322177-679043-0015

The inspectors reviewed several critical characteristics of the waterproof membrane materials to determine if the materials were evaluated and appropriately documented in accordance with the applicable procedures.

The inspectors reviewed a selected sample of implementing documents and purchase orders to determine whether the following requirements were addressed:

- procurement documents were prepared in accordance with implementing documents;
- services were purchased from qualified contractors;

- procurement documents contained requirements for the contractor to provide appropriate documentation of quality;
- procurement documents were maintained in a document control program; and
- specifications differing from the original design documents were reviewed and approved by qualified technical personnel.

The inspectors conducted interviews with licensee and contractor personnel responsible for initiating and approving quality-related procurement documents in order to determine whether activities were performed in accordance with applicable procedures.

The following inspection samples were completed:

- A4.03.02: 4 samples

b. Findings

No findings were identified.

.6 Appendix 5, Inspection of Criterion V – Instructions, Procedures, and Drawings

a. Inspection Scope

The inspectors walked down work activities ongoing in the modular assembly building and reviewed two work packages associated with those activities. The inspectors selected four welding procedures and the general welding specification from the work packages and verified that they were the current revisions.

The following inspection samples were completed:

- A5.03.02: 5 samples

b. Findings

No findings were identified.

.7 Appendix 6, Inspection of Criterion VI – Document Control

a. Inspection Scope

The inspectors reviewed applicable sections of the licensee and contractor QAPDs and document control procedures, actual controlled documents, and document review records to determine whether the licensee and its contractors had implemented processes and documents to address the review, approval, revision, and issuance of controlled documents. The inspectors reviewed work control packages for the reinforcing steel installation for the nuclear island basemat. The inspectors verified documents were handled and processed in accordance with approved procedures.

The inspectors interviewed responsible staff concerning the document control system. The inspectors interviewed field personnel to determine whether personnel using designated work packages had the most current controlled implementing documents needed to conduct the work activity to ensure consistency and technical adequacy. The

inspectors reviewed a selected sample of implementing documents to determine whether the following requirements were addressed:

- documents are reviewed for adequacy, completeness, and correctness by designated personnel other than the preparer of the documents;
- documents are approved by designated personnel other than the preparer of the documents;
- documents are approved for release by authorized personnel;
- documents are issued with a unique identification and revision status and placed under document control; and
- current revisions of documents are made available where the prescribed activity is being performed to ensure staff uses the most recent controlled documents.

The inspectors examined a list of controlled documents to determine whether the documents were controlled in accordance with approved procedures. The inspectors reviewed paper controlled documents to determine whether:

- documents were available to personnel electronically;
- paper copy documents were indicated as controlled copies; and
- controlled documents were reviewed and approved by the same organization that reviewed and approved the original document.

The inspectors reviewed a sample of two work packages to determine if the document evaluation list, technical document list, and impact evaluation lists were in compliance with work package control documents. The samples were reviewed to determine if the access to documents, the records of review, and any paper copy documents were indicated as controlled document at the work location. The samples included electronic and/or paper drawings, procedures, E&DCRS, N&Ds, and work packages along with master controlled lists of electronic and/or paper controlled documents. The inspectors performed this review to determine if:

- controlled documents had the proper documents and revisions listed and present in each work package;
- controlled documents were reviewed and approved by independent, authorized personnel;
- the reviews required by the implementing documents were conducted;
- documents were reviewed and approved by the same organization that originally reviewed and approved the documents unless otherwise noted; and
- the controlled installation documents were made available promptly to construction personnel.

The inspectors interviewed responsible Shaw field and administrative staff on the document control system. The inspectors also performed direct observation on the use of implementing procedures for document control; which included the responsible staff accepting and reviewing changes and updating affected work packages.

The inspectors reviewed the following work packages and documents that Shaw used to prescribe the activities affecting the quality of the installation activities:

- VS2-1000-CCW-005 (i) – “Nuclear Island Upper Mudmat Concrete;”

- VS2-1000-ATW-001 (i) – “Nuclear island Horizontal Waterproof Membrane Installation;”
- VS2-1210-CRW-009 – “Nuclear Island North Rebar Assembly;”
- NCSP 2-19-1 – “Work Package Planning, Development, Approval, and Closure;”
- CSI 2-19-6 – Work Package Planning, Development, Approval, and Closure;” and
- QS 10.66 - "Work Packaging."

The inspectors performed these reviews to determine if:

- controlling documents in the work package were adhered to by personnel performing activities affecting quality;
- installation documents were made available promptly to construction personnel; and
- whether all quality-affecting work was being conducted in accordance with current revisions of approved documents.

The inspectors also interviewed field personnel performing waterproofing membrane and rebar installation activities to determine if they had access to the current controlled implementing documents. The inspectors compared a sample of their paper field controlled documents that were maintained in the work package to the master list of controlled documents in Shaw’s electronic document management system to determine if the field personnel had the most current revisions.
The following inspection samples were completed:

- A6.03.01: 1 sample
- A6.03.02c: 4 samples
- A6.03.02.b: 2 samples
- A6.03.02.e: 1 sample

b. Findings

No findings were identified.

.8 Appendix 7, Inspection of Criterion VII – Control of Purchased Material, Equipment, and Services

a. Inspection Scope

The inspectors reviewed approved implementing procedures to verify the requirements of the NRC-approved QAPD and commitments in the FSAR were addressed. The inspection scope included a review of measures to determine acceptability of reinforcing steel and waterproofing membrane for the nuclear island basemat. Procedures for conducting receipt inspections were reviewed, receipt inspection personnel were interviewed, and records of completed receipt inspections were examined to determine adequacy of measures to verify:

- qualified licensee personnel conduct and document receiving inspection;
- general receipt inspection is performed;
- items are examined for conformance with requirements specified in the procurement documents;

- certification documentation of item; and
- purchased items delivered to the plant site met specified technical and quality requirements.

The inspectors reviewed the following audits that Shaw performed on their subcontractors who were approved to provide safety related services:

- Audit No. V2011-14, Audit of Mistras Group, Inc., providing NDE services related to module fabrication.
- Audit No. V2012-05, Audit of Mistras Group, Inc., providing NDE services related to module fabrication.
- Audit No. V2012-12, Audit of Mistras Group, Inc., providing NDE services related to module fabrication.
- Audit No. V2011-019, Audit of Gerdau, Inc. Duluth, GA Fabrication Facility, providing concrete reinforcing bar.
- Audit No. V2011-022, Audit of Gerdau, Inc. Jacksonville, FL Fabrication Facility, providing concrete reinforcing bar.

The inspectors verified that the audits were performed and documented in accordance with applicable procedural and quality assurance requirements. The inspectors also verified that the subcontractors were added to the Shaw approved supplier list after performance of an initial audit and with restriction in accordance with the audit findings, as applicable. The inspectors reviewed a sample of contractors that were recently reclassified by Shaw as not being approved to supply safety related products or services and verified that those contractors were removed from the most current approved supplier list.

The inspectors selected two quality related items being used in the modular assembly building and reviewed receipt inspection documents to verify that they were procured and received in accordance with applicable code and quality requirements. The items

selected were ER70S-2 weld filler metal heat ED033892 and weld backing bars heat JI4757.

The following inspection samples were completed:

- A7.03.02b: 5 samples
- A7.03.02d: 4 samples

b. Findings

No findings were identified.

