



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

August 11, 2020

Mr. Michael Yox
Regulatory Affairs Director
Southern Nuclear Operating Company
7825 River Road, Bldg. 302, Vogtle 3&4
Waynesboro, GA 30830

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 3 AND 4 – NRC INITIAL TEST PROGRAM AND OPERATIONAL PROGRAMS INTEGRATED INSPECTION REPORTS
05200025/2020008, 05200026/2020008

Dear Mr. Yox:

On June 30, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant, Units 3 and 4. The enclosed inspection report documents the inspection results, which the inspectors discussed on July 20, 2020 with Mr. Meier and other members of your staff.

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

Based on the results of this inspection, no findings of significance were identified.

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

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

Sincerely,

/RA/

Bradley J. Davis, Branch Chief
Construction Inspection Branch 2
Division of Construction Oversight

Docket Nos.: 5200025, 5200026

License Nos: NPF-91, NPF-92

Enclosure: NRC Inspection Report (IR) 05200025/2020008, 05200026/2020008

w/attachment: Supplemental Information

Docket Nos.: 5200025, 5200026

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Enclosure: NRC Inspection Report (IR) 05200025/2020008, 05200026/2020008

w/attachment: Supplemental Information

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OFFICE	RII: DCO/CIB2	RII: DCO/CIB2	RII: DCO/CIB2	RII: DCO/CIB2			
NAME	C. Even	J. Eargle	K. Carrington	B. Davis			
DATE	7/31/2020	7/31/2020	7/31/2020	8/11/2020			

cc w/ encls:

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

Office of the Attorney General
40 Capitol Square, SW
Atlanta, GA 30334

Southern Nuclear Operating Company
Document Control Coordinator
3535 Colonnade Parkway
Birmingham, AL 35243

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

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

Mr. Wayne Guilfoyle
Commissioner District 8
Augusta-Richmond County Commission
4940 Windsor Spring Rd
Hephzibah, GA 30815

Gwendolyn Jackson
Burke County Library
130 Highway 24 South
Waynesboro, GA 30830

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

Resident Inspector
Vogtle Plant Units 3 & 4
8805 River Road
Waynesboro, GA 30830

Mr. Barty Simonton
Team Leader
Environmental Radiation Program
Air Protection Branch
Environmental Protection Division
4244 International Parkway, Suite 120
Atlanta, GA 30354-3906

Brian H. Whitley
Regulatory Affairs Director
Southern Nuclear Operating Company
3535 Colonnade Parkway, BIN N-226-EC
Birmingham, AL 35243

Mr. Michael Yox
Site Regulatory Affairs Director
Vogtle Units 3 & 4
7825 River. Road, Building 302 (ESB)
Bin 6031
Waynesboro, GA 30830

Email

aagibson@southernco.com (Amanda Gibson)
acchambe@southernco.com (Amy Chamberlian)
awc@nei.org (Anne W. Cottingham)
becky@georgiawand.org (Becky Rafter)
bhwhitley@southernco.com (Brian Whitley)
Bill.Jacobs@gdsassociates.com (Bill Jacobs)
corletmm@westinghouse.com (Michael M. Corletti)
crpierce@southernco.com (C.R. Pierce)
dahjones@southernco.com (David Jones)
david.hinds@ge.com (David Hinds)
david.lewis@pillsburylaw.com (David Lewis)
dlfulton@southernco.com (Dale Fulton)
ed.burns@earthlink.net (Ed Burns)
edavis@pegasusgroup.us (Ed David)
G2NDRMDC@southernco.com (SNC Document Control)
George.Taylor@opc.com (George Taylor)
harperzs@westinghouse.com (Zachary S. Harper)
james1.beard@ge.com (James Beard)
JHaswell@southernco.com (Jeremiah Haswell)
jim@ncwarn.org (Jim Warren)
John.Bozga@nrc.gov (John Bozga)
Joseph_Hegner@dom.com (Joseph Hegner)
karlg@att.net (Karl Gross)
kmstacy@southernco.com (Kara Stacy)
kroberts@southernco.com (Kelli Roberts)
KSutton@morganlewis.com (Kathryn M. Sutton)
kwaugh@impact-net.org (Kenneth O. Waugh)
markus.popa@hq.doe.gov (Markus Popa)
mdmeier@southernco.com (Mike Meier)
media@nei.org (Scott Peterson)
Melissa.Smith@Hq.Doe.Gov (Melissa Smith)
mike.price@opc.com (M.W. Price)
MKWASHIN@southernco.com (MKWashington)
mphumphr@southernco.com (Mark Humphrey)
MSF@nei.org (Marvin Fertel)
nirsnet@nirs.org (Michael Mariotte)
Nuclaw@mindspring.com (Robert Temple)
Paul@beyondnuclear.org (Paul Gunter)
pbessette@morganlewis.com (Paul Bessette)
ppsena@southernco.com (Peter Sena,III)
r.joshi15@comcast.net (Ravi Joshi)
rwink@ameren.com (Roger Wink)
sabinski@suddenlink.net (Steve A. Bennett)
sara@cleanenergy.org (Sara Barczak)

