



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

November 14, 2012

Mr. B. L. Ivey
Vice President, Regulatory Affairs
Southern Nuclear Operating Company
P.O. Box 1295
Bin B022
Birmingham, AL 35201

SUBJECT: SOUTHERN NUCLEAR OPERATING COMPANY VOGTLE ELECTRIC
GENERATING PLANT UNITS 3 AND 4 - NRC INTEGRATED INSPECTION
REPORTS 05200025/2012-004, 05200026/2012-004, AND NOTICE OF
VIOLATION

Dear Mr. Ivey:

On September 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant (VEGP) Units 3 and 4. The enclosed inspection report documents the inspection results, which were discussed on October 4, 2012, with Mr. Chuck Pierce, Southern Nuclear Operating Company AP1000 Licensing Manager, 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 two (2) 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 Vogtle Electric Generating Plant Units 3 and 4.

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 Vogtle Electric Generating Plant Units 3 and 4.

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.: 05200025, 05200026

License Nos: NPF-91 (Unit 3), NPF-92 (Unit 4)

Enclosure: Inspection Report 05200025/2012004 and 05200026/2012004
w/Attachment: Supplemental Information

cc w/encl: *See Attached*

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 Vogtle Electric Generating Plant Units 3 and 4.

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.: 05200025, 05200026

License Nos: NPF-91 (Unit 3), NPF-92 (Unit 4)

Enclosure: Inspection Report 05200025/2012004 and 05200026/2012004
 w/Attachment: Supplemental Information

cc w/encl: *See Attached*

PUBLICLY AVAILABLE
 NON-PUBLICLY AVAILABLE
 SENSITIVE
 NON-SENSITIVE
 ADAMS: Yes
 ACCESSION NUMBER: ML12319A458
 SUNSI REVIEW COMPLETE
 FORM 665 ATTACHED

OFFICE	RII:DCP	RII:DCP	RII:DCP	RII:DCI	RII:DCI	RII:DCI	
SIGNATURE	CBA1 via email	CKH1 via email	JDF via email	ECM2	JXH13 via email	EXR4 via email	
NAME	C. Abbott	C. Huffman	J. Fuller	E. Michel	J. Heisserer	E. Heher	
DATE	11/01/2012	11/01/2012	11/01/2012	11/08/2012	11/08/2012	11/11/13/2012	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	
OFFICE	RII:DRS	RII:DCI	RII:DCP	RII:DCI	RII:DCI	RII:DCI	RII:DCI
SIGNATURE	RML1 via email	SEA1 via email	SLL1	DJS3 via email	SPS2 via email	ADM2 via email	CNO1 via email
NAME	R. Latta	S. Alexander	S. Lewis	J. Seat	S. Smith	A. Masters	C. Oelstrom
DATE	11/08/2012	11/02/2012	11/07/2012	11/02/2012	11/08/2012	11/06/2012	11/13/2012
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
OFFICE	RII:DCP	RII:DCP					
SIGNATURE	GJK3 for JXK1	GJK3					
NAME	J. Kent	G. Khouri					
DATE	11/13/2012	11/13/2012					
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

cc w/encls:

Resident Manager
Oglethorpe Power Corporation
Alvin W. Vogtle Nuclear Plant
7821 River Road
Waynesboro, GA 30830

Office of Attorney General
Law Department
132 Judicial Building
Atlanta, GA 30312

Lucious Abram
Commissioner -
Burke's County Commissioner
P. O. Box 1626
Waynesboro, GA 30830

Anne F. Appleby
Oglethorpe Power Corporation
2100 East Exchange Place
Tucker, GA 30084

Ms. Michele Boyd
Legislative Director
Energy Program
Public Citizens Critical Mass Energy
and Environmental Program
215 Pennsylvania Avenue, SE
Washington, DC 20003

County Commissioner
Office of the County Commissioner
Burke County Commission
Waynesboro, GA 30830

Director
Consumer's Utility
Counsel Division
Governor's Office of Consumer Affairs
2 Martin Luther King, Jr. Drive
Plaza Level East, Suite 356
Atlanta, GA 30334-4600

Mr. James C. Hardeman
Environmental Radiation Program Manager
Environmental Protection Division
Georgia Dept. of Natural Resources
4220 International Pkwy, Suite 100
Atlanta, GA 30354-3906

Lisa Higdon
Southern Nuclear Op. Co.
Document Control Coordinator
42 Inverness Center parkway
Attn: B236
Birmingham, AL 35242

Rita Kilpatrick
250 Arizona Ave.
Atlanta, GA 30307

Stephen E. Kuczynski
Chairman, President and CEO
Southern Nuclear
P.O. Box 1295
Birmingham, AL 35201

Mr. Reece McAlister
Executive Secretary
Georgia Public Service Commission
Atlanta, GA 30334

Mr. Joseph A. (Buzz) Miller
Executive Vice President
Southern Nuclear Operating Company
241 Ralph McGill Blvd.
BIN 10240
Atlanta, GA 30308-3374

Resident Inspector
Vogtle Plant
8805 River Road
Waynesboro, GA 30830

(cc w/encl continued)

Elaine Sikes
Burke County Library
130 Highway 24 South
Waynesboro, GA 30830

Mr. Jerry Smith
Commissioner
District 8
Augusta-Richmond County Commission
1332 Brown Road
Hephzibah, GA 30815

Gene Stilp
1550 Fishing Creek Valley Road
Harrisburg, PA 17112

Mr. Robert E. Sweeney
IBEX ESI
4641 Montgomery Avenue
Suite 350
Bethesda, MD 20814

George B. Taylor, Jr.
2100 East Exchange Pl
Atlanta, GA 30084-5336

Email

agaughtm@southernco.com (Amy Aughtman)
agbaker@southernco.com (Ann Baker)
anfauk@southernco.com (Nicole Faulk)
APH@NEI.org (Adrian Heymer)
awc@nei.org (Anne W. Cottingham)
Bill.Jacobs@gdsassociates.com (Bill Jacobs)
blivey@southernco.com (Pete Ivey)
bob.masse@opc.com (Resident Manager)
bobbie@wand.org (Bobbie Paul)
BrinkmCB@westinghouse.com (Charles Brinkman)
bwwaites@southernco.com (Brandon Waites)
chmahan@southernco.com (Howard Mahan)
crpierce@southernco.com (C.R. Pierce)
cwaltman@roe.com (C. Waltman)
dahjones@southernco.com (David Jones)
danawill@southernco.com (Dana Williams)
david.hinds@ge.com (David Hinds)
david.lewis@pillsburylaw.com (David Lewis)
david.siefken@hq.doe.gov (David Siefken)
dlfulton@southernco.com (Dale Fulton)
ed.burns@earthlink.net (Ed Burns)
edavis@pegasusgroup.us (Ed David)
enweathe@southernco.com (Beth Thomas)
erg-xl@cox.net (Eddie R. Grant)
G2NDRMDC@southernco.com (SNC Document Control)
james1.beard@ge.com (James Beard)
jamiller@southernco.com (Buzz Miller)
jbtomase@southernco.com (Janice Tomasello)
jenmorri@southernco.com (Jennifer Buettner)
jim.riccio@wdc.greenpeace.org (James Riccio)
jim@ncwarn.org (Jim Warren)
jlpember@southernco.com (John Pemberton)
Joseph_Hegner@dom.com (Joseph Hegner)
jrjohnso@southernco.com (Randy Johnson)
jtdavis@southernco.com (Jim Davis)
jtgasser@southernco.com (Jeffrey Gasser)
karen.patterson@ttnus.com (Karen Patterson)
kim.haynes@opc.com (Kim Haynes)
KSutton@morganlewis.com (Kathryn M. Sutton)
kwaugh@impact-net.org (Kenneth O. Waugh)
lchandler@morganlewis.com (Lawrence J. Chandler)
maria.webb@pillsburylaw.com (Maria Webb)
mark.beaumont@wsms.com (Mark Beaumont)
markus.popa@hq.doe.gov (Markus Popa)

matias.travieso-diaz@pillsburylaw.com (Matias Travieso-Diaz)
mdrauckh@southernco.com (Mark Rauckhorst)
media@nei.org (Scott Peterson)
mike.price@opc.com (M.W. Price)
mike_moran@fpl.com (Mike Moran)
MSF@nei.org (Marvin Fertel)
nirsnet@nirs.org (Michael Mariotte)
nlhender@southernco.com (Nancy Henderson)
NuLaw@mindspring.com (Robert Temple)
patriciaL.campbell@ge.com (Patricia L. Campbell)
Paul@beyondnuclear.org (Paul Gunter)
pbessette@morganlewis.com (Paul Bessette)
rhenry@ap.org (Ray Henry)
RJB@NEI.org (Russell Bell)
sabinski@suddenlink.net (Steve A. Bennett)
sblanton@balch.com (Stanford Blanton)
sfrantz@morganlewis.com (Stephen P. Frantz)
sjackson@meagpower.org (Steven Jackson)
sroetger@psc.state.ga.us (Steve Roetger)
stephan.moen@ge.com (Stephan Moen)
taterrel@southernco.com (Todd Terrell)
tcmoorer@southernco.com (Thomas Moorer)
Tom.Bilik@nrc.gov (Thomas Bilik)
tomccall@southernco.com (Tom McCallum)
Vanessa.quinn@dhs.gov (Vanessa Quinn)
Wanda.K.Marshall@dom.com (Wanda K. Marshall)
wasparkm@southernco.com (Wesley A. Sparkman)
whelmore@aol.com (Bill Elmore)

Letter To B. L. Ivey from Micheal E. Ernstes dated November 14, 2012

SUBJECT: SOUTHERN NUCLEAR OPERATING COMPANY VOGTLE ELECTRIC
GENERATING PLANT UNITS 3 AND 4 - NRC INTEGRATED INSPECTION
REPORTS 05200025/2012-002 AND 05200026/2012-002

Distribution w/encl:

Region II Regional Coordinator, OEDO (M. Kotzalas)

M. Brown, NRO

T. Kozak, NRO

M. Tonacci, NRO

R. Joshi, NRO

J. Munday, RII

R. Haag, RII

C. Ogle, RII

J. Yerokun, RII

M. Ernstes, RII

S. Freeman, RII

C. Evans, RII

K. O'Donohue, RII

G. Khouri, RII

J. Kent, RII

J. Fuller, RII

C. Abbott, RII

C. Huffman, RII

ConE_Resource@nrc.gov

NRO_cROP_Resource@nrc.gov

PUBLIC

NOTICE OF VIOLATION

Southern Nuclear Operating Company, Inc. (SNC)
Vogtle Electric Generating Plant (VEGP) Unit 3

Docket Number: 05200025
License Number: NPF-91

During an NRC inspection conducted between July 1 and September 30, 2012, two 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 Vogtle Units 3 and 4 Updated Final Safety Analysis Report (UFSAR) required that Seismic Category I Structural Submodules, CA20-04, CA20-07A, CA20-08A, 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 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 ACI 349-01, and AISC N690-94 into specifications, drawings, and instructions for the design and fabrication of Seismic Category I Structural Submodules CA20-04, CA20-07A, CA20-08A, CA20-29, and CA01-24:

- a. The licensee failed to properly translate design requirements into design drawings which resulted in Seismic Category I Structural Submodules CA20-07A and CA20-08A containing shear studs that did not meet minimum concrete cover requirements as specified in ACI 349-01. Specifically, ACI 349-01 required minimum concrete cover of 0.75 inches; however, the as-built Submodules CA20-07A and CA20-08A contained a concrete cover of less than 0.75 inches.
- b. The licensee failed to properly translate design requirements into design drawings, which resulted in Seismic Category I Structural Submodule CA20-04 containing shear studs that exceeded the maximum design spacing as specified by UFSAR, Figure 3.8.3.8, Sheet 1 of 3. Specifically, seven shear studs that were required in the approved design in the UFSAR were not included in Westinghouse drawing APP-CA20-S5-04004. As a result, the as-built configuration of Submodule CA20-04 failed to meet UFSAR maximum shear stud spacing requirements due to the omission of the seven shear studs.
- c. 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, inspectors identified 5/8 inch shear studs located approximately 8 inches away from the plate edge for the CA01-24 submodule. Once the adjacent submodule has been 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.

- d. The licensee failed to properly translate design requirements into design specifications and drawings which resulted in Seismic Category I Structural Submodule CA20-04 containing embedded conduit that violated the minimum spacing requirements set forth in ACI 349-01. Specifically, ACI 349-01 required that embedded conduit not be spaced closer than three conduit diameters center to center; however, the as-built Submodule CA20-04 contained embedded conduit that had a center-to-center spacing of less than two conduit diameters.
- e. 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 VII, "Control of Purchased Material, Equipment, and Services," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 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 July 2, 2012, SNC, through its contractor Stone & Webster INC (Shaw), failed to perform adequate inspections of safety-related materials at supplier facilities and 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 submodule CA20-04, embed plates, and nuclear island basemat reinforcing steel did not conform to the following procurement documents, respectively: SV3-CA20-S5-04004, "Auxiliary Building Areas 5 & 6 Module CA20 Sub-module CA20-04 Structural outline Vertical Sections/Views," Revision 1; SV3-SS01-Z0-003, "Embedded and Miscellaneous Steel, Westinghouse Safety Class C," Revision 2; APP-CR01-Z0-011, "Furnishing of Safety Related Reinforcing Steel, Westinghouse Safety Class C," Revision 4.

This violation is associated with a Green SDP ITAAC finding.

Pursuant to the provisions of 10 CFR 2.201, Southern Nuclear 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 deletes 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 of receipt.

Dated this 14th day of November 2012

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

Docket Numbers: 05200025; 05200026

License Numbers: NPF-91 (Unit 3), NPF-92 (Unit 4)

Report Numbers: 05200025/2012-004; 05200026/2012-004

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Electric Generating Plant Units 3 and 4

Location: 7825 River Road
Waynesboro, GA

Inspection Dates: July 1, 2012 through September 30, 2012

Inspectors: J. Fuller, Senior Resident Inspector, CPB4
C. Abbott, Resident Inspector, CPB4
C. Huffman, Resident Inspector, CPB4
S. Alexander, Construction Inspector, CIB2
E. Heher, Construction Inspector, CIB2
J. Heisserer, Senior Construction Inspector, CIB3
J. Kent, Construction Project Inspector, CPB4
R. Latta, Senior Inspector, DRS
S. Lewis, Construction Project Inspector, CPB2
A. Masters, Senior Construction Inspector, CIB2
E. Michel, Senior Construction Inspector, CIB3
C. Oelstrom, Construction Inspector, CIB2
J. Seat, Construction Inspector, CIB2
S. Smith, Senior Construction Inspector, CIB2

Accompanying Personnel: J. Brooks, Summer Intern
R. Joshi, Senior Project Manager, NRO/DNRL/LB4
K. Steddenbenz, Construction Project Inspector, CPB1

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

SUMMARY OF FINDINGS

Inspection Report (IR) 05200025/2012004, IR 05200026/2012004; 07/01/2012-09/30/2012; Vogtle Electric Generating Plant (VEGP) Units 3 and 4; Unit 3 ITAAC 760 (3.3.00.02a.i.a), Unit 3 ITAAC 762 (3.3.00.02a.i.c); Unit 3 ITAAC 763 (3.3.00.02a.i.d), and Quality Assurance Program Implementation During Construction and Pre-Construction Activities.

This report covers a three-month period of inspection by the resident and regional inspectors. Two NRC-identified Inspection, Test, Analyses, and Acceptance Criteria (ITAAC) findings of very low safety significance (Green) were identified during this period. These two findings were considered violations of NRC requirements. The violations were evaluated in accordance with the NRC Enforcement Policy, Section 2.3.2, and the temporary enforcement guidance outlined in enforcement guidance memorandum 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." Cross-cutting aspects were determined using IMC 0613P, Appendix F, "Construction Cross-Cutting Components and Aspects." The Nuclear Regulatory Commission's (NRC's) program for overseeing the safe 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. An ITAAC finding of very low safety significance (Green) and a violation (VIO) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," were identified by the inspectors on and before October 2, 2012, regarding the licensee's failure to assure that regulatory requirements and the design basis for safety-related systems, structures, and components were correctly translated into specifications and instructions associated with the structural submodules for portions of the auxiliary building and containment internal structures. The inspectors identified multiple examples of the licensee's failure 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.

The inspectors determined this issue was 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 finding 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 3 ITAACs 763 and 760. Specifically, the acceptance criteria for ITAAC 763 and ITAAC 760 require that a report exists and 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 Seismic Category I Structural Submodules CA20-04, CA20-07A, CA20-08A, CA20-29 and CA01-24 did not conform to the approved design. The inspectors evaluated the finding using the construction SDP and determined that the finding was of very low safety significance because it did not impair the design function of 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 (CSFC) 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 CSFC aspects discussed in IMC 0613P. (Section 4OA2.2)

Cornerstone: Procurement/Fabrication

- Green. An ITAAC finding of very low safety significance (Green) and three examples of a VIO of 10 CFR Part 50, Appendix B, Criterion VII, "Control of Purchased Material, Equipment, and Services," were identified by the inspectors for SNC's failure, through its contractor Stone and Webster (Shaw), to ensure that purchased material conformed to procurement documents. Specifically, the inspectors identified that (1) submodule CA20-04, (2) auxiliary building embed plates, and (3) nuclear island reinforcing steel were accepted but did not conform to the approved design. This issue was entered into the corrective action program as CR 531786.

The finding was determined to be more than minor because the issue, if left uncorrected, 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. Additionally, this issue was considered to be more than minor because, if left uncorrected, it could adversely affect the closure of an ITAAC. The finding was associated with the Procurement/Fabrication Cornerstone. This finding was determined to be an ITAAC finding because examples 1 and 3 were material to the acceptance criteria of Vogtle Unit 3 ITAACs 763 and 762. Specifically, the acceptance criteria for these ITAAC require that a report exists and concludes that the as-built structures in the non-radiologically controlled and radiologically controlled areas of the auxiliary building, respectively, conform to the approved design. However, as-built submodule CA20-04 and nuclear island reinforcing steel did not conform to the approved design. The inspectors evaluated the finding using the construction SDP and determined this finding was of very low safety significance because it did not impair the design function of the nuclear island basemat or auxiliary building and was assigned to Row 1 of the risk importance table. The inspectors determined that this finding had a cross-cutting aspect in the area of Baseline Inspection, Construction Experience, because the licensee and Shaw did not adequately implement and institutionalize construction experience through changes to construction processes, procedures, materials, and training programs [A.6(b)]. (Section 4OA2.8)

B. Licensee-Identified Violations

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

The Nuclear Regulatory Commission's program for overseeing the construction of commercial nuclear power reactors is described in Inspection Manual Chapter 2506, "Construction Reactor Oversight Process General Guidance and Basis Document."