.9 Appendix 7, Inspection of Criterion VII – Control of Purchased Material, Equipment, and Services

a. Inspection Scope

The inspectors reviewed an example of safety related items that were procured from contractors. The inspectors reviewed these samples of licensee inspections to determine whether they had adequately implemented the requirements of 10 CFR 50,

Appendix B, Criterion VII, “Control of Purchased Material, Equipment, and Services” as well as procedures QS 7.1, "Receiving Process" and QAD 7.14, "Receiving Inspection." Specifically, the inspectors reviewed the following documents to determine if they conformed to the above quality requirements, requirements specified in applicable procurement documents, and were tagged/marked as acceptable for use:

- VCS-ND-12-0362;
- VCS-ND-12-0419;
- Q445-12-0506, “Nuclear Island Basemat Embeds – Load 5;”
- VCS-RR-12-0122, Embeds for North NI Preassembly (Risk Release);
- PO 132177-D220.00; and
- PO VS2-SS01-Z0-003, Revision 2.

The following inspection samples were completed:

- A7.03.02d: 1 sample

b. Findings

Failure to Assure Safety-Related Materials Conformed to the Procurement Documents

Introduction: The inspectors identified a construction finding of very low safety significance (Green) and associated cited violation of 10 CFR 50, Appendix B, Criterion VII, Control of Purchased Material, Equipment, and Services, for the licensee’s failure to assure that material and equipment, purchased through contractors and subcontractors, conformed to procurement documents.

Description: While inspecting a basemat rebar storage area, the inspectors identified several released-for-use safety-related embed plates with studs whose welds were repaired but were not bent per AWS D1.1-2000, Structural Welding Code. Shaw purchase order 132177-D220.00 required compliance with Westinghouse design specification, APP-SS01-Z0-003, Embedded and Miscellaneous Steel, Westinghouse Safety Class C. This design specification required that concrete studs be applied in accordance with Section 7.8.1 of AWS D1.1-2000 which required any stud that was repaired by welding to be bent to an angle of approximately 15° from its original axis.

The inspectors identified weld-repaired nelson studs that were not bent to 15° as required by AWS D1.1-2000, Section 7.8.1. The licensee initiated VCS-ND-12-0419 and CR 0-L-2012-0583 to address this issue.

Analysis: The inspectors determined that the licensee’s failure to assure that purchased material and equipment conformed to procurement documents was contrary to the requirements of 10 CFR 50 Appendix B, Criterion VII and was a performance deficiency. This performance deficiency was determined to be more than minor because the issue, if left uncorrected, represented a failure to establish and implement and adequate program and quality oversight function that could render the quality of construction activities unacceptable or indeterminate.

The inspectors concluded that this finding was associated with the Procurement/Fabrication Cornerstone, in accordance with IMC 2519P. The inspectors determined the finding was of very low safety significance (Green) because the finding is

associated with a structure (Basemat) in the intermediate risk column of the risk importance table and impaired a portion of the structures design function and is not a repetitive significant condition adverse to quality.

In accordance with IMC 0613P, Appendix F, the inspectors determined that this finding has a cross-cutting aspect in the area of Baseline Inspection, Work Control (A.4.c), because the licensee did not ensure supervisory and management oversight of work activities, including contractors, such that construction quality was supported. Specifically, the licensee failed to assure that material procured by its contractor conformed to the procurement documents.

Enforcement: 10 CFR 50, Appendix B, Criterion VII, Control of Purchased Material, Equipment, and Services, states, in part, that "Measures shall be established to assure that purchased material…whether purchased directly or through contractors and subcontractors, conform to the procurement documents." Purchase Order 132177-D220.00 required compliance with AWS D1.1-2000, Section 7.8.1.

Contrary to the above, as of August 7, 2012, the licensee failed to assure that safety-related material conformed to the procurement documents. Specifically, the licensee failed to identify that embed plates did not conform to AWS D1.1-2000, Section 7.8.1.

This is a violation which has been evaluated under the risk significance determination process as having very low safety significance (Green). Because the licensee's corrective action program has not yet been demonstrated to be effectively implemented,

this violation is being cited in the enclosed Notice of Violation, consistent with the NRC Enforcement Policy (VIO 05200027/2012-004-004, Failure to Assure Safety-Related Material Conformed to the Procurement Documents)

This issue was entered into the corrective action program as VCS-ND-12-0419 and CR 0-L-2012-0583. Immediate corrective actions included complete inspection of all embed plates. One plate failed due to a cracked weld and six plates failed due to undersized welds. A planned corrective action was to have engineering disposition the seven failed welds.

.10 Appendix 8, Inspection of Criterion VIII – Identification and Control of Materials, Parts, and Components

a. Inspection Scope

The inspectors reviewed applicable sections of the licensee's QAPD, UFSAR, and the associated implementing documents concerning the identification and control of materials, parts, and components. The inspectors selected two samples of safety related items that were stored in the warehouse, staged and stored on site, or installed. The inspectors examined associated records and other documentation that identified these items, verified that the items were properly identified and controlled in accordance with implementing documents. The inspectors also verified that traceability of the items were consistent and accurate from receipt and identification of the item through installation.

The inspectors verified that item identification methods used physical markings to the maximum extent possible. Specifically, the inspectors reviewed the following documents to verify the licensee's identification and control of materials, parts, and components were consistent with applicable procedures:

- VS2-1000-ATW-001 (i) – “Nuclear Island Horizontal Waterproof Membrane Installation;”
- VS2-1210-CRW-009 – “Nuclear Island North Rebar Assembly;”
- VCS-ND-12-0362
- VCS-ND-12-0364
- VCS-ND-12-0419
- VCS-RR-12-0124

The inspectors observed material control activities for a sample of components maintained in the Units 2 basemat reinforcing steel laydown areas. The inspectors reviewed requirements of the NRC-approved QAPD and commitments in the FSAR to ensure appropriate implementing documents were developed. The inspectors reviewed the implementing documents and procedures to verify:

- markings maintained on items were traceable to item throughout fabrication and construction;
- markings were applied using materials and methods that provide a clear and legible identification, and do not adversely affect the function or service life of the item;
- markings or other means of identification ensured that only specified and accepted items are used to prevent use of incorrect or defective items; and
- methods used to indicate nonconforming items were tagged and segregated.

The following inspection samples were completed:

- A8.03.01: 1 sample
- A8.03.02: 2 samples

b. Findings

No findings were identified.

.11 Appendix 9, Inspection of Criterion IX – Control of Special Processes

a. Inspection Scope

The inspectors reviewed the licensee’s implementing documents for 10 CFR 50, Appendix B, Criteria 9, "Control of Special Processes” to determine if they were consistent with the NRC-approved QAPD and commitments in the UFSAR.

As described in Section 2503.11 of this report, the inspectors reviewed approved programs, procedures, and qualification records for special processes to be performed in the modular assembly building to verify they met the applicable code and quality requirements. For welding, to be performed by Shaw, the inspectors reviewed a sample of welding procedures, procedure qualification records, welder qualification records, and governing procedures & programs. For NDE to be performed by Mistras, the inspectors

reviewed a 100% sample of NDE procedures, NDE inspector qualification records, governing procedures & programs, and audits of Mistras by Shaw.

The inspectors reviewed the concrete batch plant laboratory certifications, laboratory personnel qualifications, equipment testing and calibration logs, batch plant operating procedures, and E&DCR's associated with the placement of the lower mud-mat of the nuclear island. The inspectors reviewed the certification for the control system operators of the batch plant to establish compliance with WEC design specification APP-CC01-Z0-027.

The inspectors observed concrete placement for the lower and upper mud-mat on the south end of the nuclear island and inspected in-process testing for slump, air content, unit weight, density, and concrete temperature. The inspectors observed concrete cylinder curing conditions, cylinder-break testing, and interviewed personnel associated with operation of the concrete batch plant testing laboratory to determine if the proper controls were being implemented as specified by applicable procedures.

The following inspection samples were completed:

- A9.03: 9 samples

b. Findings

No findings were identified.