Vogle Mailing List

sbblanton@balch.com (Stanford Blanton)
Shiva.Granmayeh@hq.doe.gov (Shiva Granmayeh)

sjackson@meagpower.org (Steven Jackson)
sjones@psc.state.ga.us (Shemetha Jones)
skauffman@mpr.com (Storm Kauffman)
sleighty@southernco.com (Steve Leighty)
sroetger@psc.state.ga.us (Steve Roetger)
syagee@southernco.com (Stephanie Agee)
TomClements329@cs.com (Tom Clements)
Vanessa.quinn@dhs.gov (Vanessa Quinn)
wayne.marquino@gmail.com (Wayne Marquino)
weave1dw@westinghouse.com (Doug Weaver)
William.Birge@hq.doe.gov (William Birge)
X2edgran@southernco.com (Eddie R. Grant)
x2gabeck@southernco.com (Gary Becker)
X2hagge@southern.com (Neil Haggerty)
X2wwill@southernco.com (Daniel Williamson)

U.S. NUCLEAR REGULATORY COMMISSION
Region II

Docket Numbers: 5200025
5200026

License Numbers: NPF-91
NPF-92

Report Numbers: 05200025/2020008
05200026/2020008

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Units 3 & 4 Combined License

Location: Waynesboro, GA

Inspection Dates: April 1, 2020 through June 30, 2020

Inspectors: P. Carman, Sr. Reactor Inspector, Division of Reactor Safety (DRS)
K. Carrington, Resident Inspector, Division of Construction Oversight (DCO)
B. Collins, Senior Reactor Inspector, DRS
J. Diaz-Velez, Sr. Health Physicist, DRS
S. Downey, Materials Engineer, DRS
D. Dumbacher, Senior Operations Engineer, DRS
C. Dykes, Health Physicist, DRS
J. Eargle, Senior Resident Inspector - Testing, DCO
T. Fanelli, Sr. Reactor Inspector, DRS
T. Fredette, Reactor Operations Engineer, Vogtle Project Office
B. Griman, Construction Inspector, DCO
N. Hansing, Mechanical Engineer, Office of Nuclear Reactor Regulation (NRR)
P. Heher, Resident Inspector, DCO
N. Karlovich, Resident Inspector, DCO
R. Kellner, Senior Health Physicist, DRS
A. Lerch, Construction Inspector, DCO
R. Mathis, Test Inspector, DCO
A. Nielsen, Senior Health Physicist, DRS
R. Patterson, Physical Security Inspector, DRS
W. Pursley, Health Physicist, DRS
J. Rivera, Health Physicist, DRS
T. Scarbrough, Sr. Mechanical Engineer, NRR
M. Tobin, Senior Resident Inspector, Division of Reactor Projects
J. Walker, Emergency Preparedness Inspector, DRS

Approved by:

Bradley J. Davis, Branch Chief
Construction Inspection Branch 2
Division of Construction Oversight

SUMMARY OF FINDINGS

Inspection Report (IR) 05200025/2020008, 05200026/2020008; 04/01/2020 through 06/30/2020; Vogtle Unit 3 Combined License, Vogtle Unit 4 Combined License, initial test program and operational programs integrated inspection report.

This report covers a three-month period of inspection by resident and regional inspectors, and announced Inspections, Tests, Analysis, and Inspection Criteria (ITAAC) inspections. The Nuclear Regulatory Commission's (NRC's) program for overseeing the construction of commercial nuclear power reactors is described in IMC 2506, Construction Reactor Oversight Process General Guidance and Basis Document.

A. NRC-Identified and Self Revealed Findings

None

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Construction Status

During this report period for Unit 3, the licensee completed open vessel testing activities and portions of closed vessel activities associated. Other testing activities included: testing of the protection and monitoring system (PMS) cabinets, including initial energization and software loading; testing of the Class IE Direct Current (DC) battery system; including energized and deenergized component tests; and testing component functionality, including calibrations and interface testing of safety-related and nonsafety-related level transmitters, flow transmitters, pressure transmitters, temperature elements, air operated valves, and motor operated valves.

During this report period for Unit 4, the licensee completed steam generator eddy current testing, and portions of deenergized testing with non-Class 1E DC and uninterruptable power supply system components.