REPORT DETAILS

1. CONSTRUCTION REACTOR SAFETY

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

2503 ITAAC-RELATED INSPECTIONS

.1 ITAAC Number: 91 / Family: 06F (Unit 4)

a. Inspection Scope

During the week of July 16, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 4 ITAAC Number 91 (2.2.01.02a):

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

The inspectors observed welding of the Unit 4 containment vessel (CV) bottom head to ensure those activities conformed to the requirements of the American Society of Mechanical Engineers (ASME) Code, Section III, Subsection NE and 10 CFR Part 50, Appendix B. See ITAAC Number 93, Section 2503.3, for additional details.

The inspectors reviewed the Receiving Inspection Reports which include Certified Material Test Reports (CMTRs), receipt inspections, and dimensional checks for base metal plates associated with four vertical welds, for compliance with ASME Section II, the Updated Final Safety Analysis Report (UFSAR), Combined License (COL) and purchase specifications. The plates sampled were A4-B1, A4-B2, A4-B3, A4-C2, and A4-C3.

The inspectors reviewed the CMTR and Welding Metal Authorization and Release Report for the most recently received order of Flux Core Arc Welding (FCAW) filler metal (Q3 Lot # 1075G), to verify compliance with ASME Section II, 10 CFR Part 50, Appendix B, and purchase specifications.

b. Findings

No findings were identified.

.2 ITAAC Number: 91 / Family: 06F (Unit 3)a. Inspection Scope

During the week of September 10, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 91 (2.2.01.02a):

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

The inspectors reviewed documentation and observed activities associated with the repairs to the Unit 3 CV lower ring, course S-1 (first course of the lower ring). Those repairs were conducted by the licensee's subcontractor, Chicago Bridge and Iron (CB&I), following the discovery on April 26, 2012, of four vertical welds with cracks following Post Weld Heat Treatment (PWHT) and first identified in NRC inspection report 05200025/2012-003. The inspectors reviewed the causal analysis provided by CB&I which included corrective actions aimed at reducing the stresses associated with welding and the subsequent PWHT.

The inspectors observed removal of the B3-A6 plate from the first course of the lower ring. The inspectors ensured compliance with the approved procedure, "Work Instruction for the Removal of Defective Material and Installation of an Insert Plate for U3LRS Vertical Seams", Rev 0. The procedure was reviewed to ensure compliance with the requirements of the ASME Code, Section III, Subsection NE and 10 CFR Part 50, Appendix B. The inspectors also observed initial dimensional checks on the B3-A6 plate to determine what modifications would be required prior to reinstallation in the S-1 ring; however this material was not reused in Unit 3.

The inspectors reviewed receipt documentation for a sample of the six Unit 4 plates used to replace the removed Unit 3 plates, in order to verify that the licensee and CB&I had properly accounted for the change in material. Specifically, the inspectors reviewed the Receiving Inspection Report for plate B4-A8, which was re-designated as B3-A8, including documentation verifying material type, shape and size dimensions, and the CMTR to verify compliance with CB&I procedures, 10 CFR Part 50 Appendix B, and ASME Section III, Subsection NE. The inspectors confirmed the licensee's contractor performed receipt inspections for the remaining five plates in accordance with the requirements of CB&I procedures, and 10 CFR Part 50, Appendix B. The inspectors also conducted interviews with the CB&I Project Engineer and Quality Assurance (QA) Manager.

The inspectors verified welding was performed in accordance with the requirements of CB&I procedures, 10 CFR Part 50 Appendix B, and ASME Section III, Subsection NE. Additional details are contained in this report under ITAAC 93. (Section 2503.3)

The inspectors verified that the new plates were appropriately marked to show the transfer to Unit 3, and the transfer was recorded correctly in the associated documentation, in accordance with the requirements of 10 CFR Part 50, Appendix B.

The inspectors reviewed and observed Non-Destructive Examination (NDE) activities following welding and PWHT. Additional details are contained in this report under ITAAC 93, (Section 2503.4).

b. Findings

No findings were identified.

.3 ITAAC Number: 93 / Family: 06B (Unit 4)

a. Inspection Scope

During the week of July 16, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 4 ITAAC Number 93 (2.2.01.03a):

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

The inspectors observed welding activities related to the Unit 4 CV bottom head. Specifically the inspectors observed Submerged Arc Welding (SAW) performed on BH2 seam B18/B17, using an LT-7 automated welder; and automated FCAW on vertical BH3 seam C30/C31. The inspectors reviewed welder qualifications and welder continuation records for two welders; one qualified to SAW in multiple positions, and one to FCAW semiautomatic and machine welding in multiple positions. Welder qualifications were reviewed to ensure compliance with the requirements of ASME Section IX. The inspectors reviewed two Welding Procedure Specifications (WPSs) and their associated Procedure Qualification Records used in the welding of the containment vessel: WPS E91TG-H4 used for FCAW, and WPS ENi4 / OK 10.72 used for SAW to ensure compliance with the requirements of ASME Section IX, and ASME Section III, Subsection NE. The inspectors reviewed the Daily Welding Material Distribution Log, dated July 17, 2012, to ensure weld filler metal used in the field matched that contained in the log, was approved for use, and was stored in accordance with vendor specifications. The inspectors also verified weld Quality Control (QC) checks such as heat input, weld voltage, and amperage were within the allowable ranges permitted by the appropriate WPS, and were appropriately recorded and verified by the weld engineer.

The inspectors reviewed all Radiographic Examination (RT) film and RT reports for the following welds:

- BH2 seam B1/B2 field weld performed by CB&I using the SAW process;
- BH2 seam B2/B3 field weld performed by CB&I using the SAW process;
- BH3 vertical seam field weld between plates C2/C3 performed by CB&I using the FCAW process; and
- BH3 shop weld for the C2 plate performed by IHI using the Gas Metal Arc Welding (GMAW) process.

The RT film was reviewed to ensure it met the requirements and acceptance criteria of ASME Section III, Subsection NE, ASME Section V; 10 CFR Part 50, Appendix B; and the RT procedures used by CB&I and their subcontractor IHI. Four RT samples were obtained to ensure that the ASME Code Section III requirements were met for non-destructive examination of the pressure boundary welds mentioned above.

b. Findings

No findings were identified.

.4 ITAAC No.: 93 / Family: 06B (Unit 3)

a. Inspection Scope

During the week of September 10, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 93 (2.2.01.03a):

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

Inspection activities were performed to follow up on the Unit 3 CV course S-1 cracking first identified in NRC inspection report 05200025/2012-003. On April 26, 2012, cracking was observed following PWHT in the top and bottom of four welds for a distance of approximately 18" along the 12' 8" tall plates. The cracking occurred between plates B3-A6/B3-A7, B3-A7/B3-A8, B3-A8/B3-A9, and B3-A9/B3-A10. The inspectors observed welding activities associated with the replacement weld at seam B3-A5/B3-A6. The inspectors observed QC checks performed to verify essential variables such as preheat, welding amperage and voltage, and interpass temperature as required by ASME Section IX. The inspectors also verified MT&E certifications for electrical and temperature measurements used by QC personnel (clamp meter ID 101101307, and Fluke 62 Mini Infrared Thermometer ID 19470141 respectively). The inspectors observed weld edge preparations performed by grinding to ensure they met the requirements of ASME

Section III, Subsection NE. The inspectors verified flux cored filler metal issued by the rod room, via the Daily Welding Material Distribution Log, was appropriately controlled and distributed by ensuring the logged lot and spool numbers were in use by welders in the field. Inspectors confirmed the WPS in use (WPS E91TG-H4, Rev. 4) was not revised since the previous NRC inspection in which the procedure was reviewed (NRC inspection report 05200025/2012-003). The inspectors reviewed the CMTR for flux cored filler metal Lot 1075G used during welding for compliance with the requirements of ASME Section III, Subsection NE; and ASME Section II. The inspectors verified that the contractor followed the procedure steps provided in the approved weld traveler as required by 10 CFR 50, Appendix B.

The inspectors reviewed the CB&I causal analysis in Nonconformance Report (NCR) U3-076, Rev 5, which identified reheat cracking as the failure mechanism, including that portion produced by an independent third party, and the associated corrective actions for compliance with 10 CFR Part 50, Appendix B and ASME Section III, Subsection NE.

Inspectors observed the performance of Liquid Penetrant Examination (PT) on seam B3-A8/B3-A9 of the S-1 course. The inspectors reviewed the associated PT procedure CMS-830-15-PR-45162, Revision (Rev) 1 to verify it met the requirements of ASME Section III, Subsection NE; and ASME Section V, Article 6. The inspectors also reviewed consumable Certificates of Conformance (COC's) for the cleaner, developer, and penetrant used for compliance with CB&I's procedures and ASME Section V, Article 6. The inspectors verified the Level I and Level II personnel performing the PT were appropriately qualified to the requirements of ASME Section III, Subsection NE; and ASME Section II through a review of their certifications.

The inspectors reviewed two Westinghouse surveillances of CB&I activities; one which evaluated welding on the CV course S-1 and the other which evaluated PWHT on the S-1 course, to ensure compliance with 10 CFR 50, Appendix B requirements.

The inspectors reviewed 13 RT films and reports for weld seam B3-A9/B3-A10 for compliance with ASME Section III, Subsection NE, and CB&I procedure CMS-830-15-PR-45154, Rev 1, Radiographic Examination ASME Section III, Division I - Subsection NE.

The inspectors observed preparations for PWHT on weld seam B3-A11/B3-A12, including capacitive discharge welding of temporary pins (used to hold heat treatment pads and insulation in place) to the CV. The inspectors reviewed CMS-720-03-PR-07351, Rev 3, Control of Temporary Attachments to verify the pins were controlled in accordance with the requirements of that procedure. The inspectors also reviewed the COC for thermocouple wire lot 12766-197 for compliance with 10 CFR 50, Appendix B requirements.

The inspectors observed PWHT and reviewed PWHT records for weld seam B3-A1/B3-A2. Although this was not one of the replaced seams, the processes and procedures were representative of the PWHT received by the replaced seams. The inspectors reviewed the PWHT procedure, CMS-165766-830-15-PR-000001, Rev 4, and observed CB&I and their subcontractor, Superheat, implement the procedure to ensure compliance with it; ASME Section III, Subsection NE; and 10 CFR 50, Appendix B. The inspectors reviewed the PWHT traveler used in the field for plates B3-A1 to B3-A2 to ensure the process was approved by the ANI, the steps were being adhered to, and QC

checks were being performed. The inspectors observed real-time temperature data and reviewed the Post Weld Heat Treatment Time Temperature Tabulations to verify heat up rates, temperatures, soak times, and cool down rates were in compliance with ASME Section III, Subsection NE. The inspectors also reviewed the Thermal History Sheet and supporting documentation for the B3-A1/B3-A2 seam and the associated SA-738 Grade B plates, to ensure PWHT cumulative times did not exceed qualification allowances established in ASME Section III, Subsection NE. The inspectors also verified calibration of the Data Acquisition Unit had not expired.

b. Findings

No findings were identified.

.5 ITAAC Number: 96 / Family: 06F (Unit 4)

a. Inspection Scope

During the week of July 16, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 4 ITAAC Number 96 (2.2.01.04a.ii):

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

The inspectors reviewed CMTRs issued for base metal and filler metal used in the Unit 4 CV bottom head to verify impact test results conformed with fracture toughness requirements of the ASME Code Section III, Subsection NE. The base metal samples were from the following CV bottom head plates: BH3 plate A4-C3, and BH3 plate A4-C2. The filler metal sampled was flux core wire (E91TG-H4) from Q3 Lot # 1075G as identified in Report No. U4/U3-009.

b. Findings

No findings were identified.

.6 ITAAC Number: 96 / Family: 06F (Unit 3)

a. Inspection Scope

During the week of September 10, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 96 (2.2.01.04a.ii):

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

The inspectors reviewed CMTRs issued for base metal and filler metal used in the Unit 3 CV lower ring S-1 course replacement plates and welds to verify impact test results conformed with fracture toughness requirements of the ASME Code Section III, Subsection NE. Plate B4-A8, which was re-designated as B3-A8, and metal flux core wire (E91TG-H4) from Q3 Lot # 1075G were sampled.

b. Findings

No findings were identified.

.7 ITAAC Number: 761 / Family: 01F (Unit 3)

a. Inspection Scope

During the week of September 17, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 761 (3.3.00.02a.i.b):

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

The inspectors performed a field inspection of construction activities associated with ITAAC 761 for the nuclear island (NI) basemat at the Vogtle Unit 3 site. The field activities applied the guidance in IP 65001.01, "Inspection of ITAAC-Related Foundation and Buildings" and IP 65001.F, "Inspection of ITAAC-Related Design and Fabrication Requirements." The inspectors conducted inspections of the concrete reinforced steel placement, reviewed documents, and interviewed licensee personnel to assess the

implementation of the portion of the QA program specific to design, installation, and construction activities, and to determine whether:

- structural concrete work, design and fabrication was completed in accordance with applicable specifications, drawings, approved procedures and qualified personnel;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- licensee records established an adequate basis for the acceptance of ITAAC with design and fabrication attributes;
- records reflected that completed work meets design specifications and acceptance criteria; 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 and observations on sample areas of the basemat layers 1, 2 and 3 reinforcing steel for the proposed Unit 3 nuclear island structures. Specifically, the inspectors observed reinforcing steel placement and reviewed various documents within the work packages for the reinforcing steel, to verify:

- contractors have approved implementing procedures available;
- procedures clearly prescribe acceptable methods of quality control inspection and include appropriate acceptance criteria;
- the shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings;
- the licensee confirmed that reinforcing steel conforms to design drawings and there are no deviations from design;
- the licensee and contractor personnel established an effective method for tracking, evaluating, and dispositioning changes and modifications to the design; and
- reviewed records 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 basemat reinforcing steel to determine whether:

- the licensee identified problems at an appropriate threshold and entered 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.

.8 ITAAC Number: 761 / Family: 01F (Unit 3)

a. Inspection Scope

During this inspection period, the resident inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 761 (3.3.00.02a.i.b):

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

The inspectors utilized IP 65001.02, "Inspection of ITAAC-Related Installation of Structural Concrete," to determine whether the reinforcing steel (rebar) configuration for the CR-10 module (structural steel frame which supports reinforcing bar layers or portions of layers 6, 7, 8, 9 and 10 for the concrete base underneath the Containment Vessel), was in compliance with specified design requirements, specifications and approved drawings.

The inspectors reviewed and observed rebar activities associated with the CR-10 module of the nuclear island basemat defined as the area below the shield building as identified in Table 3.3-1 "Definitions of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building," of the Vogtle Unit 3 Updated Final Safety Analysis Report. During this inspection, the inspectors directly inspected layer-6 circumferential rebar, rows 1 through 46, to determine whether the rebar was installed in accordance with the following design drawings and design specification:

- SV3-1010-CR-161, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 6 Reinforcement Plan" Rev. 3;
- SV3-1010-CR-162, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 6 Reinforcement Details" Rev. 3; and
- SV3-CC01-Z0-031, "Safety Related Placing Concrete and Reinforcing Steel, Westinghouse Seismic Category I, Safety Class C," Rev. 1.

The inspectors reviewed work package SV3-CR10-CRW-CV0322, "Installation of Reinforcing Steel on CR10 Module," to determine whether the appropriate steps, hold points, and QC inspections were defined and adhered to in the work package. The inspectors also reviewed Engineering and Design Coordination Reports (E&DCRs) maintained in the work package, to determine whether the changes were implemented in the field and that those applicable design changes were posted to the drawings maintained in the field. The inspectors specifically reviewed the following E&DCRs:

- SV0-CR01-GEF-000063, "CR10 Rebar Spacing & Sequence;"
- SV0-CR01-GEF-000067, "CR10 Rebar Interferences;" and
- APP-1010-GEF-002, "Circumferential Bar Requirements for Lap Splices in Lieu of Mechanical Connectors".

The inspectors reviewed Shaw QC inspection plan F-C112-02, "Pre-placement: Nuclear Island Concrete," Rev. 4, to determine whether the plan addressed inspection of items during construction to demonstrate that the CR-10 module rebar configuration, would perform satisfactorily in service. The following attributes were inspected to verify that the:

- inspection plan included the requirements and acceptance limits contained in applicable design documents;
- methods used to perform inspections and document results were adequate;
- inspection notification points, routine points and hold points were defined; and
- applicable code and specifications were referenced in the plan.

The inspectors also reviewed completed inspection reports associated with the CR-10 module rebar installation to determine whether they were developed and documented in accordance with the following procedures:

- Nuclear Quality Assurance Directive (QAD) 14.1, "Inspection Report System Type "A" Inspection Report," Rev. B; and
- Quality Standard (QS) 14.2, "Inspection Report System," Rev. K.

The following QC inspection reports were reviewed:

- C112-02-12-0024, "Reinforcing Steel on SV3 CR10 Module"
- C112-02-12-0028, "Reinforcing Steel on SV3 CR10 Module"
- C112-02-12-0045, "Reinforcing Steel on SV3 CR10 Module"
- C112-02-12-0048, "Reinforcing Steel on SV3 CR10 Module"
- C112-02-12-0070, "Reinforcing Steel on SV3 CR10 Module"

The inspectors reviewed a sample of nonconformance reports (Shaw Nonconformance & Disposition [N&D] Reports) to determine whether the conditions adverse to quality were adequately reviewed and accepted, rejected, repaired, or reworked in accordance with the following procedures:

- Section 15, "Nonconforming Materials, Parts, or Components," of the Shaw Standard Nuclear Quality Assurance Program (SWSQAP 1-74A), Rev. B; and
- Shaw QS 15.1, "Nonconformance & Disposition Report," Rev. 001.