.12 Appendix 10, Inspection of Criterion X – Inspection

a. Inspection Scope

The inspectors reviewed implementing documents to determine whether they were developed to address the QAPD requirements and FSAR commitments for conducting inspections of the horizontal installation of the waterproof membrane for Unit 2. Specifically, the inspectors reviewed work instructions and procedures to determine whether the licensee's documents established adequate measures to provide for the following:

- examinations and measurements for each work operation, where necessary;
- methods/documents used to perform inspections and document results;
- frequency or point of inspections;
- sampling requirements;
- acceptance criteria;
- qualified inspection personnel and those who perform and supervise the work;
- monitoring of process methods; and
- final inspection to verify conformance with acceptance criteria.

The inspectors evaluated a sample of inspection documentation for the waterproof membrane horizontal installation for Unit 2 that require inspection, and conducted the following:

- verified that inspections were performed by qualified individuals other than those who performed or directly supervised the work being inspected;

- confirmed the inspection of item was performed at required frequency for each work operation, as described in the implementing document;
- results were documented and complete; and
- both process and inspection monitoring were provided, where needed.

The following inspection samples were completed:

- A10.03.02: 2 completed inspection samples

b. Findings

No findings were identified.

.13 Appendix 12, Inspection of Criterion XII – Control of Measuring and Test Equipment

a. Inspection Scope

The inspectors examined measuring and test equipment in use for reinforcing bar installation by licensee personnel to determine if it met the requirements of the implementing documents, including:

- measuring and test equipment was calibrated within specified calibration interval;
- accuracy was within specified limits; and
- documentation and test/inspection results were traceable to measuring and test equipment being verified.

The following inspection samples were completed:

- A12.04.02: 1 sample

b. Findings

No findings were identified.

.14 Appendix 13, Inspection of Criterion XIII – Handling, Storage, and Shipping

a. Inspection Scope

During field installation activities, the inspectors observed material storage areas for both reinforcing steel and reinforcing steel couplers to determine if material was being stored in accordance with ASME NQA-1-1994, Subpart 2.2 “Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants.” Specifically, the inspectors walked down the storage area to determine whether:

- items were stored in an area marked and designated for storage;
- designated storage area was well drained;
- designated storage area was reasonably removed from the actual construction area and traffic; and
- items were stored on cribbing or equivalent.

The inspectors reviewed the following licensee QA implementing documents for storage, handling, and shipping of equipment, materials, and spare parts (collectively referred to as “items”):

- QS 13.11, “Material Receipt Storage and Control,” Rev. C;
- NPP 10-01, “Material Receipt Storage and Control,” Rev. 1; and
- SWSQAP Section 13, “Handling, Storage and Shipping.”

The inspectors observed the storage of safety related items, such as embed plates for Unit 2 nuclear island basemat and reinforcing steel for both the containment vessel bottom head and Unit 2 nuclear island basemat. The inspectors toured the site level D laydown areas to determine whether the items were being stored in accordance with NQA-1-1994, subpart 2.2, Level D storage requirements, such as:

- protection from physical and mechanical damage;
- outdoor areas were marked and designated for storage;
- areas were well drained with gravel covered areas; and
- items were stored on cribbing and not subject to trapping water.

The following inspection samples were completed:

- A13.03.02a: 2 samples
- A13.04.02: 1 sample

b. Findings

No findings were identified.

.15 Appendix 15, Inspection of Criterion XV – Nonconforming Materials, Parts, or Components

a. Inspection Scope

The inspectors reviewed applicable sections of the licensee’s QAPD, UFSAR and the associated implementing documents related to the control of nonconforming items.

The inspectors toured the onsite storage areas to determine whether the licensee implemented established measures for material segregation and controlling of non-conforming items. Specifically, the inspectors inspected the marking and segregation of nonconforming items to determine whether the items were:
placed in a designated area;

- tagged, marked, and labeled as nonconforming; and
- properly documented and communicated to the affected organizations.

The inspectors reviewed a sample of N&Ds to determine if the conditions were adequately reviewed and accepted, rejected, repaired, or reworked in accordance with documented procedures. The inspectors compared these N&Ds to Section 15, “Nonconforming Materials, Parts, or Components,” of the Shaw Nuclear Quality Assurance Program, SWSQAP 1-74A, procedure QS 15.1, “Nonconformance &

Disposition Report," Revision G, and procedure QS 15.3 "Risk Release of Unsat/Nonconforming Material/Equipment." Specifically, the inspectors reviewed the following N&Ds:

- VCS-ND-12-0362
- VCS-ND-12-0364
- VCS-ND-12-0398
- VCS-ND-12-0403
- VCS-ND-12-0419
- VCS-ND-12-0444
- VCS-ND-12-0511

The inspectors toured the onsite warehouse facilities and other onsite storage areas to determine if the licensee had identified, tagged, and established segregated areas for controlling non-conforming items.

The following inspection samples were completed:

- A15.03.01: 1 sample
- A15.03.02: 2 samples of controlling non-conforming materials
- A15.04.02: 1 sample

b. Findings

No findings were identified.

.16 Appendix 16, Inspection of Criterion XVI – Corrective Actions

a. Inspection Scope

The inspectors reviewed applicable sections of the licensee's QAPD, UFSAR and the associated implementing documents concerning identification, evaluation and resolution of conditions adverse to quality. The inspectors performed routine screening of issues entered into the licensee, Shaw, and WEC corrective action programs to determine if conditions adverse to quality were controlled in accordance with each company's quality assurance program and whether potential adverse trends were appropriately identified and corrected by the licensee or their contractors. Specifically, the inspectors screened items entered into the corrective action program by:

- attending weekly issue review committee meetings at the site;
- reviewing a sample of licensee, Shaw, and WEC corrective action documents; and
- interviewing licensee and Shaw personnel responsible for the screening and correction of the issues.
-

The inspectors selected samples of issues entered in the corrective action programs to determine if the handling of these issues were consistent with the applicable QAPD requirements; and 10 CFR 50, Appendix B. The inspectors reviewed the corrective action documents referenced above to determine if:

conditions adverse to quality were promptly identified and corrected;

- classification and prioritization of the resolution of the problem was commensurate with its safety significance;
- for significant conditions adverse to quality: (1) the cause was determined; (2) corrective actions were taken to prevent recurrence; and (3) the cause and corrective actions taken were documented and reported to appropriate levels of management
- conditions were appropriately screened;
- the organization properly evaluated and reported the condition in accordance with 10 CFR 50.55(e) and 10CFR21;
- the identification and correction of design deficiencies was being adequately addressed;
- extent of condition was being adequately addressed; and
- appropriate corrective actions were developed and implemented.

Specifically, the inspectors reviewed the following corrective action documents:

- CR L-12-0509
- CR L-12-0567
- CR L-12-0570
- CR L-12-0620
- CAR 2012-0886
- CAR 2012-0950
- CAR 2012-1045
- CAR 2012-1061
- CAR 2012-1237
- IR 12-216-M010

The following inspection samples were completed:

- A16.03.02: 2 samples
- A16.04.02: 1 sample

b. Findings

No findings were identified.

.17 Appendix 17, Inspection of Criterion XVII – Quality Assurance Records

a. Inspection Scope

The inspectors reviewed completed quality assurance records (such as surveillances, audits, work packages, drawings, and E&DCRs) to verify that the records were authenticated and that corrections to the records did not obscure original information on record. The inspectors visited both the on-site temporary and the main records storage areas and interviewed staff to determine if the licensee was storing quality assurance records in accordance with the UFSAR and the QAPD. The inspectors verified that:

- records (including in-process records and electronic records) were accessible to designated personnel;
- access to the facility by visitors was controlled;

- records were readily retrievable;
- records were protected from damage (such as from water and fire) and theft; and
- records temporarily removed from the storage facility were controlled.