1. CONSTRUCTION REACTOR SAFETY

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

IMC 2503, Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) - Related Work Inspections

1A01 (Unit 3) ITAAC Number 2.2.01.11b (118) / Family 07D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.11b (118). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews

The inspectors reviewed the component test work instructions SV3-ITAAC-ST-SV3-2.2.01.11b for the CNS remotely operated valves included in test work package SV3-CCS-T0W-SNC920991 to determine whether they contained sufficient information to verify the system met the ITAAC acceptance criteria and the requirements of the UFSAR Section 14.2.3, "Test Procedures." Specifically, the inspectors reviewed the work instructions to determine if the following attributes were met:

- objectives for performing the test;
- prerequisites that must be completed before the test can be performed;
- initial conditions under which the test is started;
- special precautions required for the safety of personnel or equipment;
- instructions for how the test is to be performed;

- identification of the required data to be obtained and the methods for documentation; and
- test acceptance criteria.

The inspectors reviewed the work instructions to determine if they followed the procedure writers' guidelines contained in NMP-AP-002, "SNC Fleet Procedures Writers' Guide." The inspectors also reviewed the "Test Instructions" section of the work instructions to determine if the following attributes were met in accordance with the ITP test procedure development requirements:

- provisions made to allow documentation of step completion, including space for initials and date completed;
- provisions for restoring the system back to normal configuration; and
- the ITAAC acceptance criteria shall include the identification of the test steps or test section that provided documented evidence of satisfying the ITAAC acceptance criteria.

Lastly, the inspectors reviewed the work instructions to determine if it specified the required applicable forms in accordance with Section 4.3.2.6 of procedure B-ADM-MNT-006.

b. Findings

No findings were identified.

1A02 (Unit 3) ITAAC Number 2.2.03.10 (206) / Family 10A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.10 (206). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews

The inspectors reviewed the component test work instructions, SV3-2.2.03.10, Item 12b for the PXS remotely operated valves included in test work package SV3- PXS-T0W-SNC921628 to determine whether they contained sufficient information to verify the system met the ITAAC acceptance criteria. Specifically, the inspectors reviewed the work instructions to determine if the following attributes were met:

- objectives for performing the test;
- prerequisites that must be completed before the test can be performed;
- initial conditions under which the test is started;
- special precautions required for the safety of personnel or equipment;
- instructions for how the test is to be performed;
- identification of the required data to be obtained and the methods for documentation; and
- test acceptance criteria.

The inspectors reviewed the work instructions to determine if they followed the procedure writers' guidelines contained in NMP-AP-002, "SNC Fleet Procedures Writers' Guide." The inspectors also reviewed the "Test Instruction" section of the work instructions to determine if the following attributes were met in accordance with the ITP test procedure development requirements:

- provisions made to allow documentation of step completion, including space for initials and date completed;
- provisions for restoring the system back to normal configuration; and
- the ITAAC acceptance criteria shall include the identification of the test steps or test section that provided documented evidence of satisfying the ITAAC acceptance criteria.

The inspectors reviewed the test package to determine if it specified the required applicable forms in accordance with Section 4.3.2.6 of procedure B-ADM-MNT-006.

The inspectors reviewed procedures B-GEN-ITPCI-039 and 3-PXS-OTS-10-001, associated sub-procedures, and work packages to determine if the documents contained sufficient information to meet the requirements of the ITAAC acceptance criteria. Specifically, the inspectors reviewed these documents to determine if the following attributes were met:

- appropriate licensee staff and management approval were indicated on the document;
- test objectives were clearly stated;
- all related UFSAR commitments were included and latest codes and standards were referenced where applicable;
- all required testing prerequisites were identified, including:
 - required plant systems availabilities were specified;
 - any associated facility procedures were specified;
 - special supplies and test equipment needs were specified;
 - test precautions and limitations were specified;
 - software received the appropriate validation and verification;
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- procedures required comparison of results with acceptance criteria;
- initial test conditions were specified;
- the procedure and sub-procedures included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, design specifications, and other requirements;
- step-by-step instructions for the performance of the procedure and sub-procedures, including hold points if needed, were included to the extent necessary to verify if the test was performed correctly and the test objectives were met;
- blank spaces were provided for initialing that all items, including prerequisites, were verified as having been performed;

- provisions were made for recording details of the conduct of the test, including all test anomalies or observed deficiencies, their resolution, and all necessary retesting;
- procedure required that all temporary connections, blind flanges, disconnections or jumpers be restored to normal at the end of the test, or references their control by another procedure;
- procedure provided for the identification of both personnel conducting the testing and those evaluating the test data;
- provision was made for the evaluator to document acceptability of the data;
- procedure provided for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- expected performance of all automatic functions or controls was specified; and
- procedure provided for verification of calibration, calibration dates, and equipment identification for M&TE.

b. Findings

No findings were identified.