The inspectors reviewed V-ND-12-0362, V-ND-0415, and V-ND-12-0453, to determine whether:

- disposition was appropriate and was adequately documented;
- adequate technical justification was provided to support a disposition of use-as-is; and
- repaired or reworked items were appropriately reexamined in accordance with applicable procedures and with the original acceptance criteria.

b. Findings

No findings were identified.

.9 ITAAC Number: 761 / Family: 01F (Unit 3)

a. Inspection Scope

During this inspection period, the resident inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 761 (3.3.00.02a.i.b):

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

The inspectors performed a direct inspection of construction activities associated with cadweld reinforcing steel splice installation in the Vogtle Unit 3 nuclear island basemat below containment for ITACC Number 761. Using IP 65001.02, "Inspection of ITAAC-Related Installation of Structural Concrete" the inspectors observed field work, reviewed documents, and interviewed licensee personnel to determine whether cadweld installation met the following requirements:

- process and crews were qualified;
- each splice was defined by materials used, location, and crew;
- sampling and testing were performed at proper frequency;
- acceptance criteria was defined and confirmed as satisfactory; and
- inspections were performed during and after splicing by qualified inspection personnel.

The inspectors observed installation of cadweld R-1-136A. The inspectors performed independent observations of alignment, cleanliness and procedure adherence. Inspectors interviewed quality control personnel to determine whether appropriate procedures and qualified personnel were used for cadweld installation. The inspectors also reviewed Shaw's quality inspection plan F-S510, "Cadwelding: Exothermic Reinforcing Steel Splicing," Rev 0 to determine whether cadwelds were installed in accordance with the approved procedure. The inspectors also reviewed the manufacturer's instruction manual to determine whether Shaw procedures were in accordance with manufacturer recommendations. The inspectors also reviewed Shaw Inspection Report S510-12-0028 to determine whether cadweld installation was properly documented. The inspectors reviewed test results for cadweld sister splices to

determine whether testing was performed at the proper frequency and achieved satisfactory results.

b. Findings

No findings were identified.

.10 ITAAC Number: 762 / Family: 01F (Unit 3)

a. Inspection Scope

During the week of July 23, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 762 (3.3.00.02a.i.c):

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

The inspectors used the guidance in IP 65001.01 and IP 65001.F to conduct field measurements on nuclear island reinforcing steel, document reviews, and interviews with licensee personnel to determine if structural deviations existed between installed portions of the non-radiological portions of the auxiliary building within the nuclear island basemat, the approved design, and/or applicable codes.

The inspectors also performed a review of procedures related to the installation of the nuclear island reinforcing steel. Specifically, inspectors reviewed procedures used for the installation of the reinforcing steel splices on layers 1 and 2 of the Unit 3 nuclear island basemat. In addition to the procedure review, inspectors reviewed on-site fabrication activities associated with cad-weld splices to ensure the materials used met the design specifications, nondestructive examination procedures associated with the installation of cad-weld splices were adequate and properly implemented, and individuals performing inspection related activities were knowledgeable of the inspection requirements.

The inspectors performed a document review associated with work order SV3-1000-CRW-CV0295, "Installation of Reinforcing Steel for Nuclear Island Basemat." Specifically, inspectors reviewed work instructions, work logs, hold points, approved

drawings, and quality control records to ensure that completed work was appropriately documented in a manner to demonstrate conformance with design and procedure requirements.

b. Findings

No findings were identified.

.11 ITAAC Number: 762 / Family: 01F (Unit 3)

a. Inspection Scope

During the week of September 17, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 762 (3.3.00.02a.i.c):

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

The inspectors performed a field inspection of construction activities associated with ITAAC Number 762 for the nuclear island basemat at the Vogtle Unit 3 site. The field activities applied the guidance in IP 65001.01, "Inspection of ITAAC-Related Foundation and Buildings" and IP 65001.F, "Inspection of ITAAC-Related Design and Fabrication Requirements." The inspectors conducted inspections of the concrete reinforced steel placement, reviewed documents, and interviewed licensee personnel to assess the implementation of the portion of the QA program specific to design, installation, and construction activities, and to determine whether:

- structural concrete work, design and fabrication was completed in accordance with applicable specifications, drawings, approved procedures and qualified personnel;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- licensee records established an adequate basis for the acceptance of ITAAC with design and fabrication attributes;
- records reflected that completed work meets design specifications and acceptance criteria; and

- licensee, vendor, and fabricator personnel established an effective method for tracking, evaluating, and dispositioning changes or modifications to the component designs.

The inspectors performed independent measurements and observations on sample areas of the basemat layers 1 and 2 reinforcing steel for the proposed Unit 3 nuclear island Structures. The inspection included critical section: Bay between reference column lines 9.1 and 11, and K and L (Non-RCA of Auxiliary Building) as listed in Table 3.3-7 of the COL. Specifically, the inspectors observed reinforcing steel placement and reviewed various documents within the work packages for the reinforcing steel, to verify:

- contractor's approved implementing procedures were available;
- procedures clearly prescribe acceptable methods of quality control inspection and include appropriate acceptance criteria;
- shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings;
- licensee confirmed reinforcing steel conforms to design drawings and there are no deviations from design;
- licensee and contractor personnel established an effective method for tracking, evaluating, and dispositioning changes and modifications to the design; and
- reviewed records 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 basemat reinforcing steel to determine whether:

- the licensee identified problems at an appropriate threshold and entered 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.

.12 ITAAC Number: 763 / Family: 01F (Unit 3)

a. Inspection Scope

During the week of September 17, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 763 (3.3.00.02a.i.d):

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

The inspectors performed a field inspection of construction activities associated with ITAAC 763 for the nuclear island basemat at the Vogtle Unit 3 site. The field activities applied the guidance in IP 65001.01, "Inspection of ITAAC-Related Foundation and Buildings" and IP 65001.F, "Inspection of ITAAC-Related Design and Fabrication Requirements." The inspectors conducted inspections of the concrete reinforced steel placement, reviewed documents, and interviewed licensee personnel to assess the implementation of the portion of the QA program specific to design, installation, and construction activities, and to determine whether:

- structural concrete work, design and fabrication was completed in accordance with applicable specifications, drawings, approved procedures and qualified personnel;
- key building critical dimensions, materials, and separation satisfied design specifications, requirements, and relevant ITAAC;
- licensee records established an adequate basis for the acceptance of ITAAC with design and fabrication attributes;
- records reflected that completed work meets design specifications and acceptance criteria; and
- 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 and observations on sample areas of the basemat layers 1 and 2 reinforcing steel for the proposed Unit 3 nuclear island Structures. The inspection included critical section: Bay between reference column lines 1 and 2 and K-2 and N (RCA of Auxiliary Building) as listed in Table 3.3-7 of the COL. Specifically, the inspectors observed reinforcing steel placement and reviewed various documents within the work packages for the reinforcing steel, to verify:

- contractor's approved implementing procedures were available;
- procedures clearly prescribe acceptable methods of quality control inspection and include appropriate acceptance criteria;
- shape, size, dimensions, type, and grade of material conformed to the approved specifications and design drawings;

- licensee confirmed reinforcing steel conforms to design drawings and there are no deviations from design;
- licensee and contractor personnel established an effective method for tracking, evaluating, and dispositioning changes and modifications to the design; and
- reviewed records 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 basemat reinforcing steel to determine whether:

- the licensee identified problems at an appropriate threshold and entered 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.

.13 ITAAC Number: 763 / Family: 01F (Unit 3)

a. Inspection Scope

During this inspection period, the resident inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 763 (3.3.00.02a.i.d):

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

The inspectors performed a direct inspection of Vogtle Unit 3 submodule CA20-04 (Refer to Table 3.3-1, “Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building,” from Rev 19 of the AP1000 DCD – incorporated by reference in Vogtle Unit 3 Updated Final Safety Analysis Report: From Column Line J-1 wall, column lines 2 to 4, elevation from 66’-6” to 135’-3”), which is associated with Vogtle Unit 3 ITAAC 763. This inspection was performed while CA20-04 was stored at the Vogtle Unit 3 and 4 construction site, outside the modular assembly building.

The following inspection activities were related to ITAAC 763, in that this ITAAC required any deviations from the design be properly reconciled. N&D V-ND-12-0315 documented a deviation from design drawing APP-CA20-S5-04004, "Auxiliary Building Areas 5 & 6 Module CA20 Sub-module CA20-04 Structural Outline Vertical Sections / Views," Rev. 6, in that 39 studs were not installed as required by drawing APP-CA20-S5-04004. Shaw's corrective action was to install these studs in order to restore conformance with the design.

The inspectors reviewed Shaw N&D V-ND-12-0315, which documented that 39 shear studs were not installed on the inside of submodule CA20-04 as required by drawing APP-CA20-S5-04004. The inspectors reviewed Shaw's disposition of this N&D, which was "rework," to determine whether Shaw adequately performed the rework (welding) of these studs to restore compliance with the design drawings. Specifically, the inspectors observed and reviewed the installation of several safety-related studs on submodule CA20-04 to determine whether the stud welding activities were performed in accordance with the applicable quality (10 CFR Part 50, Appendix B; ASME NQA-1-1994; and Shaw SWSQAP-174A) and technical requirements (specification APP-VW01-Z0-001, "Structural Module Shear Stud Welding Specification," Rev. 2; American Welding Society [AWS] D1.1-2000 "Structural Welding Code"; drawing APP-CA20-S5-04005).

The inspectors performed independent visual inspections of stud numbers 0121 and 0460 to determine whether the as-built stud was in the proper location, was the proper material, the fillet welds were of the proper size, and the other acceptance criteria attributes stated in the AWS D1.1 code were met. The inspectors also observed the in-process manual stud welding of stud number 0460, to determine whether the welding activity was performed in accordance with the welding procedure (WPS6-1.1M02, GMAW-Pulse, Revision 1; and GWS-6, "Stud Welding – General Welding Specification," Revision 0). The inspectors also reviewed the stud ends before welding to determine whether the stud end was clean and the flux ball was removed along with the tapered portion of the stud as required by the AWS D1.1 Code and specification APP-VW01-Z0-001. The inspectors observed the fit-up activities for stud 0460 to determine whether the base material surface was adequate for welding and the stud fit was square and tight against the base metal. The inspectors reviewed the pre-production testing to determine whether first two stud welds for each welder were bent in accordance with the AWS D1.1 Code. The inspectors also reviewed the weld data sheets for the above welds, which were contained in work package number SV3-CA20-S5W-CV1018, "CA20-04 Stud Welding," to determine whether the welding records were sufficient to provide evidence of activities affecting quality.

The inspectors reviewed the CMTRs for the above studs to determine whether the stud material was consistent with ASTM A108 and procured under 10 CFR Part 21. The inspectors reviewed the CMTR for weld filler material heat number 1039P to determine whether the filler material was in conformance with ASME Section II, Part C (SFA 5.28), 10 CFR Appendix B, and procured under 10 CFR Part 21. The inspectors also reviewed the CMTR for the stud welding test plate to determine whether the test plate was similar to the production material (ASTM A570 Grade 60) in thickness and properties.

b. Findings

No findings were identified.

.14 ITAAC Number: 763 / Family: 01F (Unit 3)

a. Inspection Scope

During the week of July 23, 2012, the regional inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 763 (3.3.00.02a.i.d):

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

The inspectors performed a direct inspection of construction activities associated with ITAAC 763. The inspectors used the guidance in IP 65001.01 and IP 65001.F to conduct field measurements on nuclear island reinforcing steel, document reviews, and interviews with licensee personnel to determine if structural deviations existed between installed portions of the radiological portions of the Auxiliary Building within the nuclear island basemat, the approved design, and/or applicable codes.

The inspectors also performed a review of procedures related to the installation of the nuclear island reinforcing steel. Specifically, inspectors reviewed procedures used for the installation of the reinforcing steel splices on layers 1 and 2 of the nuclear island basemat. In addition to the procedure review, inspectors reviewed on-site fabrication activities associated with cad-weld splices to ensure that the materials used met the design specifications, that NDE procedures associated with the installation of cad-weld splices were adequate and properly implemented, and that individuals performing inspection related activities were knowledgeable of the inspection requirements.

The, inspectors performed a document review associated with work order SV3-1000-CRW-CV0295, "Installation of Reinforcing Steel for Nuclear Island Basemat." Specifically, inspectors reviewed work instructions, work logs, hold points, approved drawings, and quality control records to ensure that completed work was appropriately documented in a manner to demonstrate conformance with design and procedure requirements

b. Findings

No findings were identified.

.15 ITAAC Number: 767 / Family: 01A (Unit 3)

a. Inspection Scope

During this inspection period, the resident inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 767 (3.3.00.02a.ii.d):

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	ii) An inspection of the as-built concrete thickness will be performed.	ii.d) A report exists that concludes that the as-built concrete thicknesses of the radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.

The inspectors used the guidance in IP 65001.01, and IP 65001.A, “ITAAC Attributes for As-Built Inspection” to conduct field measurements to determine if the plate separation in the submodule CA20-04 conformed to the required concrete thicknesses of the building sections as specified in applicable specifications, drawings, and approved procedures.

The inspection was performed at the Vogtle site prior to the submodule being installed in the Unit 3 nuclear island, and prior to concrete being placed between the module walls. The inspectors performed independent measurements of the module face plate thickness and the distance between the two face plates for submodule CA20-04.

The inspectors performed an independent measurement of the thickness of CA20-04 to determine whether the steel structure would provide for the concrete thickness specified in Table 3.3-1 of Revision 19 of the AP1000 DCD (incorporated by reference in the Vogtle 3 & 4 UFSAR).

b. Findings

No findings were identified.

.16 ITAAC No. 784 / Family: 02C (Unit 4)

a. Inspection Scope

During this inspection period, the resident inspectors performed a direct inspection of construction activities associated with Vogtle Unit 4 ITAAC Number 784 (3.3.00.05a):

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

The inspectors utilized IP 65001.02, "Inspection of ITAAC-Related Installation of Structural Concrete," to determine whether the application of the waterproofing membrane to the exterior walls of the Unit 4 nuclear island was in compliance with specified design requirements, specifications and approved drawings.

The inspectors reviewed a sample of waterproofing membrane release cards and test records from work package SV4-G100-XEW-CV0628, "Unit 4 Vertical Waterproofing Membrane," Rev. 2, to determine whether the records provided objective evidence that the waterproofing membrane activities affecting quality were performed in accordance with applicable quality and technical requirements. Specifically, the inspectors compared these test records to the technical requirements established by installation specification SV0-AT01-Z0-800001, "Nuclear Island Waterproofing Membrane Installation," Rev. 4. The inspectors reviewed the test records to determine whether the following information was appropriately recorded:

- type of test and/or method;
- item tested;
- date of test;
- tester (or data recorder);
- measuring and test equipment (M&TE) used during the test;
- results;
- evaluation of acceptability; and
- name of independent evaluator.

The inspectors reviewed Shaw QC inspection plans used to perform inspections of the waterproofing membrane installation activities. Inspection plan FS530-02, "Protective Coatings: Nuclear Island Membrane for MSE Wall," Rev. 3, was reviewed to determine whether the following attributes were appropriately considered:

- applicable hold points, notification points, and routine inspection points were defined; and
- appropriate references were included in inspection plan

The inspectors reviewed completed Shaw QC inspection reports associated with the application of the waterproofing membrane system. The inspectors reviewed the QC reports to determine whether they were developed and documented in accordance with the following procedures: QAD 14.1, "Inspection Report System Type "A" Inspection Report," Rev. A; and QS 14.2, "Inspection Report System," Rev. J. The following completed QC inspection reports were reviewed:

- S530-02-12-0094 "NI Membrane for MSE Wall"
- S530-02-12-0098 "NI Membrane for MSE Wall"
- S530-02-12-0103 "NI Membrane for MSE Wall"

To determine whether conditions adverse to quality related to waterproofing membrane installation and testing activities were adequately identified and corrected, the inspectors reviewed the following Shaw N&D Reports:

- V-ND-12-0306
- V-ND-12-0404 superseded by V-ND-12-0473
- V-ND-12-0409

b. Findings

No findings were identified.

.17 ITAAC Number. 784 / Family: 02C (Unit 3)

a. Inspection Scope

During this inspection period, the resident inspectors performed a direct inspection of construction activities associated with Vogtle Unit 3 ITAAC Number 784 (3.3.00.05a):

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

The inspectors utilized IP 65001.02, "Inspection of ITAAC-Related Installation of Structural Concrete," to determine whether the records associated with the waterproofing membrane to the exterior walls of the Unit 3 nuclear island were in compliance with specified design requirements, specifications and approved drawings.

The inspectors reviewed a sample of waterproofing membrane release cards and test records from work package SV3-G100-XEW-CV0416, "Unit 3 Vertical Waterproof Membrane," Rev. 3, to determine whether the records provided objective evidence that the waterproofing membrane activities affecting quality were performed in accordance with applicable quality and technical requirements. Specifically, the inspectors compared these test records to the technical requirements established by installation specification SV0-AT01-Z0-800001, "Nuclear Island Waterproofing Membrane Installation," Rev. 4. The inspectors reviewed the test records to determine whether the following information was appropriately recorded:

- type of test and/or method;
- item tested;
- date of test;
- tester (or data recorder);
- M&TE used during the test;
- results;
- evaluation of acceptability; and
- name of independent evaluator.

b. Findings

No findings were identified.

4. OTHER INSPECTION RESULTS

4OA2 Quality Assurance Program Implementation During Construction and Pre-Construction Activities (IP 35007)

.1 Appendix 3, Inspection of Criterion III – Design Control; Section A3.04.02, Inspection of QA Program Implementation

a. Inspection Scope

During the week of August 27, 2012, the regional inspectors reviewed the licensee's implementing documents that govern the review, approval, and process for controlling changes to design documents to verify conformance with the NRC-approved Quality Assurance Program Description (QAPD) and UFSAR. In addition, the inspectors reviewed samples of completed design changes and field changes in order to verify conformance with implementing documents. The inspectors reviewed these documents to verify if:

- the design and design changes received the proper level of engineering/technical/licensing review in accordance with licensee procedures;
- the design and design changes were incorporated into their respective documents in accordance with licensee procedures; and
- applicable design and licensing documents were updated in accordance with licensee and Westinghouse Electric Company (WEC) procedures.

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 inspector reviewed a sample of departure evaluations to determine if the evaluations were performed in accordance with Westinghouse, Shaw, and licensee procedures and the applicable regulations.