The following inspection samples were completed:

- A17.03.02a: 2 samples
- A17.03.02b: 1 sample
- A17.03.02c: 1 sample

b. Findings

No findings were identified.

.18 Appendix 18, Inspection of Criterion XVIII – Audits

a. Inspection Scope

The inspectors reviewed three completed internal and five external audit and surveillance reports performed by the licensee and Shaw to determine if:

- the reports included a determination of effectiveness of implementation and compliance with the QAPD;
- the reports were reviewed by management responsible for audited area;
- the reports included a summary of identified deficiencies and non-conformances and a response due date;
- audit/surveillance findings corrected during audit were documented and verified during audit process; and
- auditors did not have direct responsibility in the areas that were audited and did not perform the work being audited.

The inspectors reviewed the following audits and surveillances:

- Shaw Surveillance S-132177-2011-051, Moisture Barrier Receipt Inspection;
- Shaw Surveillance S-132177-2012-070, AMEC Sampling;
- Shaw Surveillance S-132177-2012-100, Moisture Barrier Installation;
- Audit No. V2011-14, Audit of Mistras Group, Inc., providing NDE services related to module fabrication;
- Audit No. V2012-05, Audit of Mistras Group, Inc., providing NDE services related to module fabrication;
- Audit No. V2012-12, Audit of Mistras Group, Inc., providing NDE services related to module fabrication;
- Audit No. V2011-019, Audit of Gerdau, Inc. Duluth, GA Fabrication Facility, providing concrete reinforcing bar; and
- Audit No. V2011-022, Audit of Gerdau, Inc. Jacksonville, FL Fabrication Facility, providing concrete reinforcing bar.

The following inspection samples were completed:

- A.18.03.02: 3 internal audits and 5 external audits

OA3 Followup of Licensee Reports, NOVs, and Notices of Enforcement Discretion

.1 Unresolved Item 05200027/2012-003-001 (Closed)

a. Inspection Scope

As described in Section 2503.6 of this report, the inspectors reviewed the licensee's response to URI 5200027/2012-003-001 to determine if a violation of regulatory requirements existed. The inspectors compared the as-found specifications, drawings, and procedures against the requirements of the UFSAR and applicable codes to determine if the sub-modules conformed to the approved design.

b. Findings

One finding was identified by the inspectors as described in Section 2503.6 of this report. This URI is closed.

OA6 Meetings, Including Exit

On October 9, 2012, the inspectors presented the inspection results to Mr. R. Clary, Vice President - New Nuclear Deployment, along with other licensee and consortium staff members. The inspectors stated that no proprietary information would be included in the inspection report.

OA7 Licensee-Identified Violations.

The following violation of very low safety significance (Green) was identified by the Licensee and is a violation of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as a Non-Cited Violation.

.1 Construction Quality Assurance

10 CFR 50, Appendix B, Criterion VII, requires, in part, that measures be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. Contrary to the above, on August 14, 2012, the licensee identified that nuclear island prefabricated rebar procured by their contractor, Shaw, from Gerdau Steel was not fabricated to meet minimum bend diameters as required the procurement documents. This issue was screened to be of very low safety significance (Green). The violation was not greater than Green because the licensee demonstrated that the design function of the applicable structures or systems would not be impaired by the deficiency. Once identified, the licensee performed inspections of all affected rebar. The discrepant rebar was identified, tagged, and dispositioned as "scrap". The issue was documented in CAR 2012-1050 and ND-12-0398. The licensee also began the evaluation for potential reportability under 10CFR21 and 10 CFR 50.55(e). Because the licensee identified the issue, documented it into their corrective action program, and because the finding is of very low safety significance, this violation is being treated as a licensee identified violation (LIV 05200027/2012-004-005, Failure to Meet Rebar Minimum Bend Diameter) consistent with the NRC Enforcement Policy.

KEY POINTS OF CONTACT

Licensees and Contractor Personnel

Licensee Personnel
A. Paglia, Licensing Manager
A. Torres, General Manager of Construction
B. Stokes, General Manager of Engineering
K. Young, Construction Supervisor
L. Cunningham, Quality Systems Manager
P. Young, Consortium Design Engineering Manager
R. Clary, Vice President – New Nuclear Deployment
R. Jones, VP of Nuclear Operations
R. Thompson, ITAAC Supervisor
R. Ward, OD&P Manager

Westinghouse
B. Koons, Design Engineer
B. McIntyre, Consortium Licensing Director
G. Drake, Containment Vessel Program Manager
J. Cole, Licensing
R. Driscoll, Quality Assurance Manager
W. Macecevic, Site Operations Director

Shaw Nuclear Personnel
B. Fox, VP/Project Director
B. Mcclung, QC Manager
B. Wood, Engineering Manager
C. Castell, Licensing Manager
J. Johnson, QA Manager
M. Goyda, QC Engineering Manager
M. Griswold, Welding Manager

CB&I
B. Walsh, Quality Manager
P. Fleming, Project Manager

MISTRAS
S. Lippai, Quality Assurance

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05200027/2012-004-001	VIO	ITAAC Finding for Failure to Translate CA01 and CA20 Design Requirements Into Specifications and Drawings (Section 2503.6)
05200027/2012-004-002,	URI	Shear Stirrup Anchorage and Spacing in NI Basemat (Sections 2503.9 and 2503.12)
05200027/2012-004-003, 05200028/2012-004-003	VIO	Failure to Transfer Containment Coating Testing Requirements into Specifications (Section 4OA2.4)
05200027/2012-004-004	VIO	Failure to Assure Safety Related Materials Conformed to the Procurement Documents (Section 4OA2.9)

Closed

05200027/2012-003-001	URI	Maximum and Minimum Stud Spacing Requirements (Section 4OA3.1)

Opened and Closed

05200027/2012-004-005	LIV	Failure to Meet Rebar Minimum Bend Diameter (Section 4OA7.1)

LIST OF DOCUMENTS REVIEWED

Audits and Surveillances:
SCE&G Audit NND-AUD-201203-0, Corrective Action Program, April 26, 2012
Shaw Surveillance S-132177-2011-051, Moisture Barrier Receipt Inspection, May 15, 2012
Shaw Surveillance S-132177-2012-070, AMEC Sampling, March 13, 2012
Shaw Surveillance S-132177-2012-100, Moisture Barrier Installation, June 29, 2012

Corrective Action / Nonconformance Records:
0-L-12-0586
0-L-12-0608
0-L-12-0610
11-300-M020, APP-GW-Z0-604, Revision 5 items for clarification
AR-WSS-2012-3081-021, dated 6/28/12
CAP IR 11-300-M020, dated 7/21/2012
CAP IR 12-216-M010, dated 8/03/1012
CAR 2011-231
CAR 2012-0682
CAR 2012-0693
CAR 2012-0797
CAR 2012-0798
CAR 2012-0799
CAR 2012-0886
CAR 2012-0950
CAR 2012-0968
CAR 2012-0974
CAR 2012-0998
CAR 2012-1045
CAR 2012-1061
CAR 2012-1237
CR 0-L-12-0442
CR-2012-0499
CR L-12-0509
CR L-12-0567
CR L-12-0570
CR L-12-0620
IR 12-216-M010
N&D VCS-ND-12-0362
N&D VCS-ND-12-0364
N&D VCS-ND-12-0444
PIP 0-L-12-0424
PIP 0-L-12-0513
PIP 0-L-12-0515
PIP 0-L-12-0517
PIP 0-L-12-0518
VCS-ND-12-0362
VCS-ND-12-0398
VCS-ND-12-0403
VCS-ND-12-0419