1A03 (Units 3 and 4) ITAAC Number 2.5.02.06a.ii (530) / Family 10D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.06a.ii (530). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews
- 65001.C - 02.03 - Construction Test Record Review

The inspectors reviewed procedure APP-PMS-T1P-026 related to testing the AP1000 PMS display partial actuate/partial bypass functions to determine if it contained sufficient information to meet the requirements of APP-PMS-T5-001, APP-PMS-J4-020 and the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedure to determine if the following attributes were met:

- appropriate licensee staff review and management approval were indicated on the document;
- procedure provided for appropriate test prerequisites and suitable environmental conditions, instrumentation, tests and equipment, and necessary monitoring;
- test requirements and acceptance criteria were in accordance with applicable design documents and construction specifications;
- the procedure required comparison of the test results to the acceptance criteria and a provision was made for the evaluator to indicate whether test data is or is not acceptable;
- initial test conditions were specified;

- step-by-step instructions for the performance of the procedure were included to the extent necessary to ensure that test objectives were met;
- provision was made for recording details of the conduct of the test, including any observed deficiencies, their resolution, and any necessary retesting;
- procedure required trained personnel conducting and evaluating the test data;
- test equipment range and accuracy were consistent with the application and complied with applicable licensing basis design calculations or code requirements;
- provisions were made for quality control verification (or independent verification) of critical steps or parameters as required by administrative or quality assurance program requirements;
- expected performance of all automatic functions or controls was specified;
- provisions were made for verification of calibration of M&TE and recording of any temporarily installed or used M&TE, equipment identification, and calibration date; and
- equipment was properly restored upon test completion, including removal of installed jumpers and test equipment, and landing of lifted leads.

The inspectors reviewed the factory acceptance test (FAT) report VS3-PMS-T2R-026 related to the results of testing the AP1000 PMS display partial-actuate/partial-bypass functions to determine that the SSC was tested, and will operate, in accordance with APP-PMS-T1P-026, UFSAR Chapter 7, and the ITAAC acceptance criteria. Specifically, the inspectors reviewed the test results to determine if the following attributes were met:

- testing activities were performed in accordance with the test procedure and the test records were accurate and complete;
- test records were adequate to furnish identifiable and retrievable evidence of activities affecting quality; and
- corrective actions associated with identified unacceptable results were consistent with applicable quality and technical requirements.

The inspectors reviewed and compared the FAT procedure acceptance criteria and testing results against the requirements in Appendix C of the Combined License (COL) to verify that they were clearly identified, and the acceptance criteria were met. Specifically, the inspectors reviewed the PMS two-out-of-four initiation logic reverts to a two-out-of-three coincidence logic if one of the four channels is bypassed, and the PMS does not allow simultaneous bypass of two redundant channels.

The inspectors sampled the following plant parameters:

- Low-6 core makeup tank (CMT) A narrow range lower;
- High T_{hot} ; and
- battery undervoltage ADS actuation

b. Findings

No findings were identified.

1A04 (Unit 3) ITAAC Number 2.5.02.06a.ii (530) / Family 10D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.06a.ii (530). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews
- 65001.C - 02.02 - Construction Test Observation

The inspectors reviewed B-GEN-ITPCI-001 and associated sub-procedures related to energization of PMS cabinets to determine if the procedures contained sufficient information to support testing to satisfy the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedures to determine if the following attributes were met:

- licensee staff and management approval were indicated on the document.
- test objectives were clearly stated;
- UFSAR commitments were included and latest codes and standards were referenced where applicable;
- testing prerequisites were identified, including:
 - required plant systems availability was specified;
 - associated facility procedures were specified;
 - prior completion of calibration checks, limit switch setting, protective device settings, etc. were included where applicable;
 - special supplies and test equipment needs were specified;
 - special environmental conditions and hold times, if any, were identified;
 - test precautions and limitations were specified; and
 - test acceptance criteria and source of the acceptance criteria were clearly identified;
- test results were compared with acceptance criteria;
- initial test conditions were specified, including:
 - electrical power and control requirements;
 - temporary installations or equipment modifications (instrumentation, electrical, and piping); and
 - special conditions e.g. temperatures, humidity, etc;
- procedures included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, design specifications, industry codes, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points if needed, were included to the extent necessary to ensure that the test was performed in accordance with the procedure and the test objectives are met;
- blank spaces were provided for initialing that all items, including prerequisites, are verified as having been performed;

- provisions were made for recording details of the conduct of the test, including all test anomalies or observed deficiencies, their resolution, and all necessary retesting;
- procedures required that all temporary connections, blind flanges, disconnections or jumpers be restored to normal at the end of the test, or references their control by another procedure;
- procedures provided for the identification of both personnel conducting the testing and those evaluating the test data;
- provision was made for the evaluator to document acceptability of the data;
- procedures provided for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified;
- expected performance of all automatic functions or controls was specified; and
- procedures provided for verification of calibration of M&TE and recording of any temporarily installed or used M&TE equipment identification and calibration date.

The inspectors observed the use and implementation of FCN SV3-GW-GCW-300 related to PMS software installation on divisions "A" and "B" MTCs and divisions "B" and "C" BCCs. Additionally, the inspectors observed the use and implementation of procedure B-GEN-ITPCI-001 and sub-procedures B-GEN-ITPCI-003 and B-GEN-ITPCI-004 related to energization of the BCC and MTC cabinets. These activities were selected for test witness since their completion supports the site's ability to perform testing to satisfy the ITAAC.