Documents reviewed are listed in the attachment.

The following inspection samples were completed:
 A3.03.01: 4 SNC implementing documents, 4 WEC implementing documents
 A3.03.02: 6 samples

b. Findings

No findings were identified.

.2 Appendix 3, Inspection of Criterion III – Design Control; Section A3.04.02a. Inspection Scope

The inspectors reviewed design drawings, calculations, and specifications to determine whether they were in accordance with the design requirements as specified in American Concrete Institute (ACI) 349-01, American Institute of Steel Construction (AISC) N690-94 and the Vogtle Units 3 & 4 Updated Final Safety Analysis Report. Specifically, the inspectors reviewed the following documents to determine whether design requirements were appropriately translated into submodule designs:

- APP-VW01-Z0-001, “Structural Module Shear Stud Welding Specification,” Revision 2;
- APP-CA20-S5-07004, “Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-07 Structural Outline Vertical Sections/Views,” Revision 6;
- APP-CA20-S5-08004, “Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-08 Structural Outline Vertical Sections/Views,” Revision 4;
- APP-CA20-S5-04004, “Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-04 Structural Outline Vertical Sections/Views,” Revision 6;
- APP-CC01-Z0-031, “Safety Related Placing Concrete and Reinforcing Steel, Westinghouse Seismic Category I, Safety Class C ‘Nuclear Safety,’” Revision 2;
- APP-CA20-S5-04003, “Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-04 Structural Outline Horizontal Sections/Views,” Revision 5; and
- APP-1100-SUC-003, “General Design of Shear Studs for Structural Modules for Inside Containment and CA20,” Revision 3.

Additionally, the inspectors reviewed as-built Auxiliary Building (CA20) submodules CA20-04, CA20-07A, CA20-08A, CA20-29 and containment internal structures (CA01) CA01-24, to determine whether they were fabricated in accordance with the latest approved design drawings. The CA20 submodules can be associated with the UFSAR non-system based design descriptions in the following table:

Submodule	Wall or Section Description	Column Lines	Floor Elevation or Elevation Range
CA20-04	Column Line J1 wall	From 2 to 4	From 66'-6" to 135'-3"
CA20-07A	Column Line 3 wall	From J-1 to J-2	From 100'-0" to 135'-3"
CA20-08A	Column Line 4 wall	From J-1 to J-2	From 107'-2" to 135'-3"
CA20-29	Column Line L-2 wall	From 2 to 4	From 66'-6" to 135'-3"
CA01-24	South Wall of Refueling Cavity	E-W wall Parallel with Col Line 7	From 98' to 135'3

b. Findings

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

Introduction

An ITAAC finding of very low safety significance (Green) and associated cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," were identified by the inspectors for five examples of the licensee's failure to ensure that regulatory requirements and the design basis for safety-related, Seismic Category I Structural Submodules, CA20-04, CA20-07A, CA20-08A, CA20-29 and CA01-24, were correctly translated into specifications, drawings and procedures.

Description

1. During a review of the as-built configuration of safety-related Seismic Category I Structural Submodules CA20-07A and CA20-08A, the inspectors determined that Submodule CA20-07A was fabricated in accordance with Westinghouse drawing APP-CA20-S5-07004 and that Submodule CA20-08A was fabricated in accordance with Westinghouse drawing APP-CA20-S5-08004. These drawings were used to translate the design requirements specified in ACI 349-01, Sections B.8.3 and 7.7.1(c) for the respective submodules. The inspectors determined that ACI 349-01, Sections B.8.3 and 7.7.1(c) required studs be installed in the submodules with a concrete cover of at least 0.75-inches. The inspectors further determined that Westinghouse drawings APP-CA20-S5-07004 and APP-CA20-S5-08004 required studs be installed in the submodules with a concrete cover of less than 0.75-inches. Upon inspection of the as-built configuration of the submodules, the inspectors identified approximately 48 and 50 studs that were installed with concrete cover less than 0.75-inches on CA20-07A and CA20-08A respectively. The inspectors determined the drawings did not reflect the approved design and the studs were not installed in accordance with the approved design.
2. During review of the design requirements for Seismic Category I Structural Submodule CA20-04, the inspectors determined it was fabricated in accordance with Westinghouse drawing APP-CA20-S5-04004. The inspectors determined UFSAR Figure 3.8.3-8, Sheet 1 of 3, shows the typical design details of the structural modules including the maximum spacing requirements for shear studs. The inspectors identified seven shear studs that were required in the approved design in the UFSAR were not included in Westinghouse drawing APP-CA20-S5-04004. During a review of the as-built configuration of submodule CA20-04, the inspectors determined the as-built condition of CA20-04 failed to meet UFSAR maximum shear stud spacing requirements due to the omission of the seven shear studs on the design drawings. The inspectors determined the drawings did not reflect the approved design and the studs were not installed in accordance with the approved design.
3. During a review of the design requirements for Seismic Category I Structural Submodule CA01-24, the inspectors determined it was required to be designed in accordance with maximum spacing requirements as specified by the UFSAR, which refers to Westinghouse Design Calculation APP-1100-SUC-003, Rev 3. This calculation specifies 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 CA01-24, the inspectors identified 5/8 inch shear studs located approximately 8-inches away from the plate edge for the Submodule CA01-24. Once the adjacent submodule was 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 the drawings did not reflect the approved design and the 5/8-inch studs were not installed in accordance with the approved design.

4. During review of the design requirements for Submodule CA20-04, the inspectors determined it was required to be designed in accordance with ACI 349-01 per Section 3.8.4.4.1 of the Vogtle Units 3 and 4 UFSAR. Section 6.3.5 of ACI 349-01 stated embedded conduit shall not be spaced closer than three diameters center-to-center. Appendix 1A of the UFSAR commits to conformance with Regulatory Guide 1.142, "Safety-Related Concrete Structures for Nuclear power Plants (Other Than Reactor Vessels and Containments)." ACI 349-01 Section 6.3.5 allows for deviations from the code with respect to embedded conduit designs with the approval of the engineer. However, Regulatory Guide 1.142 indicates that licensees should evaluate the possible interpretations of discretion in each case, and, to the extent possible, construction specifications should describe the criteria under which such discretion may be used by the engineer. The licensee failed to evaluate, analyze or describe the use of discretion for embedded conduit in Submodule CA20-04 before identification of the issue by the inspectors. During a review of the as-built configuration of Submodule CA20-04, the inspectors determined the as-built condition of Submodule CA20-04 contained eight embedded conduits. The inspectors determined Westinghouse design specification APP-CC01-Z0-031 deviated from ACI 349-01 by allowing embedded conduit placed in groups or multiple layers to be separated by a clear space of only one diameter of the largest conduit used (effectively two diameters center-to-center). Additionally, Westinghouse drawing APP-CA20-S5-04003 specified conduit installation which resulted in an as-built center-to-center spacing of less than two conduit diameters. The inspectors determined the drawings did not reflect the approved design and the embedded conduits were not installed in accordance with the approved design.
5. During a review of the design requirements for Seismic Category I Structural Submodule CA20-29, the inspectors determined it was required to be designed in accordance with AISC N690-94 per the Vogtle Units 3 and 4 UFSAR Section 3.8.4.4.1. AISC N690-94 states the minimum center-to-center spacing of stud connectors shall be six diameters along the longitudinal axis of the supporting composite beam and four 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 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 the drawings did not reflect the approved design and the shear studs were not installed in accordance with the approved design.

The inspectors noted that the submodules discussed above were not installed in the Vogtle Unit 3 nuclear island.

Analysis

The inspectors determined five examples of the licensee's failure to ensure that regulatory requirements and the design basis for safety-related Seismic Category I Structural Submodules were correctly translated into specifications, drawings and

procedures, was a performance deficiency. The inspectors determined the performance deficiency was 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 finding was determined to be an ITAAC finding because it was material to the acceptance criteria of Unit 3 ITAACs 763, and 760. Specifically, the acceptance criteria for ITAAC 763 and ITAAC 760 require that a report exists and 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 Seismic Category I Structural Submodules CA20-04, CA20-07A, CA20-08A, 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 finding was associated with the Design/Engineering Cornerstone. The inspectors evaluated the finding using the construction SDP and determined the finding was of very low safety significance (Green) because it did not impair the design function of 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 CSFC 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 Vogtle Units 3 & 4 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 Vogtle Units 3 and 4 UFSAR required that Seismic Category I Structural Submodules, specifically CA20-04, CA20-07A, CA20-08A, CA20-29 and CA01-24; be designed in accordance with ACI 349-01, "Code requirements for Nuclear Safety Related Concrete Structures," 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 ACI 349-01, and AISC N690-94 into specifications, drawings, and instructions for the design and fabrication of

Seismic Category I Structural Submodules CA20-04, CA20-07A, CA20-08A, CA20-29, and CA01-24:

1. The licensee failed to properly translate design requirements into design drawings which resulted in Seismic Category I Structural Submodules CA20-07A and CA20-08A containing shear studs that did not meet minimum concrete cover requirements as specified in ACI 349-01. Specifically, ACI 349-01 required minimum concrete cover of 0.75 inches; however, the as-built Submodules CA20-07A and CA20-08A contained a concrete cover of less than 0.75 inches.
2. The licensee failed to properly translate design requirements into design drawings, which resulted in Seismic Category I Structural Submodule CA20-04 containing shear studs that exceeded the maximum design spacing as specified by UFSAR, Figure 3.8.3.8, Sheet 1 of 3. Specifically, seven shear studs that were required in the approved design in the UFSAR were not included in Westinghouse drawing APP-CA20-S5-04004. As a result, the as-built configuration of Submodule CA20-04 failed to meet UFSAR maximum shear stud spacing requirements due to the omission of the seven shear studs.
3. 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.
4. The licensee failed to properly translate design requirements into design specifications and drawings which resulted in Seismic Category I Structural Submodule CA20-04 containing embedded conduit that violated the minimum spacing requirements set forth in ACI 349-01. Specifically, ACI 349-01 required embedded conduit not be spaced closer than three conduit diameters center to center; however, the as-built submodule CA20-04 contained embedded conduit with a center-to-center spacing of less than two conduit diameters.
5. 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 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 05200025/2012004-01, "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 CR 528334 and was evaluating corrective actions to be taken to address these issues when this inspection report was issued.

This violation will close Unresolved Item (URI) 05200025/2012003-01, "Maximum and Minimum Stud Spacing Requirements."

.3 Appendix 3, Inspection of Criterion III – Design Control; Section A3.04.02

a. Inspection Scope

During this inspection period, the resident inspectors reviewed a sample of E&DCRs associated with the Vogtle Unit 3 CR10 rebar installation, to determine whether field changes received the proper level of engineering review and were incorporated into all affected documents. To determine whether design changes were performed in accordance with established procedures, the following procedures were reviewed:

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

During this inspection, the inspectors reviewed E&DCR APP-1010-GEF-002, "Circumferential Bar Requirements for Lap Splices in Lieu of Mechanical Connectors," Rev. 0; and SV0-CR01-GEF-000082, "CR10 Rebar Spacing & Sequence," Rev. 0, to determine whether the changes and design input assumptions remained valid. The inspectors reviewed the following layer-6 CR10 drawings, to determine whether the aforementioned E&DCRs were posted to the design drawings:

- SV3-1010-CR-161, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 6 Reinf Plan," Rev. 3; and
- SV3-1010-CR-162, "Nuclear Island Basemat Concrete Reinforcement Area Below Containment Vessel Layer 6 Reinf Details," Rev. 3.

b. Findings

No findings were identified.

.4 Appendix 4, Inspection of Criterion IV – Procurement Document Control; Section A4.04.02, Inspection of QA Program Implementation

a. Inspection Scope

During this inspection period, the resident inspectors reviewed Shaw purchase order (PO) 527358, "CA01, CA02, CA03, CA04, CA05 and CA20 Modules – Fabrication and Assembly", to determine whether procurement documents were prepared in accordance with implementing documents and contained requirements for the contractor to provide appropriate documentation of quality as specified by Shaw SWSQAP 1-74A, Revision B.

b. Findings

No findings were identified.

.5 Appendix 5, Inspection of Criterion V – Instructions, Procedures, and Drawings, Section A5.04.02, Inspection of QA Program Implementation

a. Inspection Scope

During the week of August 27, 2012, the regional inspectors reviewed implementing program documents for preparing and revising implementing documents that prescribe activities affecting quality, to ensure consistency with the NRC-approved QAPD and commitments in the UFSAR.

The inspectors reviewed the applicable section of the licensee's QAPD and UFSAR to ensure that appropriate QA program documents had been developed to address the QAPD requirements and UFSAR commitments for preparing changes of implementing documents.

The inspectors reviewed selected instructions and procedures to determine if they were created, revised, and maintained using appropriate procedures, and whether the following requirements were addressed:

- inclusion of the reason for any changes in the implementing document;
- review and update of implementing documents on a periodic basis;
- implementing document was revised/modified as a result of anticipated changes, determination during implementation that it does not reflect work process, required periodic reviews, and corrective action; and
- provisions for making temporary or immediate changes, when necessary, including expiration date.

The inspectors also obtained the names of personnel or locations which received controlled copies of the change and verified the change was at the location where work was being performed and interviewed personnel to determine if they followed the proper procedures when initiating and changing instructions, processes, and drawings.

Documents reviewed are listed in the attachment.

The following inspection samples were completed:
A5.03.02: 5 implementing documents, 4 individuals

b. Findings

No findings were identified.

.6 Appendix 6, Inspection of Criterion VI – Document Control; Section A6.04.02, Inspection of QA Program Implementation

a. Inspection Scope

During this inspection period, the resident inspectors reviewed Shaw's QA program implementing documents, which prescribe the measures for the review, issuance, and distribution of documents affecting quality, such as drawings and specifications. The inspectors examined a list of quality affecting controlled documents to determine whether documents were controlled in accordance with the following procedures:

- PRIMP-00010, "Construction Site Document Control," Rev. 0
- QS 6.1, "Document Control," Rev. J

During this inspection, the inspectors reviewed work packages SV3-CR10-CRW-0322, "Installation of Reinforcing Steel on CR10 Module" and SV3-1000-CRW-CV0295, "Unit 3 Nuclear Island Reinforcing Steel" to determine the whether the work packages were:

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

b. Findings

No findings were identified.

.7 Appendix 7, Inspection of Criterion VII – Control of Purchased Material, Equipment, and Services; Section A7.04, Inspection Requirements and Guidance; and Section A7.04.02, Inspection of QA Program Implementation

a. Inspection Scope

During the week of August 27, 2012, the regional inspectors reviewed a sample of the licensee's QA implementing documents for control of purchased material and equipment, and services, to verify proper implementation. The inspectors reviewed the SNC's current Qualified Suppliers List (QSL), Shaw's Quality Rating List (QRL) and Westinghouse's QSL and associated documentation that supports the inclusion of contractors on the QSL/QRL. The inspectors selected a sample of contractors, and examined the associated documentation that supported the contractor's inclusion on the QSL/QRL to determine if:

- an audit, surveillance or other method was conducted and documented and that it supported the placement or retention of the contractor on the QSL;
- audits were conducted on schedule by qualified auditors;
- identified deficiencies related to implementation of the contractor's QA program were included in the licensee's or the contractor's corrective action program and deficiencies were considered in the decision to retain the contractor on the QSL; and
- scheduled contractor audits were conducted and if scheduled contractor audits were deferred or cancelled and the reasons for deferral or cancellation.

The inspectors reviewed documentation and interviewed personnel to verify that contractors were removed from the QSL/QRL when warranted. A sample of the most recently removed contractors from the Shaw's QRL was reviewed, to determine the QRL and associated documentation reflected removal of the contractor. The inspectors also reviewed a sample of audits from SNC, Shaw to their contractors, to verify an audit supporting the placement or retention of the contractor on the QSL/QRL was conducted.

A sample of safety related items procured from contractors was inspected to verify that documentation of the item was examined for conformance with requirements specified in the procurement document. The inspectors reviewed the training records of a Shaw's

QC inspector, to determine whether the records demonstrated that the QC inspector was capable of performing the technical acceptance.

The inspectors walked down the receiving inspection warehouse and laydown areas to verify that accepted items were tagged or marked as acceptable for use, as acceptable with condition, or unacceptable. The inspectors reviewed items determined to be unacceptable to verify that they were segregated or marked as unavailable for use, and that a nonconformance report or corrective action report was initiated.

Documents reviewed are listed in the attachment.
The following inspection samples were completed:

- A7.03.02a: 3 samples
- A7.03.02b: 7 samples
- A7.03.02c: 1 sample
- A7.03.02d: 2 samples

b. Findings

No findings were identified.

.8 Appendix 7, Inspection of Criterion VII – Control of Purchased Material, Equipment, and Services; Section A7.04.02

a. Inspection Scope

The inspectors observed and reviewed a sample of safety-related items that SNC, through its contractor Shaw, accepted through implementation of their source inspection program. The inspectors reviewed Shaw's activities to determine whether they were performed in accordance with Shaw SWSQAP 1-74A, Revision B, and the relevant QA program implementing procedures, such as QS 14.2, "Inspection Report System," and QS 15.1 "Nonconformance and Disposition Report."

The inspectors performed a direct visual inspection of the CA20-04 submodule procured by Shaw from their supplier Shaw Modular Solution (SMS), and a sample of safety-related embed plates supplied to Shaw by CIVES. The inspectors compared the as-built CA20-04 submodule to design drawing SV3-CA20-S5-04004, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-04 Structural outline Vertical Sections/Views," Rev. 1, to determine whether the installed nelson studs were in accordance with the drawings. The inspectors compared the embed plates to AWS D1.1:2000 Structural Welding Code, to determine whether the studs and cold-worked wire for concrete reinforcement which were welded to the embed plates complied with the code requirements. The inspectors also measured a sample of safety related reinforcing bars for the Unit 3 nuclear island basemat to determine whether the bend diameters complied with the requirements of Section 7.2, "Minimum Bend Diameters," of ACI 349-01, "Code Requirements for Nuclear Safety Related Concrete Structures."