VCS-ND-12-0511

CB&I Procedures:

CMS-164621-830-15-PR-000001, Post Weld Heat Treat Procedure Shell Course S1 Vertical Seams, Revision 1

CMS-830-15-PR-45162, Liquid Penetrant Examination, Color Contrast, Solvent Removable, ASME Section III, Division 1 – Subsection NE, Revision 1

CMS-830-15-WI-81026, Calibration of Temperature Recorders, Revision 1

Certified Material Test Reports (CMTRs):

CMTR 6033-1, Heat No. 5-3669, Lot No. GT077A, JFE Steel Corporation for SA-738 Grade B Hot Rolled Steel Plate Equipment Hatch Insert Plate dated 10/28/2010 (with 10.2 hrs PWHT specimens at 1141°F and furnace cooled)

CMTR 6033-8, Heat No. 6-1392, Lot No. LG057A, JFE Steel Corporation for SA-738 Grade B Hot Rolled Steel Plate Equipment Hatch Sleeve dated 10/28/2010 (with 10.2 hrs PWHT specimens at 1141°F and furnace cooled)

CMTR 6056-1, Heat No. 6-8563, Lot No. HX336A, JFE Steel Corporation for SA-738 Grade B Hot Rolled Steel Plate ID mark B2-A12-31 and -32 insert plates for mechanical penetrations P07 and P12, respectively, welded to the S1 shell plate B2-A12 and dated 10/28/2010 (with 10.2 hrs PWHT specimens at 1141°F and furnace cooled)

CMTR 6057-5, Heat No. 5-5154, Lot No. HY336A, JFE Steel Corporation for SA-738 Grade B Hot Rolled Steel Plate ID mark B2-A11 for S1 shell plate dated 10/28/2010 (2 pages with and without 10.2 hrs PWHT specimens at 1141°F and furnace cooled)

CMTR 6057-9, Heat No. 5-5154, Lot No. HP307A, JFE Steel Corporation for SA-738 Grade B Hot Rolled Steel Plate ID mark B2-A12 for S1 shell plate dated 10/28/2010 (with 10.2 hrs PWHT specimens at 1141°F and furnace cooled)CMTR 6164-12, Heat No. 4-0897, Lot No. EM279A, JFE Steel Corporation for SA-738 Grade B Hot Rolled Steel Plate ID mark B2-A4 for S1 shell plate dated 7/8/2011 (with 10.2 hrs PWHT specimens at 1141°F and furnace cooled)

CMTR 6057-10, Heat No. 5-5154, Lot No. HP303A, JFE Steel Corporation for SA-738 Grade B Hot Rolled Steel Plate ID mark B2-A5 for S1 shell plate dated 10/28/2010 (with 10.2 hrs PWHT specimens at 1141°F and furnace cooled)

CMTR 6164-12, Heat No. 4-0897, Lot No. EM279A, JFE Steel Corporation for SA-738 Grade B Hot Rolled Steel Plate ID mark B2-A4 for S1 shell plate dated 7/8/2011 (with 10.2 hrs PWHT specimens at 1141°F and furnace cooled)

CMTR G23719-032CM, Heat No. JOL4527, Piece No. AF72901, SEO Koatsu Kogyo Company, SA-350 Grade LF2 Class 1, Mechanical Penetration P07 Sleeve, 10/18/2011

CMTR G23719-033CM, Heat No. JOL4527, Piece No. AF73001, SEO Koatsu Kogyo Company, SA-350 Grade LF2 Class 1, Mechanical Penetration P12 Sleeve, 10/18/2011

CMTR G23719-036CM, Heat No. JOL4527, Piece No. AF73301, SEO Koatsu Kogyo Company, SA-350 Grade LF2 Class 1, Mechanical Penetration P27 Sleeve, 10/18/2011

CMTR G23719-037CM, Heat No. JOL4527, Piece No. AF73401, SEO Koatsu Kogyo Company, SA-350 Grade LF2 Class 1, Mechanical Penetration P28 Sleeve, 10/18/2011

CMTR G23719-049CM, Heat No. JOL4527, Piece No. AF74501, SEO Koatsu Kogyo Company, SA-350 Grade LF2 Class 1, Mechanical Penetration P06 Sleeve, 10/18/2011

CMTR G23719-050CM, Heat No. JOL4527, Piece No. AF74502, SEO Koatsu Kogyo Company, SA-350 Grade LF2 Class 1, Mechanical Penetration P10 Sleeve, 10/18/2011

CMTR G23719-051CM, Heat No. JOL4527, Piece No. AF74503, SEO Koatsu Kogyo Company, SA-350 Grade LF2 Class 1, Mechanical Penetration P38 Sleeve, 10/18/2011

CMTR G23726-001CM, Neat No. JOL4527, Piece No. AF73002, SEO Koatsu Kogyo Company, SA-350 Grade LF2 Class 1, Mechanical Penetration P05 Sleeve, 10/18/2011

CMTR G24888-001CM, Heat No. 706341, Piece No. AG06101, SEO Koatsu Kogyo Company, SA-182 Grade F304L, Mechanical Penetration P08 Sleeve, 7/18/2011
CMTR G24888-003CM, Heat No. 706341, Piece No. AG06103, SEO Koatsu Kogyo Company, SA-182 Grade F304L, Mechanical Penetration P37 Sleeve, 7/18/2011
CMTR G24888-004CM, Heat No. 706341, Lot No. AG06104, SEO Koatsu Kogyo Company, SA-182 Grade F304L, Mechanical Penetration P09 Sleeve, 7/18/2011
CMTR NS1462, Revision 03, Lot No. 985E, Lincoln Electric Company, Flux Cored Wire, 10/12/2010
CMTR OTTE5524, Heat No. F82A133, Coded No. DWD, Sumitomo Metal Industries, SA-312 Grade TP304L, Mechanical Penetration P10 Pipe (2” NPS of Sched. 80), 10/28/2010
CMTR OTTE5525, Heat No. F82A133, Coded No. DWE, Sumitomo Metal Industries, SA-312 Grade TP304L, Mechanical Penetration P06 Pipe (2” NPS of Sched. 160), 10/28/2010
CMTR C-560437, Heat ID C016247, Charlotte Steel Mill, A706 Grade 420, X25MM Rebar, Ship Date 10/24/11
CMTR C-560444, Heat ID C016253, Charlotte Steel Mill, A706 Grade 420, X25MM Rebar, Ship Date 10/24/11
CMTR C-560839, Heat ID C016251, Charlotte Steel Mill, A706 Grade 420, X25MM Rebar, Ship Date 11/2/11
CMTR C-560844, Heat ID C014992, Charlotte Steel Mill, A706 Grade 420, X19MM Rebar, Ship Date 11/02/11
CMTR C-561482, Heat ID C016249, Charlotte Steel Mill, A706 Grade 420, X25MM Rebar, Ship Date 11/28/11
CMTR C-567278, Heat ID C014984, Charlotte Steel Mill, A706 Grade 420, X19MM Rebar, Ship Date 5/16/12
CMTR C-568619, Heat ID C023464, Charlotte Steel Mill, A706 Grade 420, X19MM Rebar, Ship Date 6/22/12
CMTR C-570480, Heat ID C024661, Charlotte Steel Mill, A706 Grade 420, X19MM Rebar, Ship Date 8/14/12
CMTR C-571135, Heat ID C024663, Charlotte Steel Mill, A706 Grade 420, X19MM Rebar, Ship Date 8/28/12
CMTR J-672003, Heat ID J122470, Jacksonville Steel Mill, A706 Grade 420, X25MM Rebar, Ship Date 5/17/12CMTR J-679015, Heat ID J116377, Jackson Steel Mill, A706 Grade 420, X13MM Rebar, Ship Date 8/28/11
CMTR J-679015, Heat ID J116377, Jackson Steel Mill, A706 Grade 420, X13MM Rebar, Ship Date 8/28/11
CMTR K-563094, Heat ID K121522, Knoxville Steel Mill, A706 Grade 420, X29MM Rebar, Ship Date 6/26/12
CMTR K-565706, Heat ID K124486, Knoxville Steel Mill, A706 Grade 420, X29MM Rebar, Ship Date 8/28/12
CMTR K-565715, Heat ID K124486, Knoxville Steel Mill, A706 Grade 420, X29MM Rebar, Ship Date 8/29/12
CMTR V-694218, Heat ID V911774, Jackson Steel Mill, A706 Grade 420, X43MM Rebar, Ship Date 4/25/11