The inspection samples included the following:

- BCCB01 (BPLC1_1 processor);
- BCCC01 (BPLC1_1, BPLC1_2 and LCLC1_1 processors); and
- MTCA01, MTCB01

Additionally, the inspectors attended the pre-job test brief for the various activities and verified the following attributes were met for the activities witnessed:

- test personnel minimum staffing and qualification requirements were met;
- test prerequisites and initial conditions were met and/or those which were waived were reviewed and approved in accordance with current approved administrative procedures;
- latest procedural revisions were approved and used during each activity or test;
- software version to be installed by the FCN was the latest version that had been released to the site per the configuration management release reports;
- compact disks used for software installation were used in accordance with the FCN;
- M&TE required by the procedure were calibrated and in service at the time of the activity or test;
- testing personnel maintained the required level of training necessary to conduct the activity or test;
- pretest briefings were conducted, and appropriate shift turnover performed to ensure continuity in ongoing activities;

- test personnel actions and coordination activities were adequately performed;
- time sequencing, when required, was performed;
- test personnel adhered to the procedural limitations and precautions, and the individual test steps;
- software cyclic redundancy check was performed in accordance with Appendix A of the FCN;
- software was loaded onto the correct cabinets;
- cabinets were free of alarm faults during energization and software loading;
- jumpers and/or temporary test connections were installed in the correct location and appropriately controlled;
- test anomalies, problems, interruptions, and/or deficiencies were recorded in the test narrative logs and reviewed for inclusion in the licensee's corrective action program;
- test personnel performed a preliminary review of results to determine that the observed results met the established acceptance criteria and that an activity or test did not warrant repeating or if repeating was warranted, measures would be taken to ensure the activity recurred; and
- acceptance criteria were clearly stated in the procedures and FCN.

b. Findings

No findings were identified.

1A05 (Unit 3) ITAAC Number 2.5.02.08a.ii (540) / Family 10D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.08a.ii (540). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews
- 65001.C - 02.02 - Construction Test Observation

The inspectors reviewed B-GEN-ITPCI-001 and associated sub-procedures related to energization of PMS cabinets to determine if the procedures contained sufficient information to support testing to satisfy the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedures to determine if the following attributes were met:

- licensee staff and management approval were indicated on the document.
- test objectives were clearly stated;
- UFSAR commitments were included and latest codes and standards were referenced where applicable;
- testing prerequisites were identified, including:
 - required plant systems availability was specified;
 - associated facility procedures were specified;

- prior completion of calibration checks, limit switch setting, protective device settings, etc. were included where applicable;
- special supplies and test equipment needs were specified;
- special environmental conditions and hold times, if any, were identified;
- test precautions and limitations were specified; and
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- test results were compared with acceptance criteria;
- initial test conditions were specified, including:
 - electrical power and control requirements;
 - temporary installations or equipment modifications (instrumentation, electrical, and piping); and
 - special conditions e.g. temperatures, humidity, etc;
- procedures included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, design specifications, industry codes, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points if needed, were included to the extent necessary to ensure that the test is performed correctly and the test objectives are met;
- blank spaces were provided for initialing that all items, including prerequisites, are verified as having been performed;
- provisions were made for recording details of the conduct of the test, including all test anomalies or observed deficiencies, their resolution, and all necessary retesting;
- procedures required that all temporary connections, blind flanges, disconnections or jumpers be restored to normal at the end of the test, or references their control by another procedure;
- procedures provided for the identification of both personnel conducting the testing and those evaluating the test data;
- provision was made for the evaluator to document acceptability of the data;
- procedures provided for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified;
- expected performance of all automatic functions or controls was specified; and
- procedures provided for verification of calibration of M&TE and recording of any temporarily installed or used M&TE equipment identification and calibration date.

The inspectors observed the use and implementation of FCN SV3-GW-GCW-300 related to PMS software installation on Divisions "A" and "B" MTCs and Divisions "B" and "C" Qualified Data Processing (QDP) cabinets. The inspectors also observed the use and implementation of B-GEN-ITPCI-001 and associated sub-procedures B-GEN-ITPCI-003 and B-GEN ITPCI-009 related to energization of the MTC and QDP cabinets. These activities were selected for test witness since they support the site's ability to perform testing to satisfy the ITAAC.

The inspection samples included the following:

- MTCA01;
- MTCB01;
- QDPB01; and

- QDPC01.