The inspectors reviewed the following source and site receiving inspection plans to determine whether the scopes of the source inspections were adequate to verify the applicable quality and technical requirements established by the documents referenced above:

source inspection procedure (IP) number (No.): SV3-1206-CA-20, Module Fabrication, Quality Inspection Plan, Rev. 6;

- source IP No: 132175-CE01.01-001 Rev. 0;
- site IP No.: M-Q445, "Receipt Inspection," Rev. 1, Change 1;
- site IP No.: F-Q445-04, "Receipt Inspection – Modules - Structural," Rev. 2; and
- site IP No.: F-Q445-06, "Receipt Inspection – Reinforcing Steel," Rev. 1.

The inspectors also received the following source inspection records to determine whether the source inspectors completed the above inspection plans and whether the inspection records were adequate to furnish evidence of these activities affecting quality:

- source IR No: 132175-CE01.01-405-004-06;
- site IR No: Q445-12-0643;
- site IR No: Q445-12-0594; and
- source IR No: 12-527358-SMS-0346 CA20-04 Inspection Report.

b. Findings

As-Built Submodule CA20-04, Auxiliary Building Embed Plates, and Nuclear Island Reinforcement Steel Not In Accordance With Procurement Documents

Introduction

An ITAAC finding of very low safety significance (Green) and three examples of a VIO of 10 CFR Part 50, Appendix B, Criterion VII, "Control of Purchased Material, Equipment, and Services," were identified by the inspectors for SNC's failure, through its contractor Shaw, to ensure that purchased material conformed to procurement documents.

Description

SNC delegated certain safety-related procurement activities for the Vogtle Unit 3 and 4 construction project to Shaw through an Engineering, Procurement and Construction Agreement between SNC and a consortium consisting of WEC and Shaw. On behalf of SNC, Shaw procured and conducted source and receipt inspections of submodule CA20-04, auxiliary building embed plates, and nuclear island reinforcing steel. The inspectors identified that SNC and Shaw failed to perform adequate inspections of these safety-related materials at supplier facilities and failed to perform adequate examinations upon delivery, to assure that these materials conformed to the procurement documents.

Example 1 - Submodule CA20-04

The inspectors determined that Shaw PO Number 527358, "CA01, CA02, CA03, CA04, CA05, and CA20 Modules – Fabrication and Assembly," required that submodule CA20-04 be designed in accordance with design drawing SV3-CA20-S5-04004, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-04 Structural Outline Vertical Sections/Views," Rev. 1. This design drawing required nelson studs be installed on submodule CA20-04. During a review of the as-built configuration of submodule CA20-04, the inspectors determined that 39 nelson studs were missing, and were not present at the time of acceptance. The inspectors noted Shaw had accepted this submodule based upon inspections performed at the source.

The acceptance criteria of ITAAC 763 require that a report exists and concludes that the as-built structures in the radiologically controlled area of the auxiliary building conform to the approved design. The inspectors determined that the failure to install these 39 studs represented a deviation from the design which was not analyzed for the design basis loads.

The inspectors noted this submodule was not installed in the nuclear island.

Example 2 - Auxiliary Building Embed Plates

Shaw PO 132175-CE01.01, Rev. 3, references WEC Design Specification, SV3-SS01-Z0-003, Rev. 2, "Embedded and Miscellaneous Steel, Westinghouse Safety Class C." Section 4.3.2.6 of WEC's design specification, states in part, "Concrete stud anchors shall be applied in accordance with Section 7 of AWS D1.1." Section 7.8.1 of AWS D1.1:2000 states in part that, "If a visual inspection reveals any stud that does not show a full 360° flash or any stud that has been repaired by welding, such stud shall be bent to an angle of approximately 15° from its original axis."

During a review of the as-built configuration of a sample of auxiliary building embed plates, the inspectors identified 22 safety-related embed plates did not have a full 360° flash around the base of the stud and were not bent 15° from the original axis. In addition to the lack of flash, the inspectors identified 143 embed plates failed to meet the requirement of Section 7.8.1 of AWS D1.1:2000, in that these embed plates contained numerous studs repaired by welding which did not exhibit bending of the stud to an angle of 15 degrees from their original axis. The inspectors noted Shaw accepted these embed plates based upon inspections performed at the source. Additionally, Shaw performed a receipt inspection of these embed plates and failed to identify these embed plates did not comply with the AWS Code.

The inspectors determined that this example of the violation was not material to the acceptance criteria of an ITAAC.

Example 3 - Nuclear Island Reinforcing Steel

Vogtle Unit 3 nuclear island reinforcing steel supplied by Gerdau failed to comply with Section 7.2, "Minimum bend diameters," of ACI 349-01 "Code Requirements for Nuclear Safety Related Concrete Structures," which was required by Section 3.8.4, "Other Category I Structures," of the UFSAR, and Westinghouse Design Specification, APP-CR01-Z0-011, Revision 4, "Furnishing of Safety Related Reinforcing Steel, Westinghouse Safety Class C." Specifically, 1127 reinforcing bars for the nuclear island basemat failed to meet the minimum bend diameter requirements of ACI 349-01. At the time of this issue, Shaw had installed approximately 280 of these nonconforming bars in the Vogtle Unit 3 nuclear island.

The acceptance criterion of ITAAC 763 and ITAAC 762 requires a report exists and concludes that the as-built structures in the radiologically and non-radiologically controlled areas of the auxiliary building conform to the approved design. The inspectors determined the failure of these bars to meet the ACI Code requirements represented a deviation from the design which was not analyzed for the design basis loads.

Analysis

The inspectors determined that SNC's failure to perform adequate inspections of safety-related materials at supplier facilities and failure to perform adequate examinations of products upon delivery was contrary to the requirements of 10 CFR Part 50, Appendix B, Criterion VII and was a performance deficiency. The finding was determined to be more than minor because the issue, if left uncorrected, 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. Additionally, this issue was considered more than minor because, if left uncorrected, it could adversely affect the closure of an ITAAC.

The inspectors determined that this finding was associated with the Procurement/Fabrication Cornerstone. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 2519P, "Construction Significance Determination Process - Pilot," Appendix A, "AP 1000 Construction Significance Determination Process - Pilot" because the finding was not related to either a security or operational program and was determined to be an ITAAC finding. The inspectors determined the finding was of very low safety significance (Green) because the design function of the applicable structures or systems would not be impaired by the deficiency.

The inspectors determined this finding, specifically examples 1 and 3, represented an ITAAC finding because it was material to the acceptance criteria of Vogtle Unit 3 ITAACs 762 and 763, in that, if left uncorrected, the licensee could not show that the acceptance criteria of these ITAACs were met. Specifically, the acceptance criteria for these ITAACs require a report exists and concludes that the as-built structures in the non-radiologically controlled and radiologically controlled areas of the auxiliary building, respectively, conform to the approved design. However, as-built, submodule CA20-04 and nuclear island reinforcing steel did not conform to the approved design; therefore, these examples represented structural deviations that would not have been reconciled by the licensee.

The inspectors screened the finding for a possible CSFC 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 had a cross-cutting aspect in the area of Baseline Inspection, Construction Experience, because the licensee and Shaw did not adequately implement and institutionalize construction experience through changes to construction processes, procedures, materials, and training programs. Specifically, the licensee and Shaw failed to incorporate construction experience related to rebar bending issues and ineffective source and receipt inspections discussed in NRC Information Notice (IN) 2008-17, "Construction Experience with Concrete Placement," and Institute of Nuclear Power Operations Event Report 11-1, "Lessons Learned From Construction Projects Involving Reinforcing Steel Bar." [A.6(b)]

Enforcement

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 10CFR 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 July 2, 2012, SNC, through its contractor (Shaw), failed to perform adequate inspections of safety-related materials at supplier facilities and 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 submodule CA20-04, embed plates, and nuclear island basemat reinforcing steel did not conform to the following procurement documents, respectively: SV3-CA20-S5-04004, “Auxiliary Building Areas 5 & 6 Module CA20 Sub-module CA20-04 Structural outline Vertical Sections/Views,” Revision 1; SV3-SS01-Z0-003, “Embedded and Miscellaneous Steel, Westinghouse Safety Class C,” Revision 2; APP-CR01-Z0-011, “Furnishing of Safety Related Reinforcing Steel, Westinghouse Safety Class C,” Revision 4.

This violation was evaluated under the significance determination process as having very low safety significance (Green). Because the licensee’s corrective action program has not been evaluated for effective implementation as guided by IMC 2505P, this violation is being cited as a Notice of Violation, consistent with the NRC Enforcement Policy Section 2.2.3 (VIO 05200025/2012004-02, “As-Built Submodule CA20-04, Auxiliary Building Embed Plates, and Nuclear Island Reinforcement Steel Not In Accordance With Procurement Documents”).

SNC initiated CR 531786 to identify and correct this violation. This CR summarizes the three examples of the violation.

Shaw initiated nonconformance and disposition (N&D) reports V-ND-12-0315 and V-ND-12-0451 and corrective action record (CAR) 2012-0606 for this issue to evaluate and correct the nonconforming condition associated with Submodule CA20-04. SNC initiated condition reports (CRs) 459707, 464475, 473414, and 468918 to identify and track Shaw’s corrective actions for this issue. WEC, the design authority, performed an evaluation of the nonconformance and determined that the as-built Submodule CA20-04 would have been able to perform its intended design function; therefore, WEC determined that this nonconformance did not represent a substantial safety hazard that needed to be reported to the NRC under the requirements of 10 CFR Part 21. The inspectors noted that this submodule was not installed in the nuclear island. Actions to correct this nonconformance were under development at the conclusion of this inspection.

Shaw initiated Unsat IR Numbers Q445-12-0594 and Q445-12-0825 to evaluate and correct the nonconforming condition associated with the 22 nonconforming embed plates. Shaw also initiated CARs 2012-831 and 2012-848 to evaluate the deviations. The inspectors also noted SNC initiated CR 477586 to identify the issue and track Shaw’s corrective actions. These embed plates were returned to the supplier; however, Shaw had not completed the evaluation for Q445-12-0825 at the conclusion of this inspection.

Shaw initiated Unsat IR Q445-12-0820 and CAR 2012-0848 to evaluate and correct the nonconforming condition associated with the 143 embed plates were repaired by welding which did not exhibit bending of the stud to an angle of 15 degrees from their original axis. The inspectors noted Q445-12-0820 was closed on August 7, 2012, and Shaw had successfully bent all the repaired studs on the 143 embed plates. SNC initiated CR480477 to identify the issue and track Shaw's corrective actions.

Shaw initiated CAR 2012-0958 to identify and correct the nonconforming condition associated with the NI reinforcing steel. The inspectors noted Shaw removed all of the nonconforming rebar from the Vogtle Unit 3 nuclear island. The licensee initiated CR 496495 to identify the issue and track Shaw's corrective actions. The inspectors noted Shaw completed the 10 CFR Part 21 evaluation for CAR 2012-0958 and determined the condition, if left uncorrected, would not have resulted in a substantial safety hazard; therefore, Shaw determined the issue was not reportable under 10 CFR Part 21 or 10 CFR 50.55(e).

.9 Appendix 10, Inspection of Criterion X – Inspection, Section A10.04, Inspection Requirements and Guidance; and Section A10.04.02, Inspection of QA Program Implementation

a. Inspection Scope

During the week of August 27, 2012, the regional inspectors reviewed a representative sample of the licensee's and its primary subcontractors', Shaw and WEC, QA implementing documents for inspection of items to verify effective implementation.

The inspectors evaluated a sample of inspection documentation associated with safety related and risk significant non-safety related items that required inspection verification. Specifically, the inspectors observed receipt inspection of rebar performed by Shaw QC personnel. The inspectors observed the activity to verify the QC inspections were performed:

- by qualified QC personnel that had not performed or directly supervised the work being inspected;
- by personnel authorized to conduct the inspection and to revise the status markings or documentation associated with the item;
- using current implementing document(s) and appropriate tools to conduct the inspection; and
- at the required frequency for each work operation, as described in the implementing documents.

The inspectors reviewed inspection documentation to verify mandatory hold points were complied with and witnessed by the licensee's designated representative. The inspectors reviewed completed work documents to verify appropriate controls were in place to ensure work did not proceed beyond specified hold points without written authorization from designated personnel.

The inspectors observed the performance of the licensee's verification activities to verify:

- the licensee's inspectors confirmed that the items were accurately marked to reflect the appropriate inspection status;

- measurements complied with the specified acceptance criteria; and
- the inspection results were appropriately documented.

Documents reviewed are listed in the attachment.

The following inspection samples were completed:

A10.03.02: 2 samples of active inspections, 3 samples of QC inspection records

b. Findings

No findings were identified.

.10 Appendix 12, Inspection of Criterion XII – Control of Measuring and Test Equipment, Section A12.04 Inspection Requirements and Guidance; and Section A12.04.02 Inspection of QA Program Implementation

a. Inspection Scope

During the week of August 27, 2012, the regional inspectors reviewed a representative sample of the licensee's QA implementing documents for control of M&TE to verify effective implementation.

The inspectors reviewed a sample of tracking systems for calibrated M&TE for both Shaw and CB&I to verify a log-out/log-in system was in place to control the use of M&TE maintained by authorized personnel. The inspectors interviewed the instrument and control personnel to verify the M&TE program aspects were appropriately understood.

The inspectors reviewed a representative sample of calibrated M&TE from the active items tracking systems to verify the equipment met the requirements specified in the implementing documents. The inspectors located the calibrated M&TE to verify it was identified by a unique number, tagged/labeled to indicated current calibration status, and properly stored. The inspectors reviewed the related calibration documentation to verify M&TE was calibrated within specified calibration intervals, accuracy was within specified limits, and documentation and test/inspection results were traceable to the M&TE being verified.

The inspectors reviewed a sample of new M&TE which was recently added to the tracking system and its documentation (inspection/test results) to determine when the M&TE was first used and if it was calibrated prior to being placed into service.

The inspectors reviewed a sample of M&TE recently taken out of service because of a nonconforming condition, including being out of calibration, lost, or damaged to verify that the M&TE met requirements. The inspectors verified M&TE was properly tagged and identified as out of service and an NCR was initiated to evaluate previous use of the M&TE. The inspectors reviewed records which indicated previous inspections, tests, and status determinations conducted since the last calibration to verify those determinations would be re-evaluated to confirm validity.

The inspectors reviewed the M&TE active tracking systems and segregation areas to verify M&TE deleted from the active tracking systems were permanently removed from service and were no longer available for use. The inspectors observed M&TE located at

on-site work facilities used to conduct inspections, tests, and other activities to verify the M&TE was tagged or labeled to indicate the current calibration status. The inspectors reviewed the associated calibration implementing documents, records and M&TE tracking systems for Shaw and CB&I to verify that the tags/labels were in agreement with the calibration documentation and M&TE tracking system.

The inspectors observed an in-process calibration of a voltmeter and ammeter on a welding machine to verify the M&TE was calibrated in accordance with implementing documents and that the records produced were accurate and complete.

The inspectors interviewed qualified personnel regarding the licensee's shipping of M&TE to the contractor responsible for calibrating the M&TE to determine if the licensee was properly implementing its program controls for shipping M&TE.

Documents reviewed are listed in the attachment.

The following inspection samples were completed:

- A12.03.02a: 2 samples
- A12.03.02b: 4 samples
- A12.03.02c: 3 samples
- A12.03.02d: 3 samples
- A12.03.02e: 1 sample
- A12.03.02f: 2 samples
- A12.03.02g: 2 samples

b. Findings

No findings were identified.

.11 Appendix 13, Inspection of Criterion XIII – Handling, Storage and Shipping; Section A13.04.02, Inspection of QA Program Implementation

a. Inspection Scope

During this inspection period, the resident inspectors reviewed the following quality and technical implementing documents for storage, handling, and shipping of equipment, materials, and spare parts (collectively referred to as "items") to determine whether Shaw adequately implemented the requirements of NQA-1-1994 and 10 CFR Part 50, Appendix B, Criterion 13:

- APP-CR01-Z0-011, "Furnishing of Safety Related Reinforcing Steel," Rev 4;
- 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 performed an inspection of Shaw's designated storage locations for safety-related reinforcing steel (rebar) and embed plates, to determine whether the items were stored in accordance with the quality and technical requirements referenced above. Specifically, the inspectors toured the storage locations of the safety related items for the Unit 3 nuclear island basemat; the CR10 module (structural steel frame that

supports reinforcing bar that support the containment vessel bottom head); and the Unit 3 containment vessel bottom head rebar. During this inspection, the inspectors observed the storage conditions for conformance with the following attributes established by the quality and technical requirements:

- protection from physical and mechanical damage;
- outdoor areas were marked and designated for storage;
- items were stored on cribbing and not subject to trapping water; and
- items were stored in a manner that permitted inventory control.

The inspectors performed an inspection of designated storage locations for the structural submodules, safety-related rebar, and containment coating material to determine whether items were stored in accordance with the following technical and quality requirements:

- 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants;"
- ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications;" and
- SWSQAP 1-74A, "Shaw Standard Nuclear Quality Assurance Program," Revision B.

Specifically, the inspectors observed the actual storage conditions for conformance with the following attributes established by the quality and technical requirements identified above:

- areas were appropriately labeled and controlled;
- methods of preservation were used appropriately;
- caps and plugs were utilized for items with sensitive internal surfaces or threads;
- items were placed on pallets or shoring to permit air circulation;
- the area was provided with uniform temperature control, and
- nonconforming materials were segregated and tagged.

The inspectors performed a walkdown of several of the Shaw Level D storage areas to determine whether Shaw controlled the storage of safety-related rebar and structural submodules to prevent damage or deterioration. Specifically, the inspectors observed the storage areas to determine whether Shaw was adequately implementing Section 13, "Handling, Storage, and Shipping," of their Standard Nuclear Quality Assurance Program, Rev B; and QS 13.11, "Material/Equipment Storage," Rev C.

b. Findings

No findings were identified.

.12 Appendix 15, Inspection of Criterion XV: Nonconforming Materials, Parts, or Components; Section A15.04.02, Inspection of QA Program Implementation

a. Inspection Scope

During this inspection period, the resident inspectors toured the onsite storage areas to determine whether the licensee implemented established measures for material segregation and control of non-conforming items. The following procedures were reviewed:

- Section 15, “Nonconforming Materials, Parts, or Components,” of the SWSQAP 1-74A; and
- QS 15.1, “Nonconformance & Disposition Report,” Rev G

The inspectors observed the marking and segregation of nonconforming items to determine whether the items were placed in a designated area as well as tagged, marked, and labeled as nonconforming. The inspectors also reviewed N&Ds identified during their site walk down to determine whether the N&Ds, once closed, were adequately reviewed and accepted, rejected, repaired, or reworked in accordance with the aforementioned documented procedures and processes.