CMTR V-694360, Heat ID V911789, Jackson Steel Mill, A706 Grade 420, X43MM Rebar, Ship Date 4/27/11
CMTR V-694375, Heat ID V911772, Jackson Steel Mill, A706 Grade 420, X43MM Rebar, Ship Date 4/27/11
CMTR V-720249, Heat ID V911779, Jackson Steel Mill, A706 Grade 420, X43MM Rebar, Ship Date 6/21/12

CMTR V-724041, Heat ID V911772, Jackson Steel Mill, A706 Grade 420, X43MM Rebar, Ship Date 8/27/12

CB&I Welding Procedures:
WPS "TAU", Revision 1 dated 05/08/2012 for thermocouple attachment unit
WPS "Pin", Revision 1 dated 05/08/2012 for insulation pin welding gun

CB&I Welder/Operator Qualification Records:
Welder Qualification Records for Welder ID-No. 232338 for SMAW and machine FCAW
Welder Qualification Record for Welder ID-No. 3201351 for SMAW
Welder Qualification Record for Welder ID-No. 63011838 for machine FCAW

Conditional Releases
APP-MV50-GPY-002 Conditional release for coating specification APP-GW-Z0-604 Revision 5 – Dry emissivity Value

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APP-1000-GEF-005 Revision 0, Nuclear Island Basemat Reinforcement Clarifications
APP-CR01-GEF-005, Revision 0, Allowance for Mechanical Couplers Requiring Staggered Installation and Guidance for Weldable Coupler Testing and Qualifications
APP-GW-GEE-3105 Modification of design criteria to APP-GW-Z0-604 Revision 5 "Application of protective coatings to systems, structures, and components for the AP1000 plant"
VS2-1000-GEF-000002 Revision 0, NI Basemat Rebar Drawings
VS2-1000-GEF-000003 Revision 0, Coupler Stagger Dimension

Drawings:
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164621 Drawing 13, Sheet 1,Field Edge Preps & Weld Detail Main Shell, Revision 4
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APP-0000-C9-002, General Notes, Revision 4
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APP-1000-CR-903, Nuclear Island and Basemat Dowel Plan at Elevation 66'6" Shield Building South-West Quadrant, Revision 2
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APP-1210-CR-902, Auxiliary Building Basemat Reinforcement Sections EW and Details EL 66'-6", Revision 5
APP-1210-CR-903, Auxiliary Building Reinforcement Details Pit and Sump Area EL 66'-6", Revision 6
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CB&I, Drawing No. PCD2 Sheet 14, Revision 0 for Process Control of Shell S1 thru S4 Azimuth 270° to 0° weld map with welder's unique ID numbers and weld filler metal control ID for field weld "N"
IHI, Drawing No. 221A112, Revision 4 for Detail Drawing of Lower Ring B2/3-A12 Assemblies
VS2-0000-C9-001-R1, AP1000 Concrete General Notes
VS2-0000-C9-001-R2, AP1000 Concrete General Notes
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VS2-1000-C8H-800001-R0, Nuclear Island Basemat Bottom Reinforcement – Layer 1
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VS2-1210-CR-903-R3, Auxiliary Building Reinforcement Details Pit and Sump Area El. 66'-6"
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APP-0000-GEF-005 Revision 0, Incorporate DCP-3055 into APP-0000-C9-001
APP-0000-GEF-007 Revision 0, Rebar Terminator Head Size Requirements
APP-1000-GEF-005 Revision 0, Nuclear Island Basemat Reinforcement Clarifications
APP-1000-GEF-008 Revision 0, Revision to the Orientation of Basemat Rebar Layers 4 and 5
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APP-1000-GEF-022 Revision 0, Changes to Basemat Shear Reinforcement
APP-1000-GEF-023 Revision 0, Clarification of Development Length for Basemat Reinforcement
APP-1010-GEF-012 Revision 0, Clarification of Dowel Development Length
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APP-CA00-GEF-100003
APP-MV50-GEF-033 Change of the surface profile requirements for containment vessel coatings
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VS2-1000-GEF-000003 Revision 0, Coupler Stagger Dimension
VS2-1000-GEF-000015 Revision 0, NI Devel. Length Clarification
VS2-1000-GEF-000020 Revision 0, NI Coupler Locations
VS2-1000-GEF-000022 Revision 0, NI Layers 4 7 5 Coupler Locations
VS2-1100-GEF-00024, Revision 0
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VSG-VQS-GEF-000001, Revision 0

IHI Design Report:
ASME Data Report Form N-2 dated 2/09/2012 for S-1 course shell nuclear part B2-A4 (S/N IN-4791)

ASME Data Report Form N-2 dated 12/21/2011 for S-1 course shell nuclear part B2-A5 (S/N IN-4819)
ASME Data Report Form N-2 dated 12/21/2011 for S-1 course shell nuclear part B2-A12 (S/N IN-4820), includes mechanical penetrations P06 thru P10, P12, P37 and P38

Inspection Reports:
Q445-12-0506, "Nuclear Island Basemat Embeds – Load 5,"