Additionally, the inspectors attended the pre-job test brief for the various activities and verified the following attributes were met for the activities witnessed:

- test personnel minimum staffing and qualification requirements were met;
- test prerequisites and initial conditions were met and/or those which were waived were reviewed and approved in accordance with current approved administrative procedures;
- latest procedural revisions were approved and used during each activity or test;
- software version to be installed by the FCN was the latest version that had been released to the site per the configuration management release reports;
- compact disks used for software installation were used in accordance with the FCN;
- measuring and test equipment (M&TE) required by the procedure were calibrated and in service at the time of the activity or test;
- testing personnel maintained the required level of training necessary to conduct the activity or test;
- pretest briefings were conducted and appropriate shift turnover performed to ensure continuity in ongoing activities;
- test personnel actions and coordination activities were adequately performed;
- time sequencing, when required, was performed;
- test personnel adhered to the procedural limitations and precautions, and the individual test steps;
- software cyclic redundancy check was performed in accordance with Appendix A of the FCN;
- software was loaded onto the correct cabinets;
- cabinets were free of alarm faults during energization and software loading;
- jumpers and/or temporary test connections were installed in the correct location and appropriately controlled;
- test anomalies, problems, interruptions, and/or deficiencies were recorded in the test narrative logs and reviewed for inclusion in the licensee's corrective action program;
- test personnel performed a preliminary review of results to determine that the observed results met the established acceptance criteria and that an activity or test did not warrant repeating or if repeating was warranted, measures would be taken to ensure the activity recurred; and
- acceptance criteria was clearly stated in the procedures and FCN.

b. Findings

No findings were identified.

1A06 (Unit 3) ITAAC Number 2.5.02.08b.ii (543) / Family 10D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.08b.ii (543). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews
- 65001.C - 02.02 - Construction Test Observation

The inspectors reviewed procedure B-GEN-ITPCI-001 and associated sub-procedures related to energization of protection and safety monitoring System (PMS) cabinets to determine if the procedures contained sufficient information to support testing to satisfy the requirements of the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedures to determine if the following attributes were met:

- licensee staff and management approval were indicated on the document.
- test objectives were clearly stated;
- UFSAR commitments were included and latest codes and standards were referenced where applicable;
- testing prerequisites were identified, including:
 - required plant systems availability was specified;
 - associated facility procedures were specified;
 - prior completion of calibration checks, limit switch setting, protective device settings, etc. were included where applicable;
 - special supplies and test equipment needs were specified;
 - special environmental conditions and hold times, if any, were identified;
 - test precautions and limitations were specified; and
 - test acceptance criteria and source of the acceptance criteria were clearly identified;
- test results were compared with acceptance criteria;
- initial test conditions were specified, including:
 - electrical power and control requirements;
 - temporary installations or equipment modifications (instrumentation, electrical, and piping); and
 - special conditions e.g. temperatures, humidity, etc;
- procedures included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, design specifications, industry codes, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points if needed, were included to the extent necessary to ensure that the test is performed correctly and the test objectives are met;
- blank spaces were provided for initialing that all items, including prerequisites, are verified as having been performed;
- provisions were made for recording details of the conduct of the test, including all test anomalies or observed deficiencies, their resolution, and all necessary retesting;
- procedures required that all temporary connections, blind flanges, disconnections or jumpers be restored to normal at the end of the test, or references their control by another procedure;
- procedures provided for the identification of both personnel conducting the testing and those evaluating the test data;

- provision was made for the evaluator to document acceptability of the data;
- procedures provided for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified;
- expected performance of all automatic functions or controls was specified; and
- procedures provided for verification of calibration of measuring and test equipment (M&TE) and recording of any temporarily installed or used M&TE equipment identification and calibration date.

The inspectors observed the use and implementation of FCN SV3-GW-GCW-300 related to PMS software installation on Divisions "A" and "B" MTCs and Divisions "A", "B", and "C" BCCs. The inspectors also observed field use and implementation of B-GEN-ITPCI-001 and its associated sub-procedures B-GEN-ITPCI-003 and B-GEN-ITPCI-004 related to energization of the MTC and BCC cabinets.

The inspection samples included the following:

- MTCA01;
- MTCB01;
- BCCA01;
- BCCB02;
- BCCC01; and
- BCCC02.

Additionally, the inspectors attended the pre-job test brief for the various activities and verified the following attributes were met for the activities witnessed:

- test personnel minimum staffing and qualification requirements were met;
- test prerequisites and initial conditions were met and/or those which were waived were reviewed and approved in accordance with current approved administrative procedures;
- latest procedural revisions were approved and used during each activity or test;
- software version to be installed by the FCN was the latest version that had been released to the site per the configuration management release reports;
- compact disks used for software installation were used in accordance with the FCN;
- measuring and test equipment (M&TE) required by the procedure were calibrated and in service at the time of the activity or test;
- testing personnel maintained the required level of training necessary to conduct the activity or test;
- pretest briefings were conducted and appropriate shift turnover performed to ensure continuity in ongoing activities;
- test personnel actions and coordination activities were adequately performed;
- time sequencing, when required, was performed;
- test personnel adhered to the procedural limitations and precautions, and the individual test steps;
- software cyclic redundancy check was performed in accordance with Appendix A of the FCN;
- software was loaded onto the correct cabinets;

- cabinets were free of alarm faults during energization and software loading;
- jumpers and/or temporary test connections were installed in the correct location and appropriately controlled;
- test anomalies, problems, interruptions, and/or deficiencies were recorded in the test narrative logs and reviewed for inclusion in the licensee's corrective action program;
- test personnel performed a preliminary review of results to determine that the observed results met the established acceptance criteria and that an activity or test did not warrant repeating or if repeating was warranted, measures would be taken to ensure the activity recurred; and
- acceptance criteria was clearly stated in the procedures and FCN.

b. Findings

No findings were identified.