The following N&Ds were reviewed:

- V-ND-12-0473
- V-ND-12-0306
- V-ND-12-0137
- V-ND-12-0308
- V-ND-12-0212
- V-ND-12-0421

b. Findings

No findings were identified.

.13 Appendix 16, Inspection of Criterion XVI – Corrective Action; Section A16.04.02, Inspection of QA Program Implementation

a. Inspection Scope

During this inspection period, the resident inspectors reviewed a sample of issues entered into the SNC, Shaw, and WEC corrective action programs to determine whether conditions adverse to quality were controlled in accordance with each company’s QA program and whether potential adverse trends were appropriately identified and corrected by SNC or their contractors.

Specifically, the inspectors: (1) attended weekly issue review committee meetings at the site; (2) reviewed a sample of SNC, Shaw, and WEC corrective action documents; and (3) held discussions with SNC, Shaw, and WEC personnel responsible for the screening and correction of the issues.

The inspectors selected a sample of issues entered in the corrective action programs to determine whether the handling of these issues were consistent with the applicable QAP requirements; and 10 CFR Part 50, Appendix B.

Specifically, the inspectors reviewed the following SNC condition reports, WEC issue reports (IRs), and Shaw CARs:

- SNC CR 441610
- SNC CR 452662
- SNC CR 463221
- SNC CR 463225
- SNC CR 448975
- WEC IR 12-230-M004
- WEC IR 12-216-M010
- WEC IR 12-280-M001
- WEC IR 12-178-M045
- Shaw CAR 2012-0630
- Shaw CAR 2012-0652
- Shaw CAR 2012-0622

The inspectors reviewed the corrective action documents referenced above to determine whether:

- 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; and
- organizations properly evaluated and reported the condition (e.g., 10 CFR 50.55(e), 10 CFR Part 21).

b. Findings

No findings were identified.

.14 Appendix 18, Inspection of Criterion XVIII – Audits, Section A18.04 Inspection Requirements and Guidance; and Section 35007-A18.04.02 Inspection of QA Program Implementation

a. Inspection Scope

During the week of August 27, 2012, the regional inspectors reviewed the licensee's and its primary subcontractors', Shaw and WEC, QA implementing documents for audits to verify effective implementation. For SNC, Shaw, and WEC the current internal and external audit schedules were reviewed to verify areas to be audited and audit frequencies identified were consistent with commitments. The inspectors reviewed how audits were scheduled and tracked to verify that none of the audits scheduled were

canceled or deferred. This review included completed audits from 2011 and 2012, and scheduled audits for the remainder of 2012 and for 2013.

A sample of recently completed audit reports conducted by Shaw, WEC, and SNC was reviewed to verify the following were included:

- determination of effectiveness of implementation,
- compliance with the respective QA program,
- summaries of identified deficiencies and nonconformances, and
- response due dates.

Additionally, the inspectors reviewed the sample audit reports to verify that:

- the results of audit activities were sufficient to ascertain the general status of the contractor's implemented QA activities for the requirements in procurement documents;
- they were reviewed by management responsible for the audited areas;
- they were distributed to designated organizations; and
- audit findings corrected during the audits were documented and verified during audit processes.

For Shaw and WEC, this sample included the most recent external audits of several suppliers. For SNC, this sample included internal audits and the most recent triennial audit for Shaw and WEC. Both of these audits were Nuclear Procurement Issues Committee (NUPIC) audits, and the audit teams included SNC employees. The associated SNC audit report review forms were also reviewed to verify that SNC evaluated the audit scope to ensure it included the complete scope of activities procured for Vogtle Units 3 and 4. On the Shaw NUPIC audit report review form, SNC noted that the NUPIC audit did not cover onsite activities at Vogtle Units 3 and 4 and an additional audit of these activities would be necessary. The supplementary SNC audit of Shaw's onsite activities was reviewed to verify that it encompassed the remaining scope of Shaw's safety-related activities.

The inspectors reviewed the associated audit schedules and plans for the sample audit reports, and the inspectors verified the audits were included in the audit schedule and performed within the scheduled time frames. The activities followed-up on in the sampled audit reports were reviewed to verify the actions taken fully addressed expressed concerns and the concerns were appropriately resolved.

Several deficiencies and nonconformances identified during the sampled QA audits were reviewed to verify they were resolved or were being tracked as "open items" with a defined schedule for resolution. Deficiencies identified by SNC, Shaw, and WEC during external audits were reviewed, as well as deficiencies identified during SNC internal audits. The follow-up activities were also reviewed to verify the actions were taken or were scheduled to be completed, and the follow-up activities fully addressed expressed concerns.

A sample of auditors and specialists qualification records for SNC, Shaw, and WEC was reviewed to verify that auditors were trained, auditor training was adequately maintained, and that auditors did not have direct responsibility in the areas that were audited. A

sample of qualified auditors and specialists who have recently conducted audits were interviewed to verify the following:

- follow-up activities identified during audits are tracked to ensure that they are completed;
- the auditors had direct access to the levels of management of the activities being audited;
- the auditors did not perform the work that they audited; and
- the auditors received an audit briefing prior to conducting audits.

Documents reviewed are listed in the attachment.

The following inspection samples were completed:

A18.03.02:

SNC: two audit schedules, three internal audits reports, two external audit reports, and two follow-up actions;

Shaw: one audit schedules, three external audit reports, and two follow-up actions;

WEC: two audit schedules, three external audit reports, and two follow-up actions.

b. Findings

No findings were identified.

4OA3 Follow-up of Licensee Reports, NOVs, and Notices of Enforcement Discretion

- .1 (Closed) VIO 05200025/2012008-01: "Failure to Assure Design Services were Accomplished with the Appropriate Design Control Measures"

The inspectors performed a review of the licensee's corrective actions and commitments to correct the violation identified in 05200025/2012008-01, (ML12139A192). The violation was associated with the nuclear island basemat bottom flexural reinforcement specified in construction drawings not complying with the provisions of ACI 349-01. The purpose of this inspection was to determine whether the licensee's corrective actions associated with the commitments made in their response to the NOV, dated June 18, 2012, (ML12173A289), were met and were sufficient to adequately correct the issues identified by the aforementioned NOV.

To meet the commitments of their response, SNC provided a report, dated July 3, 2012, (ML12187A575), to the NRC describing how the reinforced concrete design of the NI basemat was revised to fully meet the licensing basis. In a letter dated July 13, 2012, (ML12195A308), the NRC responded to SNC's submittal indicating the revised design did not meet the licensing basis. Based on this response and in accordance with the provisions of VEGP Unit 3 COL Condition 2.D.(1), SNC submitted a License Amendment Request (LAR), dated August 1, 2012, (ML12215A084) and a Preliminary Amendment Request (PAR), dated August 1, 2012, (ML12215A085), to the NRC to increase the design compressive strength of the concrete mix for the basemat. In a letter dated, October 18, 2012, (ML12268A1280), the NRC responded to LAR 12-007 with issuance of Amendment Number 1. NRC staff evaluated the proposed amendment change, concluded it was acceptable, and documented the conclusions in a safety evaluation (ML12268A1930).

The inspectors reviewed the licensee's and contractor's corrective action activities associated with a new procedure for conducting Licensing Impact Reviews, training to convey the problem identified with the NI rebar design and the importance of complying with the requirements of the licensing basis, revised procedures for SNC's review of changes requested by E&DCRs, and reviews to assure that site construction drawings will conform to the licensing basis.

The inspectors also reviewed the licensee's corrective actions and verified the non-conforming rebar was removed, the contractor's addressed the importance of assuring that the licensing basis is fully met, and work packages for the first 90 days of NI basemat construction were reviewed to determine if the licensing basis was correctly reflected. The inspectors independently confirmed the re-installed rebar reflected the revised design. The inspectors also verified the development lengths detailed in the revised design drawings are adequate and in compliance with the code for concrete with a specified compressive strength of 5,000 psi, as evaluated in response to LAR 12-007.

The inspectors determined that with the acceptance of LAR 12-007, the revised rebar detail, and the additional corrective actions implemented, the licensee adequately corrected the violation identified in VIO 05200025/2012008-01. The NRC considers the NOV Closed.

.2 (Closed) VIO 05200025/2012008-02: "Failure to Seek NRC Approval for Departing from Tier 2* Information"

The inspectors performed a review of the licensee's corrective actions and commitments to correct the violation identified in 05200025/2012008-02, (ML12139A192). The violation was in regard to departing from Tier 2* information in the referenced certified design without NRC approval. The purpose of this inspection was to determine whether the licensee's corrective actions associated with the commitments made in their response to the NOV, dated June 18, 2012, (ML12173A289), were met and were sufficient to adequately correct the issues identified by the aforementioned NOV.

To meet the commitments of their response, SNC provided a report, dated July 3, 2012, (ML12187A575), to the NRC describing how the reinforced concrete design of the NI basemat was revised to fully meet the licensing basis. In a letter dated July 13, 2012, (ML12195A308), the NRC responded to SNC's submittal indicating the revised design did not meet the licensing basis. Based on this response and in accordance with the provisions of VEGP Unit 3 COL Condition 2.D.(1), SNC submitted a LAR, dated August 1, 2012, (ML12215A084) and a PAR, dated August 1, 2012, (ML12215A085), to the NRC to increase the design compressive strength of the concrete mix for the basemat. In a letter dated, August 2, 2012, (ML12209A357), the NRC responded to PAR 12-007 by stating the NRC determined there was sufficient information to accept LAR 12-007 for review and the NRC had no objection to SNC proceeding with the installation of the proposed plant change pending the outcome of the NRC's detailed technical review of LAR 12-007.

During their inspection, the inspectors reviewed the licensee's and contractor's corrective action activities associated with a new procedure for conducting Licensing Impact Reviews, training to convey the problem identified with the NI rebar design and the importance of complying with the requirements of the licensing basis, revised

procedures for SNC's review of changes requested by E&DCRs, and reviews to assure that site construction drawings will conform to the licensing basis.

The inspectors also reviewed the licensee's corrective actions and verified the non-conforming rebar was removed, the contractor's addressed the importance of assuring that the licensing basis is fully met, and work packages for the first 90 days of NI basemat construction were reviewed to determine that the licensing basis was correctly reflected. In addition, the inspector's reviewed the results of the licensee's and contractor's establishment of a Constructing to Licensing Basis review team to identify deficiencies between the certified design and construction.

The inspectors determined that with the submittal of LAR 12-007 and the additional corrective actions implemented, the licensee adequately corrected the violation identified in VIO 05200025/2012008-02. The NRC considers the NOV Closed.

40A6 Meetings, Including Exit

.1 Exit Meeting.

On October 4, 2012, the inspectors presented the inspection results to Mr. Chuck Pierce, SNC AP1000 Licensing Manager, along with other licensee and consortium staff members. The inspectors stated that no proprietary information would be included in the inspection report.

40A7 Licensee-Identified Violations

.1 Construction Quality Assurance

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements, which met the criteria of the NRC Enforcement Policy, for being dispositioned as a NCV.

Criterion III, "Design Control," of 10 CFR Part 50, Appendix B, requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in § 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, "Quality Assurance Features – Service Level I and Service Level III Coatings," of the Vogtle Unit 3 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 Methyl Ethyl Ketone (MEK) rub test."

Contrary to the above, on or before July 20, 2012, the licensee failed to adequately ensure the testing required in the UFSAR was correctly translated into a specification. 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 call for the MEK rub test to be performed.

The inspectors noted the licensee initiated CAR number 497153 to identify and correct this issue. The inspectors further noted that CAR 497153 referenced Westinghouse IR 12-216-M010.

The inspectors determined the finding was not greater than green in accordance with IMC 2519P because the finding is associated with the Passive Cooling System, a system in the low risk column of the Risk Importance table and is not a repetitive significant condition adverse to quality.

KEY POINTS OF CONTACT

Licensees and Contractor Personnel

CB&I

M. Cusick, Project Management
P. Edwards, Site QA Lead
J. Goans, Sr. Field Quality Engineer
S. Hand, QA Manager
J. Stetler, Site Project Engineer
W. Terell, Project Management

Shaw

D. Barnett, Quality Control
J. Fail, Quality Control
C. Hamm, Level II Receiving Inspector
S. Huminsky, Vogtle RIM Manager
M. Huss, Lead Auditor
A. Reynolds, Quality Control
F. Smith, Nuclear Quality Assurance Program Manager
E. Wenzinger, Licensing
T. Wiggins, Quality Control

SNC

T. Amundson, Licensing Engineering
K. Bankston, Lead Auditor
D. Gray, Engineering
N. Jackiw, Licensing
D. Jones, Site Vice President
M. Jones, Engineering
J. B. Lowery, Quality Assurance Supervisor
H. Mayhan, Licensing Manager
D. McComb, Engineering
A. Ragland, Lead Auditor
M. Tanner, Quality Assurance Supervisor
F. Willis, Licensing
M. Yox, Licensing Engineer

WEC

M. Blose, Principal Quality Engineer
S. Bradley, Licensing Manager
G. Castleberry, Civil Engineering
R. Caruso, Principle Quality Engineer
V. Curcio, Supplier Quality Qualification and Assessments Manager
S. Gauthier, Principal Quality Engineer
B. Mustio, Lead Auditor
J. Tull, Quality Assurance Manager
A. Zubroski, Principal Quality Engineer

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSEDOpened

05200025/2012004-01	VIO	Criterion III violation, Stud spacing and conduit spacing (Section 4OA2.2)
05200025/2012004-02	VIO	Criterion VII violation, source/receipt inspection (Section 4OA2.8)

Closed

05200025/2012008-01	VIO	Failure to Assure Design Services were Accomplished with the Appropriate Design Control Measures (Section 4OA3.1)
05200025/2012008-02	VIO	Failure to Seek NRC Approval for Departing from Tier 2* Information (Section 4OA3.2)
05200025/2012003-01	URI	Maximum and Minimum Stud Spacing Requirements (Section 4OA2.2)

Opened/Closed

05200025/2012004-03	LIV	Criterion III Licensee Identified Violation for coatings on containment shell
---------------------	-----	---

LIST OF DOCUMENTS REVIEWED

Specifications:

CB&I CMS-830-15-SP-12049, Welding Material Specification for Low-Alloy Steel Flux Cored Electrode (Outershield 91K2-HSR), Rev 2

Westinghouse APP-MV50-Z0-037, AP1000 Containment Vessel: SA-738 Grade B Plates, Rev 2

Miscellaneous:

CB&I Welding Material Authorization and Release Report, U4/U3-009, Q3 Lot # 1075G

CB&I Receiving Inspection Report Nuclear, RIR Report Nos: U4-028, U4-029, U4-003, U4-004, and U4-005

Miscellaneous:

CB&I Vogtle Unit 3 and 4 Qualified Welders List (Continuity Log) Contract Number 165766, as updated on 7/12/2012

Welder Performance Qualification records, various

CB&I Report of Radiographic Examination – Nuclear, Report Nos.: U4-002, U4-005

IHI RT Record No. RT-003-WA4-C2-1

Certificate of Conformance, To: Praxair of Evans for AR STAR 14-T, 8/22/2011

Procedures:

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

IHI Radiographic Examination Procedure CB&I Services, Inc, CB&I Project No .165766, PO No. 490404, Rev 4

CB&I WPS E91TG-H4, Contract 165766, Rev 4

CB&I WPS Eni4 / OK 10.72, Contract 165766, Rev 4

Corrective Action Documents:

Southern Company CR# 487155, What standards are shield weld gasses procured to meet App B requirements, 7/19/2012

Miscellaneous:

Lincoln Electric CMTR Q3 Lot 1075G, 6/19/2012

JFE CMTR No 6022-3 and 6022-2, 9/27/2010

Southern Nuclear Documents

ND-QA-002, Quality Assurance NDQAM Control and Development, Rev. 6

Shaw Documents

CSI 1-1-1, Preparation and Control of Construction Site Instructions, Rev. 1

CSI 2-11-20, Work Package Planning, Development, Approval and Closure, Rev. 20

NCSP 2-19-1, Work Package Planning, Development, Approval and Closure, Rev. 1

PRIM-00009, Field Working Package, Rev. 1

QAD 5.1, Preparation, Issue, and Control of Quality Assurance Procedures, Rev. 001

QAD 7.14, Receiving Inspection, Rev. 001

QS 5.1, Quality Standard Procedural System, Rev. M

QSI 5.1, Preparation and Control of Quality Site Instructions, Rev O.

QS 12.1, Shaw Nuclear Calibration Program, Rev G

QSI 12.1-V, Control of Measuring and Test Equipment, Rev. E

Receipt Inspections

F-Q445-04, Receipt Inspection-Modules-Structural, 2/23/12
 Q445-12-0205, Modules – Structural Backing Bar, 4/5/12
 F-Q445-08, Receipt Inspection: Shaw Procured ASME III Items, 11/7/11
 Q445-12-004, ER80S Weld Wire, 1/4/12
 Q445-12-0215, E8018 Filler Material 4/9/12

Misc.