Letters
ASM_CBI_000734 Carboline Testing Results – Westinghouse Purchase Agreements
ASM_CBI_000804 Retraction of letter ASM_CBI_000803, Response to RFI-MV50-095, Response to RFI-MV50-088
ASM_CBI_000875 Response to RFI-MV50-100, Content of Carboline deviation report-purchase agreement
ASM_CBI_000818 Change Notice 51 to purchase agreement
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100-MT-302, Magnetic Particle Examination in Accordance with AWS Structural Steel Welding Code, Revision 2
100-PT-304, Liquid Penetrant Examination In Accordance with the AWS Structural Steel Welding Code Revision 1
100-QAP-001, Quality Assurance Manual, Revision 4
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14217 Calibration Record, Data Acquisition Recorder (DAQ4) 7/11/12
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164621 Drawing FS4012 sheet 1, CB&I Roller Cage AP1000 130' Containment Vessel, Revision 0
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APP-GW-GEE-2995,
APP-GW-GEE-3413, Revisions to NI Basemat Reinforcing Drawings
APP-GW-T2R-013 AP1000 containment vessel coating test report Summary Revision 0
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Calibration Record, Extech 401027 Foot Candle Light Meter, ID# Q559078, 2/6/12
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Calibration Record, Panametrics MG2 – Digital UT Thickness Gauge, ID# 100833511, 8/8/12
Calibration Record, Fluke 62 Infrared Thermometer, ID# 16032703, 6/5/12
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CB&I Pre-Heat – Interpass Monitoring Log – Traveler System for Traveler Set B2A-S1-D
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Certificate of Conformance, Thermal Couple Calibration Limits, 5/21/12
Certification of Heat Treatment Technician - Nuclear for William F. Walsh 3/27/12
Certification of Inspection and Test Personnel for Joseph A. Cournoyer, 6/9/2012
Certification summary / records for Mistras NDE examiners IDs: 2290, 8160, 5585, 0302, 0365
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DN NC WSS-2012-3081-020, Deviation Notice for Coatings, Revision 1
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Heat Treatment Application Program Certification, Chris Hewitt 5/9/2012
Heat Treatment Application Program Certification, Mark Webb 5/9/2012
Heat Treatment Application Program Certification, Mike Day 5/9/2012
Inspection Plan F-C112-001, Preassembly of Nuclear Island Reinforcing Steel, Revision 3
IR C112-12-0140, Preassembly of Nuclear Island Reinforcing Steel Layer 1 and 2 North
IR S511-12-0050, Quality Assurance Inspection Report, Type A
MT-004-BP-WB2-P05-N, Magnetic Particle Examination Record, CV Lower Ring Penetration Block, Before PWHT, 9/26/11
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MT-004-BP-WB2-P027-N, Magnetic Particle Examination Record, CV Lower Ring Penetration Block, Before PWHT, 9/26/11
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MT-004-BP-WB2-P28-N, Magnetic Particle Examination Record, CV Lower Ring Penetration Block, Before PWHT, 9/26/11
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MT-004-BP-WF12-A-N, Magnetic Particle Examination Record, Lower Equipment Hatch Insert, Before PWHT, 7/7/11
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Q445-12-0506, “Nuclear Island Basemat Embeds – Load 5,”
Quality Assurance Records Package, CA 20-02 QA Records Package Wall Sub-Module CA 20-02 VC Summer Unit 2 Books 1 thru 3, Certificate of Conformance, Date 3/17/2012, PO # 527363
Quality Assurance Records Package, CA 20-03 QA Records Package Wall Sub-Module CA 20-03 VC Summer Unit 2 Book 1
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Receipt inspection report Q445-12-0235, Sub-module backing bar material Heat# J14757
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Record of training for WPS PIN and WPS TAU for Mark Webb 7/10/12
Record of training for WPS PIN and WPS TAU for Mike Day 7/10/12
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S-132177-2012-125 - Survey of the Unit 2 Nuclear Island Upper Mudmat by Shaw
SCE&G 2011/2012 QA Surveillance Schedule
SCE&G 2012/2013 Audit Schedule
Selected Delegation of Signature Authorities
Shaw Calibration Checklist, 22486-11, Batch Plant Water Scale, 8/31/12
Shaw Calibration Checklist, 22487-11, Batch Plant Aggregate Scale, 8/31/12
Shaw Calibration Checklist, 22488-11, Batch Plant Cement Scale, 8/31/12
Shaw Calibration Checklist, 22489-7, Batch Plant Ice Scale, 8/31/12

Shaw Calibration Checklist, QC25000-6, Batch Plant Ice Scale, 8/31/12
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Traveler B2A-S1-N PWHT Revision 0
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Traveler B2A-S1-F-H02
TR63594-12N-AGRU, Supplemental Report for Waterproofing Membrane Material Testing Performed by Agru America

VCS-RR-12-0122, Embeds for North NI Preassembly (Risk Release)
VCS-RR-12-0124, Unit 2 NI Fill Placement (Risk Release)
VSG-AT01-8000000, Final Summary Report for the Qualification, Dedication and Procurement for VC Summer Units 2 & 3 Nuclear Island Waterproof Membrane Material
Weld Record 120027
Welding Procedure WPS2-1.1-M71 Revision 0
WQ-1, Qualification of Welders and Welding Operators, Revision 1
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Welder Qualification Record for Welder ID-No. 3201351 for FCAW
Welder Qualification Record for Welder ID-No. 63011838 for FCAW
Welding Procedure WPS2-1.1-M71 Revision 0
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WSS 7171521312 Surface Temp meter Calibration 2/15/12
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Nondestructive Examination Records:
“Visual Acuity and Shades of Gray Discrimination Test” records for the NDE-PT Level II QC Inspector-728683
VCS-U2-2012-PT-011, Liquid Penetrant Examination Report after PWHT for field weld “N”
VCS-U2-2012-RT-068, Radiographic Examination Report and X-ray films for Unit 2 Containment Vessel Bottom Head P11 full transfer tube penetration insert plate to shell
VCS-U2-2012-RT-071, Radiographic Examination Report and X-ray films for Unit 2 Containment Vessel Bottom Head BH1 longitudinal seam Joint “A”
VCS-U2-2012-RT-080, Radiographic Examination Report and X-ray films for Unit 2 Containment Vessel Bottom Head BH1 to BH2 circumferential weld

VCS-U2-2012-RT-083, Radiographic Examination Report and X-ray films before PWHT for field weld “N”
VCS-U2-2012-RT-091, Radiographic Examination Report and X-ray films after PWHT for field weld “N”

Procedures:
100-MT-302, Magnetic Particle Examination in Accordance with AWS Structural Steel Welding Code, Revision 2
100-PT-304, Liquid Penetrant Examination In Accordance with the AWS Structural Steel Welding Code Revision 1
100-UT-310, Ultrasonic Examination of Welds in Accordance with AWS Structural Welding Code D1.1, Revision 3
100-QAP-001, Quality Assurance Manual, Revision 4
100-QC-005.2, Qualification and Certification of Nondestructive Test Personnel, Revision 2
APP-GW-GAP 140, AP1000 Licensing Applicability Determination and 10 CRF 50.59 / 10 CFR 52 Appendix D Section VIII Screening, Revision 0
APP-GW-GAP 142, AP1000 10 CFR Appendix D Section VIII Processes for Changes and Departures Evaluations, Revision 0

APP-GW-GAP 147, AP1000 Current Licensing Basis Review, Revision 0
APP-GW-GAP-420, “Engineering and Design Coordination Report,” Revision 6
CMS-164621-830-15-PR-000001, Post Weld Heat Treat Procedure Shell Course S1 Vertical Seams Revision 1
CMS 164621-830-17-W1-000001, Fitting Instructions for S1 course Vertical seams 7/2/12
CMS-720-03-PR-09651, Preheat / Interpass Temperature Control, Revision 3, 7/26/11
CMS-830-15-PR-45154, Radiographic Examination ASME Section III, Division 1 – Subsection NE, Revision 1
CMS-830-15-PR-45162, Liquid Penetrant Examination, Color Contrast, Solvent Removable, ASME Section III, Division 1 – Subsection NE, Revision 1
CMS-830-15-WI-81025 Calibration of Millivolt Potentionometers used for Temperature Measurements Revision 1
CMS-830-15-WI-81026, Calibration of Temperature Recorders Revision 1
CSI 2-19-6, Work Package Planning, Development, Approval, and Closure - Construction Site Instruction
CSI 3-30-3, Batch Plant and Delivery Equipment – Testing, Calibration, and Certification, 3/5/12
CSI 3-31-3, Concrete Batch Plant Operations, 4/10/12
CSI 3-32-3, Concrete Batch Plant Mix and Material Control, 3/9/12
CSI 3-33, Concrete Field Testing and Curing Records, Revision 2
CSI 3-34, Concrete Pumping Correlation Testing, Revision 0
CSI 3-35, Concrete Strength (Maturity Method) Estimating, Revision 0
CSI 3-36, Field Adjustment of Fresh Concrete, Revision 0
F-C111-003, Aggregate Testing, Revision 2
F-Q445-04, Receipt Inspection – Modules- Structural
FMC-1, Filler Metal Control, Revision 2
NCSP 2-16-2, Construction Documents, Records Management and Control
NCSP 2-19-1, Work Package Planning, Development, Approval, and Closure - Nuclear Construction and Startup Procedure
NCSP 3.23, Waterproof Membrane
NCSP 3.42.1, Reinforcing Steel Installation