1A07 (Unit 3) ITAAC Number 2.5.02.09d (548) / Family 10D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.09d (548). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C-02.01 - Program and Procedure Reviews
- 65001.C-02.02 – Construction Test Observation

The inspectors reviewed procedure B-GEN-ITPCI-001 and associated sub-procedures related to energization of protection and safety monitoring system (PMS) cabinets to determine if the procedures contained sufficient information to support testing to satisfy the requirements of the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedures to determine if the following attributes were met:

- licensee staff and management approval were indicated on the document.
- test objectives were clearly stated;
- UFSAR commitments were included and latest codes and standards were referenced where applicable;
- testing prerequisites were identified, including:
 - required plant systems availability was specified;
 - associated facility procedures were specified;
 - prior completion of calibration checks, limit switch setting, protective device settings, etc. were included where applicable;
 - special supplies and test equipment needs were specified;
 - special environmental conditions and hold times, if any, were identified;
 - test precautions and limitations were specified; and
 - test acceptance criteria and source of the acceptance criteria were clearly identified;

- test results were compared with acceptance criteria;
- initial test conditions were specified, including:
 - electrical power and control requirements;
 - temporary installations or equipment modifications (instrumentation, electrical, and piping); and
 - special conditions e.g. temperatures, humidity, etc;
- procedures included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, design specifications, industry codes, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points if needed, were included to the extent necessary to ensure that the test is performed correctly and the test objectives are met;
- blank spaces were provided for initialing that all items, including prerequisites, are verified as having been performed;
- provisions were made for recording details of the conduct of the test, including all test anomalies or observed deficiencies, their resolution, and all necessary retesting;
- procedures required that all temporary connections, blind flanges, disconnections or jumpers be restored to normal at the end of the test, or references their control by another procedure;
- procedures provided for the identification of both personnel conducting the testing and those evaluating the test data;
- provision was made for the evaluator to document acceptability of the data;
- procedures provided for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified;
- expected performance of all automatic functions or controls was specified; and
- procedures provided for verification of calibration of M&TE and recording of any temporarily installed or used M&TE equipment identification and calibration date.

The inspectors observed the use and implementation of FCN SV3-GW-GCW-300 related to PMS software installation on Divisions "A", "B", and "C" BCCs and Divisions "A", "B", and "C" integrated logic cabinets (ILCs). The inspectors also observed field use and implementation of procedure B-GEN-ITPCI-001 and its associated sub-procedures B-GEN-ITPCI-004 and B-GEN-ITPCI-005 related to energization of the ILCs and BCCs. These activities were selected for test witness since they support the site's ability to perform testing to satisfy the ITAAC.

The inspection samples included the following:

- BCCC01;
- BCCA01;
- BCCB02;
- ILCA01;
- ILCA02;
- ILCA03;
- ILCB03;
- ILCB04; and

- ILCC02

In addition, the inspectors attended the pre-job test brief for the various activities and verified the following attributes were met for the activities witnessed:

- test personnel minimum staffing and qualification requirements were met;
- test prerequisites and initial conditions were met and/or those which were waived were reviewed and approved in accordance with current approved administrative procedures;
- latest procedural revisions were approved and used during each activity or test;
- software version to be installed by the FCN was the latest version that had been released to the site per the configuration management release reports;
- compact disks used for software installation were used in accordance with the FCN;
- measuring and test equipment (M&TE) required by the procedure were calibrated and in service at the time of the activity or test;
- testing personnel maintained the required level of training necessary to conduct the activity or test;
- pretest briefings were conducted and appropriate shift turnover. performed to ensure continuity in ongoing activities;
- test personnel actions and coordination activities were adequately performed;
- time sequencing, when required, was performed;
- test personnel adhered to the procedural limitations and precautions, and the individual test steps;
- software cyclic redundancy check was performed in accordance with Appendix A of the FCN;
- software was loaded onto the correct cabinets;
- cabinets were free of alarm faults during energization and software loading;
- jumpers and/or temporary test connections were installed in the correct location and appropriately controlled;
- test anomalies, problems, interruptions, and/or deficiencies were recorded in the test narrative logs and reviewed for inclusion in the licensee's corrective action program;
- test personnel performed a preliminary review of results to determine that the observed results met the established acceptance criteria and that an activity or test did not warrant repeating or if repeating was warranted, measures would be taken to ensure the activity recurred; and
- acceptance criteria was clearly stated in the procedures and FCN.

b. Findings

No findings were identified.