Calibration Manual, Rev. AK

Audits

V2011-28, Quality Assurance Audit of Cives Steel Company, December 4, 2011

CB&I Documents

CMS-720-03-PL-00010.40, Nuclear Quality Assurance Manual, Rev 10

Westinghouse Documents

APP-GW-GAP-444, NPP Level 3 Procedures, Rev. 2
 NSNP 7.13, Receipt Inspection, Rev. 0
 WEC 2.1, Policies & Procedures, Rev 17.1
 WEC 2.14, Global Procedure Review Board Process, Rev 0

Audits

(SNC) NUPIC Joint Audit of Bechtel Power Corporation, Audit Number 22605, Audit dates: 10/25/12 – 10/28/2010
 (SNC) Audit/Survey Report Review of Bechtel, dated 7/26/11
 (SNC) Southern Nuclear Operating Company Audit No. SNC-ND-2012.05-SHAW-SITE-QA, Engineering and Construction Services, Audit dates: May14-June 1, 2012
 (SNC) NUPIC Audit 22867, Mega-Audit of Westinghouse Electric Company, Sept 7, 2011
 (SNC) NUPIC Audit 22932, Procurement Quality Audit of Shaw Stone & Webster, Dec 16, 2011
 (Shaw) Shaw Nuclear Services, Inc. Audit No. V2012-01 of Williams Specialty Services, LLC – February 6-10, 2012
 (Shaw) Shaw Nuclear Services, Inc. Audit No V2011-28, Quality Assurance Audit of Cives Steel Company, December 4, 2011

Procedures

(SNC) NMP-FO-204, Supplier Audit/ Survey Report Review, Version 4.0
 (Shaw) QAD 7.17, Supplier and Contractor QA Program Manual Reviews and Qualification Audits, Rev. 002
 (WEC) WEC 16.2, Westinghouse Corrective Action Process, Rev. 4.1

Purchase Orders

(Shaw) Shaw Stone and Webster Purchase Order 724280-000 3P to Lincoln Electric Company, dated 9/15/11
 (Shaw) Shaw Change Order No. 145-PO 527359 to Shaw Modular Solutions, LLC, Attachment 1: Requisition Notes, 132176-D100-196, Rev. 0

Miscellaneous

(Shaw) Notification of Closure – Shaw Nuclear Services, Inc. Audit No. V2012-01 of Williams Specialty Services, LLC
 (Shaw) Notification of Closure – Shaw Nuclear Services, Inc. Audit No. V2012-01 of Williams Specialty Services, LLC
 (Shaw) Shaw Nuclear Quality Assurance Inspection Report – Type “A” No. Q445-12-0841, dated 7/25/12

(Shaw) Certificate of Qualification for receipt inspector (J. Brooks), dated 1/30/12
 (Shaw) QRL Addition/Change Form, Supplier: Joseph Oat Corporation, dated 8/22/12
 (Shaw) Shaw Nuclear Quality Rating List, dated 8/24/12
 (WEC) Westinghouse Qualified Suppliers List, dated 8/28/12
 (SNC) SNC ND Qualified Suppliers List, dated 7/26/12
 (SNC) NUPIC Closeout of NUPIC Joint Audit 22605 of Bechtel Power Corporation, dated January 31, 2011

QSI 10.1-V, "Inspection Planning and Reporting," Rev. D, 5/21/12
 F-Q445-06, "Shaw Nuclear Services Quality Inspection Plan, Receipt Inspection – Reinforcing Steel" Rev. 1, 12/8/11
 IR Q445-12-0856, "Shaw Nuclear Quality Assurance Inspection Report – Type 'A', Reinforcing Steel," 7/25/12
 R Q445-12-0970, "Shaw Nuclear Quality Assurance Inspection Report – Type 'A', Reinforcing Steel," 8/13/12
 IR Q445-12-1045, "Shaw Nuclear Quality Assurance Inspection Report – Type 'A', Reinforcing Steel," 8/23/12
 IR Q445-12-1030, "Shaw Nuclear Quality Assurance Inspection Report – Type 'A', Reinforcing Steel," 8/21/12
 IR Q445-12-0859, "Shaw Nuclear Quality Assurance Inspection Report – Type 'A', Embedments," 8/23/12
 APP-CR01-Z0-011, "Design Specification," Rev. 4, 8/11/11
 MRR12-05697, "Material Receipts Report," Rev. 0, 8/13/12
 MRR12-06108, "Material Receipts Report," Rev. 0, 8/27/12
 CAR 2012-0357, Unauthorized Work Package Modification
 CSI 2-11-20, "Work Package Planning, Development, Approval and Closure," 8/11/2012
 NCSP 2-19-1, "Work Package planning, Development, Approval and Closure," 9/29/2011
 NCSP-2-12-2, "Construction Quality Completion Program," Rev. 2, 8/7/2012
 QSI 10.1-V, "Inspection Planning and Reporting," Rev. D, 05/8/2012

QS 12.1, "Shaw Nuclear Calibration Program," Rev. G, 10/21/09
 QSI 12.1-V, "Control of Measuring and Testing Equipment," Rev. E, 5/28/12
 Shaw Calibrated M&TE History Card/ Usage Log for V-G-0035, 8/29/12
 Shaw Failed Calibrated M&TE Evaluation for V-AP-0031, 4/13/12
 WEC 21.1, "Control of Measuring and Test Equipment," Rev. 2, 11/18/11

CMS-830-15-WI-81021, "Calibration and Verification Check of Welding Voltmeters," Rev. 0, 9/29/08
 CMS-830-15-WI-81022, "Calibration and Verification Check of Ammeters," Rev. 1, 7/29/09
 165766-830-15-GL-000004, "Guidelines for Miller CB&I Controller Calibration and Verification," Rev. 0, 1/17/12
 CB&I Calibration and Verification Check Record for Miller CB&I Controller Voltmeter (I.D. SAWV-9 and SAWV-10), 8/29/12
 CB&I Calibration and Verification Check Record for Miller CB&I Controller Ammeter (I.D. SAWA-9 and SAWA-10), 8/29/12
 CB&I Calibration and Verification Check Record for Lincoln LN-25 Wire Feeder Voltmeter (I.D. LN25V-7), 8/29/12
 CB&I Calibration and Verification Check Record for Fluke 62 Mini Infrared Thermometer (Serial No. 13790242), Removed from service, 8/29/12
 CB&I Observation Report/Problem Notice – Nuclear, OB-VES-2012-295, 5/22/2012
 CB&I Vogtle Unit 3 and Unit 4 Calibrated Equipment List, 8/29/12

Shaw Equipment Log and History Card, Equip. No.: EG0003
 Shaw Equipment Log and History Card, Equip. No.: SPG-0002
 Shaw Equipment Log and History Card, Equip. No.: SPG-0009
 Shaw Failed Calibrated M&IE Evaluation, V-AP-0034, Dial Thermometer
 Shaw Failed Calibrated M&IE Evaluation, V-OQ-12-0027, Pressure Gauge 0-30 PSI

WEC

APP-GW-GAP-140: AP1000 Licensing Applicability Determination and 10 CFR 50.59/10 CFR 52, Appendix D Section VIII Screening
 APP-GW-GAP-142: AP1000- 10 CFR 52 Appendix D Section VII process for changes and Departure Evaluations
 APP-GW-147: AP1000 Current Licensing Basis Review
 APP-GW-GAP-420: "Engineering Design and Coordination Report," Rev. 6

SNC

ND-LI-VNP-002: Applicability Determination and 50.59/Departure Screening for VEGP, Version 5.0
 ND-LI-VNP-003: 50.59/Departure Evaluations for Vogtle 3 & 4, Version 3.0
 ND-LI-VNP-007: Licensing Document Change Requests for VEGP Units 3 and 4, Version 1.0
 ND-LI-VNP-008: License Amendment Requests, Preliminary Amendment Requests and Exemption Requests for VEGP 3 and 4, Version 2.0
 LDCR-12-013—CA Modular Liner Plate Material Change (APP-FSAR-GLN-081);
 LDCR-12-014— RNS Pump Seal cooler-nozzle change (APP-FSAR-GLN-051);
 LDCR-12-035—DCD clarification needed to support construction (APP-FSAR-GLN-094);
 LDCR-12-17—Turbine Building Changes(APP-FSAR-GLN-087);
 LDCR-12-025— WLS Containment Sump module and PSS containment atmosphere monitor seismic requirements (APP-FSAR-GLN-052); and
 LDCR-12-046—DCD Figure 3.5.5-3, Discrepancies (APP-FSAR-GLN-100)

Drawings

APP-CA20-S5-04002, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-04 Break-Down," Revision 6

N&Ds:

V-ND-12-0315, "CA20-04 Omitted Nelson Studs"
 V-ND-12-0451, "CA20-04 Inaccessible Stud Welds (Follow-up to V-ND-12-0315)"

Specification:

APP-VW01-Z0-001, "Structural Module Shear Stud Welding Specification," Rev. 2

Drawing:

APP-CA20-S5-04004, "Auxiliary Building Areas 5 & 6 Module CA20 Submodule CA20-04 Structural Outline Vertical Sections / Views," Rev. 6

Work Package:

SV3-CA20-S5W-CV1018, "CA20-04 Stud Welding"
 Shaw Nuclear Weld Record for Weld Numbers: CV0959-121, -460
 Quality Assurance Records Package CA20-04 SLOOSE, Vogtle Unit 3

Test Reports:

Test Report L18778, for Nelson Studs – Heat 10139000
 Charter Steel Test Report for Nelson Studs – Heat 10139000
 NUCOR Mill Test Report for Heat 1503691

Certificate of Conformance and Certified Material Test Report for 1/8x16 Lincoln ER80S-Ni1, Lot/Heat 1039N

Welding Procedures:

WPS6-1.1M02, GMAW-Pulse, Revision 1

GWS-6, "Stud Welding – General Welding Specification," Revision 0

Westinghouse:

Issue Report 11-200-M029, "Audit WES-2011-352 Finding WMF-01 – Training/Certification," 12/1/11

Issue Report 12-130-M034, "Supplier Audit WES-2011-194 Compunetix," 8/10/12

Procedure WEC 7.1, "Supplier Qualification and Assessment," 7/312

Supplier Audit Four Quarter Schedule, 8/29/12

FY11 Internal Audit Schedule, 7/26/12

WES-2011-194 Audit Package

WES-2011-197 Audit Package (NIAC #16129)

WES-2011-352 Audit Package

Procedure WEC 18.1, "Internal Audits," Rev. 2

SNC:

"Audit/Survey Report Review" of Shaw/Stone & Webster at Stoughton, MA and Charlotte, NC, 2/8/12

"Audit/Survey Report Review" of Westinghouse Electric AP100 at Cranberry Township, PA, 12/24/11

"Audit/Survey Report Review" of Westinghouse Electric AP100 at Cranberry Township, PA, 1/12/12

Audit SNC-ND-11-1140.05-SITE-LWA, "Southern Nuclear Operating Company Nuclear Development Quality Assurance Audit Report of Shaw Nuclear Services, Inc. and MACTEC Engineering and Consulting, Inc. Waynesboro, GA," 6/15/11

NUPIC Audit 22867, Mega-Audit of Westinghouse Electric Company, 9/7/11

NUPIC Audit 22932, Procurement Quality Audit of Shaw Stone & Webster, 12/16/11

Procedure NMP-FO-201, "Supplier Quality Program Evaluation," Version 7.0, 4/25/12

Procedure NMP-FO-202, "Supplier Safety-Related Program Audits," Version 4.0, 4/25/12

Procedure NMP-FO-204, "Supplier Audit/Survey Report Review," Version 4.0, 4/25/12

Audit C-SCM-2011, "Fleet Oversight Supply Chain Management Audit," 9/28/11

Audit C-PE-2011, "Nuclear Development Quality Assurance Audit of Procurement Engineering," 9/20/11

Audit C-NDCAP-2011, "Nuclear Development Quality Assurance Audit of the Nuclear Development Corrective Action Program," 6/23/11

ND-10-2333, "2011/2012 Corporate and Site Nuclear Development Quality Assurance Audit Schedule," 12/15/10

ND-12-1508, "2012/2013 Nuclear Development Quality Assurance Audit Schedule," Rev. 2, 7/19/12

Shaw:

"Notification of Closure – Shaw Nuclear Services, Inc. Quality Assurance Audit of Gerdau Inc. (Steel Mill Locations), Audit No. V2011-024," 8/15/12

"Response to Shaw Audit V2012-24," 8/29/12

Audit No. V2011-024, "Shaw Nuclear Services, Inc., Quality Assurance Audit or Gerdau Ameristeel Inc. (Steel Mill Locations)," 11/10/11

Audit No. V2012-024, "Shaw Nuclear Services Quality Assurance Audit of Gerdau Corporation," 7/31/12

Audit No. V2012-03, "Shaw Nuclear Services Quality Assurance Audit of Shaw Modular Solutions, LLC," 4/6/12

Audit No. V2012-03, Audit Team Briefing, Shaw Modular Solutions, 2/29/12

Audit No. V2012-07, "Nuclear Services Quality Assurance Audit of AMEC E&I, Inc.," 4/17/12

Auditor Qualification records, Employee No. 03237, 5/16/12

Auditor Qualification records, Employee No. 44053, 9/1/11

Surveillance Report No. S-CH-AP1000-2012-015, "Visit to Facility and observe processes and controls in place for forming rebar. Inspect rebar and rocedures employed. Verify and report any problems, unacceptable products and issues observed." 8/20/12

Surveillance Report No. S-CH-AP1000-2012-016, "Verify problems with bend in rebar at Gerdau Charlotte, NC location," 8/22/12

Procedure QAD 18.1, "Quality Assurance Audits," Rev. 001, 7/16/12

Procedure QAD 18.12, "Quality Assurance Surveillances," Rev. C, 10/25/10

Procedure QAD 2.13, "Qualification and Certification of Personnel Performing Quality Assurance Audits," Rev. F, 2/8/11

Audit Listing 8-1-2011 through 7-24-2012, 7/14/12

Procedures

NCSP 3-42-1, 03/19/2012, Reinforcing Steel Installation

QS 9.11, Rev. F, 05/15/2012, Exothermic Splicing of reinforcing Steel

NCSP 3-43-1, 05-16-2012, Exothermic Splicing of reinforcing Steel

Drawings

APP-1000-CR-001, Rev. 6, Nuclear Island Basemat Bottom Reinforcement

APP-1000-CR-002, Rev. 8, Nuclear Island Basemat Top Reinforcement

SV3-1010-CR-003-R2, Nuclear Island Basemat Dowel Plan at EL 66'-6" Shield Building South-West Quadrant

SV3-1000-CR-901-R3, Nuclear Island Basemat Reinforcement Sections

SV3-1010-CR-011-R2, Nuclear Island Basemat Sections and Details

SV3-1010-CR-012-R0, Auxiliary Building Skin Reinforcement Splices

SV3-1000-CR-904-R3, Nuclear Island Basemat Reinforcement Section Details

SV3-1210-CR-901-R2, Auxiliary Building Basemat Reinforcement Sections NS and Details EL 66'-6"

SV3-1210-CR-902-R2, Auxiliary Building Basemat Reinforcement Sections EW and Details EL 66'-6"

SV3-1210-CR-903-R3, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

SV3-1210-CR-907-R3, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

SV3-1210-CR-908-R0, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

Engineering and Design Coordination Report

SV3-CR01-GEF-000017, Rev. 0, NI Rebar Aux. Bldg. Hook Additions

SV3-CR01-GEF-000018, Rev. 0, NI Rebar Shield Bldg. BM Hooks

SV3-CR01-GEF-000019, Rev. 0, Hold NI Basemat Critical Sections

APP-CR01-GEF-005, Rev. 0, Allowance for Mechanical Couplers Requiring Staggered Installation and Guidance for Weldable Coupler Testing and Qualifications

Work Packages

SV3-1000-CRW-CV0295, Installation of Reinforcing Steel for NI Basemat

Specifications:

APP-GW-GAP-420, Rev. 6, Engineering and Design Coordination Report
 APP-CR01-Z0-011, Rev. 4, Furnishing of Safety Related Reinforcing Steel, Westinghouse Safety Class C "Nuclear Safety Related"
 APP-CR01-Z0-010, Rev. 6, Specification for Supply and Installation of Mechanical Splices for Reinforcing Steel

Corrective Action / Nonconformance Records:

Southern
 CR 482375

Westinghouse

IR 12-193-M024

Miscellaneous:

Southern Surveillance Report: ND-QA-013-F01
 Southern Surveillance Report: ND-QA-013-F03
 Shaw Quality Assurance Inspection Report: Q445-12-0525
 Shaw Quality Assurance Inspection Report: Q445-12-0623
 Lenton CADWELD Rebar Metal Filled Mechanical Splices
 Lenton Instruction Manual, CADWELD for Rebar Splicing System

Procedures

NCSP 3-42-1, 03/19/2012, Reinforcing Steel Installation
 QS 9.11, Rev. F, 05/15/2012, Exothermic Splicing of reinforcing Steel
 NCSP 3-43-1, 05-16-2012, Exothermic Splicing of reinforcing Steel

Drawings

APP-1000-CR-001, Rev. 6, Nuclear Island Basemat Bottom Reinforcement
 APP-1000-CR-002, Rev. 8, Nuclear Island Basemat Top Reinforcement
 SV3-1010-CR-003-R2, Nuclear Island Basemat Dowel Plan at EL 66'-6" Shield Building South-West Quadrant
 SV3-1000-CR-901-R3, Nuclear Island Basemat Reinforcement Sections
 SV3-1010-CR-011-R2, Nuclear Island Basemat Sections and Details
 SV3-1010-CR-012-R0, Auxiliary Building Skin Reinforcement Splices
 SV3-1000-CR-904-R3, Nuclear Island Basemat Reinforcement Section Details
 SV3-1210-CR-901-R2, Auxiliary Building Basemat Reinforcement Sections NS and Details EL 66'-6"
 SV3-1210-CR-902-R2, Auxiliary Building Basemat Reinforcement Sections EW and Details EL 66'-6"
 SV3-1210-CR-903-R3, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"
 SV3-1210-CR-907-R3, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"
 SV3-1210-CR-908-R0, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

Engineering and Design Coordination Report

SV3-CR01-GEF-000017, Rev. 0, NI Rebar Aux. Bldg. Hook Additions
 SV3-CR01-GEF-000018, Rev. 0, NI Rebar Shield Bldg. BM Hooks
 SV3-CR01-GEF-000019, Rev. 0, Hold NI Basemat Critical Sections
 APP-CR01-GEF-005, Rev. 0, Allowance for Mechanical Couplers Requiring Staggered Installation and Guidance for Weldable Coupler Testing and Qualifications

Work Packages

SV3-1000-CRW-CV0295, Installation of Reinforcing Steel for NI Basemat

Specifications:

APP-GW-GAP-420, Rev. 6, Engineering and Design Coordination Report
 APP-CR01-Z0-011, Rev. 4, Furnishing of Safety Related Reinforcing Steel, Westinghouse Safety Class C "Nuclear Safety Related"
 APP-CR01-Z0-010, Rev. 6, Specification for Supply and Installation of Mechanical Splices for Reinforcing Steel

Corrective Action / Nonconformance Records:

Southern
 CR 482375

Westinghouse

IR 12-193-M024

Miscellaneous:

Southern Surveillance Report: ND-QA-013-F01
 Southern Surveillance Report: ND-QA-013-F03
 Shaw Quality Assurance Inspection Report: Q445-12-0525
 Shaw Quality Assurance Inspection Report: Q445-12-0623
 Lenton CADWELD Rebar Metal Filled Mechanical Splices
 Lenton Instruction Manual, CADWELD for Rebar Splicing System

Procedures:

165766-830-15-WI-000013, Work Instruction for Removal of Defective Material and Installation of an Insert Plate for U3LRS Vertical Seams, Rev 0
 CB&I Repair Traveler, Contract 165766, S1 Plates B3-A6 through B3-A10, Remove, re-size and re-bevel S1 plates

Corrective Action Documents:

Southern Company CR# 487158, Impact of PWHT on susceptible welding on VEGP 3 CV Lower Course S1

Other:

CB&I Receiving Inspection Report U4-082, Receiving Inspection Report for plate originally marked B4-A8 and transferred to Unit 3, 8/22/2012
 CB&I Material Verification Summary Sheet, Vogtle Unit #3, Lower Ring Assembly

Procedures

CB&I Work Instruction 165766-830-15-WI000013, Work Instruction for Removal of Defective Material and Installation of an Insert Plate for U3LRS Vertical Seams, Rev 0

CB&I Procedure 165766-830-15-PR-RP-0000001, PWHT Procedure, Rev 3

CB&I WPS Pin, Rev 1

CB&I WPS TAU, Rev 2

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

CB&I CMS-720-03-PR-07351, Control of Temporary Attachments (Site), Rev 3
 Corrective Action Documents
 CB&I NCR U3-076, Rev 5

CB&I Report 165766-000-WS-RP-0001, 11 including appendices

SNC CR 487152, Plate cutting operations without preheat, 7/19/2012
 CB&I OB-VES-2012-349, NRC discovery of insulation pins stored in "Superheat" box, 09/12/2012
 SNC SR 517205, Control of Temporary Attachments procedure, 9/13/2012
 SNC SR 517221, WEC Surveillance transposed readings, 9/13/2012
 WEC IR# 12-257-M079, WEC Surveillance outdated revision, 9/13/2012
 Other
 CB&I Thermal History Sheet, Vogtle Unit 3, Report SK103, B3-A1 to B3-A2 Seam per traveler no. U3-S1-A1/A2 following PWHT #3 (Field) B3-A1 to B3-A2
 CB&I traveler no. U3-S1-A1/A2.
 CB&I Daily Material Distribution Log, Unit 3, Contract 165766, 9/10/2012
 CMTR, Q3 LOT: 1075G
 Lincoln Electric Certificate of Lot Conformance, Lot no. 1075G
 CB&I Calibration and "Verification Check" Record, Fluke 62 Mini Infrared Thermometer Serial No. 19470141
 CB&I Calibration and "Verification Check" Record, Clamp Meter Serial No. 101101307
 Sherwin Certification Batch 03-J4, 11/5/2010
 Sherwin Certification Batch 115-D6, 4/27/2011
 Sherwin Certification Batch 12-F47, 7/12/2011
 Weldstar COC Batch 03-J4, 5/26/2011
 Weldstar COC Batch 12-F47 and 115-D6, 10/31/2011
 TE Wire & Cable LLC, COC T.E. Lot 12766-197, 5/21/2012
 TE Wire & Cable LLC, COC T.E. Lot W90876-1, 4/20/2012

Procedures

NCSP 3-42-1, Reinforcing Steel Installation

Work Packages

SV3-1000-CRW-CV0295, Installation of Reinforcing Steel for Nuclear island Basemat, Books 1 thru 6

Design Drawings

APP-0000-C9-001, Rev. 7, AP1000 Concrete General Notes
 APP-0000-C9-002, Rev. 4, AP1000 Concrete General Notes
 APP-1000-CR-901, Rev. 9, Nuclear Island Basemat Reinforcement Sections
 APP-1000-CR-904, Rev. 6, Nuclear Island Basemat Reinforcement Section Details
 APP-1010-CR-003, Rev. 2, Nuclear Island Basemat Dowel Plan at El. 66'-6" Shield Building Southwest Quadrant
 APP-1010-CR-011, Rev. 2, Nuclear Island Basemat Reinforcement Sections & Details
 APP-1010-CR-012, Rev. 0, Auxiliary Building Skin Reinforcement Splices
 APP-1210-CR-901, Rev. 5, Auxiliary Building Basemat Reinforcement Sections NS and Details El 66'-6"
 APP-1210-CR-902, Rev. 5, Auxiliary Building Basemat Reinforcement Sections EW and Details El 66'-6"

APP-1210-CR-903, Rev. 6, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

APP-1210-CR-907, Rev. 4, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

APP-1210-CR-908, Rev. 0, Auxiliary Building Reinforcement Sections & Details Pits Sump Area El 66'-6"

NIB-S-1, Rev. 2, Nuclear Island Basemat Shear Reinforcement – Plan

Specifications

SV3-CC01-Z0-031, Rev. 2, Safety Related Placing Concrete and Reinforcing Steel, Westinghouse Seismic Category I Safety Class C "Nuclear Safety"

Corrective Action / Nonconformance Records:

CR 517278, Development Length of Layer 1 & 2 Rebar Hooks

CR 519809, U-3 Basemat Sump & Elevator Shear Reinforcing Lengths

CR 509413, Rebar Lap Splice Class A vs B uncertainty

CR 511680, Rebar Lap Splice Class A vs B uncertainty

CR 511677, Rebar Lap Splice Class A vs B uncertainty

Miscellaneous:

SV0-1010-CCC-007, Rev. 0, Vogtle Units 3 & 4 NI Basemat Reinforcement Details at Basemat Perimeter, Sumps, and Elevator Pit for 5000 psi Specified Concrete Strength

PO# 132175-J400A-00, Gerdau Ameristeel

E&DCR SV0-CR01-GEF-000101, NI Basemat #11 dowels against #14

E&DCR SV0-CR01-GEF-000018, NI Rebar Shield Bldg. BM Hooks

E&DCR SV0-CR01-GEF-000022, NI Rebar Auz. Bldg. Hook Additions

E&DCR SV0-CR01-GEF-000024, (Ld) for Rebar for $f'_c = 5000$ psi

E&DCR SV0-CR01-GEF-000070, NI Basemat Thickness

E&DCR SV0-CR01-GEF-000081, Dimensions for Detail 16

E&DCR SV0-CR01-GEF-000097, Basemat Edge Detail Corrections

E&DCR SV0-CR01-GEF-000098, Conc Pre-placement at Sumps & Pits

Procedures

NCSP 3-42-1, Reinforcing Steel Installation

Work Packages

SV3-1000-CRW-CV0295, Installation of Reinforcing Steel for Nuclear island Basemat, Books 1 thru 6

Design Drawings

APP-0000-C9-001, Rev. 7, AP1000 Concrete General Notes

APP-0000-C9-002, Rev. 4, AP1000 Concrete General Notes

APP-1000-CR-901, Rev. 9, Nuclear Island Basemat Reinforcement Sections

APP-1000-CR-904, Rev. 6, Nuclear Island Basemat Reinforcement Section Details

APP-1010-CR-003, Rev. 2, Nuclear Island Basemat Dowel Plan at El. 66'-6" Shield Building Southwest Quadrant

APP-1010-CR-011, Rev. 2, Nuclear Island Basemat Reinforcement Sections & Details

APP-1010-CR-012, Rev. 0, Auxiliary Building Skin Reinforcement Splices

APP-1210-CR-901, Rev. 5, Auxiliary Building Basemat Reinforcement Sections NS and Details El 66'-6"

APP-1210-CR-902, Rev. 5, Auxiliary Building Basemat Reinforcement Sections EW and Details El 66'-6"

APP-1210-CR-903, Rev. 6, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

APP-1210-CR-907, Rev. 4, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

APP-1210-CR-908, Rev. 0, Auxiliary Building Reinforcement Sections & Details Pits Sump Area El 66'-6"

NIB-S-1, Rev. 2, Nuclear Island Basemat Shear Reinforcement – Plan

Specifications

SV3-CC01-Z0-031, Rev. 2, Safety Related Placing Concrete and Reinforcing Steel, Westinghouse Seismic Category I Safety Class C "Nuclear Safety"

Corrective Action / Nonconformance Records:

CR 517278, Development Length of Layer 1 & 2 Rebar Hooks

CR 519809, U-3 Basemat Sump & Elevator Shear Reinforcing Lengths

CR 509413, Rebar Lap Splice Class A vs B uncertainty

CR 511680, Rebar Lap Splice Class A vs B uncertainty

CR 511677, Rebar Lap Splice Class A vs B uncertainty

Miscellaneous:

SV0-1010-CCC-007, Rev. 0, Vogtle Units 3 & 4 NI Basemat Reinforcement Details at Basemat Perimeter, Sumps, and Elevator Pit for 5000 psi Specified Concrete Strength

PO# 132175-J400A-00, Gerdau Ameristeel

E&DCR SV0-CR01-GEF-000101, NI Basemat #11 dowels against #14

E&DCR SV0-CR01-GEF-000018, NI Rebar Shield Bldg. BM Hooks

E&DCR SV0-CR01-GEF-000022, NI Rebar Auz. Bldg. Hook Additions

E&DCR SV0-CR01-GEF-000024, (Ld) for Rebar for $f'_c = 5000$ psi

E&DCR SV0-CR01-GEF-000070, NI Basemat Thickness

E&DCR SV0-CR01-GEF-000081, Dimensions for Detail 16

E&DCR SV0-CR01-GEF-000097, Basemat Edge Detail Corrections

E&DCR SV0-CR01-GEF-000098, Conc Pre-placement at Sumps & Pits

Procedures

NCSP 3-42-1, Reinforcing Steel Installation

Work Packages

SV3-1000-CRW-CV0295, Installation of Reinforcing Steel for Nuclear island Basemat, Books 1 thru 6

Design Drawings

APP-0000-C9-001, Rev. 7, AP1000 Concrete General Notes

APP-0000-C9-002, Rev. 4, AP1000 Concrete General Notes

APP-1000-CR-901, Rev. 9, Nuclear Island Basemat Reinforcement Sections

APP-1000-CR-904, Rev. 6, Nuclear Island Basemat Reinforcement Section Details

APP-1010-CR-003, Rev. 2, Nuclear Island Basemat Dowel Plan at El. 66'-6" Shield Building Southwest Quadrant

APP-1010-CR-011, Rev. 2, Nuclear Island Basemat Reinforcement Sections & Details

APP-1010-CR-012, Rev. 0, Auxiliary Building Skin Reinforcement Splices

APP-1210-CR-901, Rev. 5, Auxiliary Building Basemat Reinforcement Sections NS and Details El 66'-6"

APP-1210-CR-902, Rev. 5, Auxiliary Building Basemat Reinforcement Sections EW and Details El 66'-6"

APP-1210-CR-903, Rev. 6, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

APP-1210-CR-907, Rev. 4, Auxiliary Building Reinforcement Details Pit and Sump Area El 66'-6"

APP-1210-CR-908, Rev. 0, Auxiliary Building Reinforcement Sections & Details Pits Sump Area El 66'-6"

NIB-S-1, Rev. 2, Nuclear Island Basemat Shear Reinforcement – Plan

Specifications

SV3-CC01-Z0-031, Rev. 2, Safety Related Placing Concrete and Reinforcing Steel, Westinghouse Seismic Category I Safety Class C "Nuclear Safety"

Corrective Action / Nonconformance Records:

CR 517278, Development Length of Layer 1 & 2 Rebar Hooks

CR 519809, U-3 Basemat Sump & Elevator Shear Reinforcing Lengths

CR 509413, Rebar Lap Splice Class A vs B uncertainty

CR 511680, Rebar Lap Splice Class A vs B uncertainty

CR 511677, Rebar Lap Splice Class A vs B uncertainty

Miscellaneous:

SV0-1010-CCC-007, Rev. 0, Vogtle Units 3 & 4 NI Basemat Reinforcement Details at Basemat Perimeter, Sumps, and Elevator Pit for 5000 psi Specified Concrete Strength

PO# 132175-J400A-00, Gerdau Ameristeel

E&DCR SV0-CR01-GEF-000101, NI Basemat #11 dowels against #14

E&DCR SV0-CR01-GEF-000018, NI Rebar Shield Bldg. BM Hooks

E&DCR SV0-CR01-GEF-000022, NI Rebar Auz. Bldg. Hook Additions

E&DCR SV0-CR01-GEF-000024, (Ld) for Rebar for $f'_c = 5000$ psi

E&DCR SV0-CR01-GEF-000070, NI Basemat Thickness

E&DCR SV0-CR01-GEF-000081, Dimensions for Detail 16

E&DCR SV0-CR01-GEF-000097, Basemat Edge Detail Corrections

E&DCR SV0-CR01-GEF-000098, Conc Pre-placement at Sumps & Pits

Procedures

NCSP 3-42-1, Reinforcing Steel Installation

Work Packages

SV3-1000-CRW-CV0295, Installation of Reinforcing Steel for Nuclear island Basemat, Books 1 thru 6

Design Drawings

APP-0000-C9-001, Rev. 7, AP1000 Concrete General Notes

APP-0000-C9-002, Rev. 4, AP1000 Concrete General Notes

APP-1000-CR-901, Rev. 9, Nuclear Island Basemat Reinforcement Sections

APP-1000-CR-904, Rev. 6, Nuclear Island Basemat Reinforcement Section Details

APP-1010-CR-003, Rev. 2, Nuclear Island Basemat Dowel Plan at El. 66'-6" Shield Building Southwest Quadrant

APP-1010-CR-011, Rev. 2, Nuclear Island Basemat Reinforcement Sections & Details

APP-1010-CR-012, Rev. 0, Auxiliary Building Skin Reinforcement Splices

APP-1210-CR-901, Rev. 5, Auxiliary Building Basemat Reinforcement Sections NS and Details El 66'-6"

APP-1210-CR-902, Rev. 5, Auxiliary Building Basemat Reinforcement Sections EW and Details El 66'-6"

APP-1210-CR-903, Rev. 6, Auxiliary Building Reinforcement Details Pit and Sump Area EI 66'-6"

APP-1210-CR-907, Rev. 4, Auxiliary Building Reinforcement Details Pit and Sump Area EI 66'-6"

APP-1210-CR-908, Rev. 0, Auxiliary Building Reinforcement Sections & Details Pits Sump Area EI 66'-6"

NIB-S-1, Rev. 2, Nuclear Island Basemat Shear Reinforcement – Plan

Specifications

SV3-CC01-Z0-031, Rev. 2, Safety Related Placing Concrete and Reinforcing Steel, Westinghouse Seismic Category I Safety Class C "Nuclear Safety"

Corrective Action / Nonconformance Records:

CR 517278, Development Length of Layer 1 & 2 Rebar Hooks

CR 519809, U-3 Basemat Sump & Elevator Shear Reinforcing Lengths

CR 509413, Rebar Lap Splice Class A vs B uncertainty

CR 511680, Rebar Lap Splice Class A vs B uncertainty

CR 511677, Rebar Lap Splice Class A vs B uncertainty

Miscellaneous:

SV0-1010-CCC-007, Rev. 0, Vogtle Units 3 & 4 NI Basemat Reinforcement Details at Basemat Perimeter, Sumps, and Elevator Pit for 5000 psi Specified Concrete Strength

PO# 132175-J400A-00, Gerdau Ameristeel

E&DCR SV0-CR01-GEF-000101, NI Basemat #11 dowels against #14

E&DCR SV0-CR01-GEF-000018, NI Rebar Shield Bldg. BM Hooks

E&DCR SV0-CR01-GEF-000022, NI Rebar Auz. Bldg. Hook Additions

E&DCR SV0-CR01-GEF-000024, (Ld) for Rebar for $f'_c = 5000$ psi

E&DCR SV0-CR01-GEF-000070, NI Basemat Thickness

E&DCR SV0-CR01-GEF-000081, Dimensions for Detail 16

E&DCR SV0-CR01-GEF-000097, Basemat Edge Detail Corrections

E&DCR SV0-CR01-GEF-000098, Conc Pre-placement at Sumps & Pits

WEC Specification APP-GW-Z0-604, Rev. 6, "Application of Protective Coatings to Systems Structures and Components for the AP1000 Reactor Plant"

LIST OF ACRONYMS

10CFR	Title 10 of the Code of Federal Regulations
ASME	American Society of Mechanical Engineers
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CAR	Corrective Action record
CB&I	Chicago Bridge and Iron
CMTR	Certified Material Test Reports
COC	Certificate of Conformance
COL	Combined License
CR	Condition Report
CSFC	Construction Safety Focus Component
CV	Containment Vessel
DCD	Design Control Document
E&DCR	Engineering and Design Coordination Reports
FCAW	Flux Core Arc Welding
FSAR	Final Safety Analysis Report
GMAW	Gas Metal Arc Welding
IP	Inspection Procedure
IR	Issue Report
IR (NRC)	Inspection Report
ITAAC	Inspections, Tests, Analysis, and Inspection Criteria
LAR	License Amendment Request
M&TE	Measuring and Test Equipment
N&D	Nonconformance and Disposition Report
NCR	Nonconformance Report
NDE	Non-Destructive Examination
NI	Nuclear Island
NOV	Notice of Violation
NQA	Nuclear Quality Assurance
NRC	Nuclear Regulatory Commission
NUPIC	Nuclear Procurement Issues Committee
PAR	Preliminary Amendment Request
PO	Purchase Order
PQR	Procedure Qualification Record
PT	Liquid Penetrant Examination
PWHT	Post Weld Heat Treatment
QA	Quality Assurance
QAD	Nuclear Quality Assurance Directive

QAPD	Quality Assurance Program Description
QC	Quality Control
QRL	Quality Rating List
QS	Quality Standard
QSL	Qualified Suppliers List
Rev	Revision
RT	Radiographic Examination
SAW	Submerged Arc Welding
SDP	Significance Determination Process
SNC	Southern Nuclear Operating Company
SMS	Shaw Modular Solution
SWSQAP	Shaw Standard Nuclear Quality Assurance Program
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VIO	Cited Violation
WEC	Westinghouse Electric Company
WPS	Welding Procedure Specification