NEPP 4-13-3, Engineering and Design Coordination Report, Revision 3
NND-AP-0203, 50.59/52 Appendix D Section VIII Change Review
NPP 10-01, Material Receipt Storage and Control, Revision 1
PP-5-6, VC Summer Licensing Applicability Determination and 50.59/52 Screening, Revision 0
PRIMP-00010, Construction Site Document Control, Revision 0
QAD 2.15, Qualification and Certification of Inspection and Test Personnel, Revision F
QAD 7.1, Inspection Report System for Procurement Quality Assurance Source Inspection – Type “B” IR
QAD 7.14 "Receiving Inspection"
QAD 10.68, Inspection Planning, Revision A
QAD 11.2, Testing of Concrete, Grout, and Soils, Revision G
QAD 14.1 Inspection Report System Type “A” Inspection Report
QAD 18.1, Quality Assurance Audits, Revision 1
QS 3.1 Revision A.1- TCN – Standard QA Program Requirements in Specifications and Engineering Services Scope of Work (ESSOW)
QS 6.1, Document Control, Revision J
QS 7.1 "Receiving Process"
QS 10.66, Work Packaging
QS 13.11, Material Receipt Storage and Control, Revision C
QS 15.1, Nonconformance & Disposition Report, Revision G

QS 15.3, Risk Release of Unsat/Nonconforming Material/Equipment
QS 17.1, Quality Assurance Records System, Revision G
QSI 10.3, Inspection Plans
QSI 10.67, Inspection Planning System
QSI 11.1, Testing of Reinforcing Bars, Mechanical Splices, and Sampling and Testing of Concrete, and Concrete Related Materials, Revision 1
SWSQAP Section 10 "Inspection"
SWSQAP Section 14 "Inspection, Test and Operating Status)
WEC 3.4.1, Change Control for the AP1000 Program Revision 0
WQ-1, Qualification of Welders and Welding Operators, Revision 1

RFIs:
MV50-086, Paint Specification straight line technique clarification, 4/23/2012
MV50-087, WEC paint specification clarifications, 4/23/2012
MV50-089, Epoxy Top Coat color/gloss retention & chalking, 5/2/2012
MV50-096, CV coating map, 5/1/2012
MV50-095, clarification on bottom head penetration block out area for painting, 5/12/2012
MV50-100, content of carboline deviation report, 6/20/2012
RFI-MV50-082, Carboline coating products – purchase agreements
RFI APP-CA20-GF-454
RFI SMS-GA20-000335

Specifications:
APP-CR01-Z0-011 Furnishing of safety related reinforcing steel
APP-CC01-Z0-026 Safety related mixing and delivering concrete, Westinghouse safety Class C
APP-CC01-Z0-027 Safety related concrete testing services, Westinghouse safety Class C

APP-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel, Westinghouse Seismic Category I Safety Class C “NUCLEAR SAFETY” Revision 2, 12/21/11
APP-CR01-Z0-010, Specification for Supply and Installation of Mechanical Splices for Reinforcing Steel, Revision 6, 4/19/11
APP-CR01-Z0-011, Furnishing of Safety Related Reinforcing Steel, Westinghouse Safety Class C “NUCLEAR SAFETY RELATED” Revision 4, 8/11/2011
APP-CC01-Z0-031, Safety Related Placing Concrete and Reinforcing Steel, Westinghouse Seismic Category I Safety Class C “NUCLEAR SAFETY” Revision 2, 12/21/11
APP-GW-T2R-013, AP1000 Containment Vessel Coating Test Report Summary
APP-GW-Z0-604, Application of protective coatings to systems, structures, and components for the AP 1000 reactor plant
APP-GW-Z0-604 Coating Design Specification Revision 5
APP-GW-Z0-604 Coating Design Specification page 16, Revision 6
APP-CA20-S5Y-00001, Structural Module CA20 General Notes
APP-CA20-S5Y-00002, Structural Module CA20 General Notes
APP-CA20-S5Y-00002A, Structural Module CA20 General Notes
APP-CA20-S5Y-00003, Structural Module CA20 General Notes
APP-CA20-S5Y-00004, Structural Module CA20 General Notes
APP-CA20-S5Y-00005, Structural Module CA20 General Notes
APP-MV50-Z0-001, Containment Vessel Design Specification, Revision 7, 1/14/10
CB&I WPS TAU TC Capacitor discharge 5/08/2012
CB&I WPS PIN, insulation pin capacitor discharge 5/8/2012

GWS-2, AWS D1.1 – Structural Steel, General Welding Specification, Revision 1
QS 12.1, “Shaw Nuclear Calibration Program”, Revision G
VSG-AT01-VVR-800000, VC Summer Unites 2 & 3 Nuclear Island Waterproof Membrane Summary of Supplemental Testing, Revision 0
VSG-AT01-Z0-800000, Waterproofing Membrane Installation (Horizontal Application), Revision 3
VSG-CC01-T3C-800021, (AMEC) VC Summer Units 2 & 3 Field and Periodic Laboratory Testing Services Work Plan, Revision 4
VSG-AT01-Z0-8000000, Waterproofing Membrane Installation (Horizontal Application), Revision 2
VSG-CC01-T3C-800021, (AMEC) VC Summer Units 2 & 3 Field and Periodic Laboratory Testing Services Work Plan, Revision 4
VS2-CC01-Z0-026, Safety Related Mixing and Delivering Concrete Design Specification, Revision 3, 8/2/12
VS2-CC01-Z0-027, Safety Related Concrete Testing Services Design Specification, Revision 3, 8/1/12
WPS E9018M-H4 R, Welding Procedure Specification, Revision 6, 5/23/12
WPS E91TG-H4, Welding Procedure Specification, Revision 4, 2/6/12 - delete

Test Reports:
(NTS) Test Procedure TP63594-12N, Initial Qualification Program for Laboratory Testing of Various Membrane Systems
(NTS) Test Procedure TP63594-12N-Addendum II, Supplemental Testing For Waterproofing
(NTS) Test Procedure TP63594-12N-DED, Dedication Program for Waterproof Membrane Materials

Work Packages
CA20 SA1 Wall Submodule Assembly 1, 2, 3, 4, 5, 6, 7, 8
VS2-1000-ATW-001 (i) - Nuclear Island Horizontal Waterproof Membrane Installation
VS2-1000-CCW-003, NI Backfill Concrete
VS2-1000-CCW-005 (i) - Nuclear Island Upper Mudmat Concrete
VS2-1000-CRW-001 Revision 1, Nuclear Island Stick Built Rebar
VS2-1210-CRW-009 Revision 1, Reassembly of the Nuclear Island North Assembly
VS2-1210-CRW-010 Revision 1, Reassembly of the Nuclear Island South Assembly

LIST OF ACRONYMS

10CFR	Title 10 of the Code of Federal Regulations
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ASME	American Society of Mechanical Engineers
AWS	American Welding Society
CAR	Corrective Action Report
CB&I	Chicago Bridge and Iron
CMTR	Certified Material Test Report
CR	Condition Report
E&DCR	Engineering and Design Coordination Reports
FCAW	Flux-Cored Arc Welding
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
ITAAC	Inspections, Tests, Analysis, and Inspection Criteria
N&D	Nonconformance and Disposition Report
NDE	Nondestructive Examination
NOV	Notice of Violation
NQAM	Nuclear Quality Assurance Manual
NRC	Nuclear Regulatory Commission
PIP	Primary Identification Program
PT	Liquid Penetrant Examination
PWHT	Postweld Heat Treatment
QAPD	Quality Assurance Program Document
QC	Quality Control
SDP	Significance Determination Process
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VIO	Cited Violation
WEC	Westinghouse Electric Company
WPS	Welding Procedure Specification