1A08 (Unit 3) ITAAC Number 2.6.03.04c (603) / Family 08D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.6.03.04c (603). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews

The inspectors reviewed the component test work instructions SV3-ITAAC-ST-2.6.03.04c Item 4.h related to the Class 1E DC and uninterruptible power supply system 24 hour battery chargers' undervoltage relays tests to determine whether they contained sufficient information to verify the system met the ITAAC acceptance criteria and the requirements of the UFSAR Section 14.2.3, "Test Procedures." Specifically, the inspectors reviewed the work instructions to determine if the following attributes were met:

- appropriate licensee staff and management approval were indicated on the document;
- test objectives were clearly stated;
- all related UFSAR commitments were included;
- all required testing prerequisites were identified, including:
 - associated facility procedures;
 - availability of required plant systems;
 - test precautions and limitation;
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- the procedure required comparison of results with acceptance criteria;
- initial test conditions were specified, including electrical power and control requirements;
- procedure included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points, were included to the extent necessary to ensure that the tests objectives will be met;
- the procedure included blank spaces for initialing that all items are verified as having been performed;
- provisions were made for recording details of the conduct of the test, including any test anomalies;
- provisions were made for the evaluators to document acceptability of the data;
- provisions were made for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified; and
- expected performance of all automatic functions or controls was specified.

b. Findings

No findings were identified.

1A09 (Unit 3) ITAAC Number E.3.9.08.01.03 (872) / Family 18D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number E.3.9.08.01.03 (872). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.18 - 02.14 Exercises and Drills

The inspectors performed an inspection to determine if all offsite objectives for the full-participation exercise have been met, and that there are no uncorrected offsite exercise deficiencies to satisfy the ITAAC requirement, and 10 CFR Part 50, Appendix E.IV.F.2.a.

As part of the emergency preparedness baseline exercise inspection, the inspectors observed the licensee's interaction with the offsite response organizations during the full-scale Vogtle Units 1 & 2 graded exercise on May 15, 2018 (ML18221A246). After the exercise, the inspectors attended FEMA's debrief to the offsite response organizations. FEMA's presentation described their observations, and the preliminary results of whether there were any Level 1 or 2 findings. The licensee was also in attendance. The final results of FEMA's observations are documented in the Final After Action Report (FAAR), dated August 2, 2018.

The inspectors reviewed the FAAR to verify if all offsite objectives for the full-participation exercise were met, and that there were no Level 1 or 2 findings.

b. Findings

No findings were identified.

1A10 (Unit 4) ITAAC Number 2.5.02.08a.ii (540) / Family 10D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.08a.ii (540). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews
- 65001.C - 02.03 - Construction Test Record Review
- 65001.C - A4 - Appendix 4 - Construction Test Inspection for Electrical/I&C Systems and Components

The inspectors reviewed APP-PMS-T1P-010 to determine if the procedure met the requirements of APP-PMS-T5-001 and the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedure to determine if the following attributes were met:

- appropriate licensee staff review and management approval were indicated on the document;

- procedure provided for appropriate test prerequisites and suitable environmental conditions, instrumentation, tests and equipment, and necessary monitoring;
- test requirements and acceptance criteria were in accordance with applicable design documents and construction specifications;
- the procedure required comparison of the test results to the acceptance criteria and a provision was made for the evaluator to indicate whether test data is or is not acceptable;
- initial test conditions were specified;
- step-by-step instructions for the performance of the procedure were included to the extent necessary to ensure that test objectives were met;
- provision was made for recording details of the conduct of the test, including any observed deficiencies, their resolution, and any necessary retesting;
- procedure required trained personnel conducting and evaluating the test data;
- test equipment range and accuracy were consistent with the application and complied with applicable licensing basis design calculations or code requirements;
- provisions were made for quality control verification (or independent verification) of critical steps or parameters as required by administrative or quality assurance program requirements;
- expected performance of all automatic functions or controls was specified;
- provisions were made for verification of calibration of M&TE and recording of any temporarily installed or used M&TE, equipment identification, and calibration date; and
- equipment was properly restored upon test completion, including removal of installed jumpers and test equipment, and landing of lifted leads.

The inspectors also reviewed the FAT report APP-PMS-T2R-010 to determine that the channel was tested in accordance with APP-PMS-T1P-010, UFSAR Chapter 7, and the ITAAC acceptance criteria. Specifically, the inspectors reviewed the test results to determine if the following attributes were met:

- testing activities were performed in accordance with the test procedure and the test records were accurate and complete;
- test records were adequate to furnish identifiable and retrievable evidence of activities affecting quality; and
- corrective actions associated with identified unacceptable results were consistent with applicable quality and technical requirements.

The inspectors reviewed and compared the FAT procedure acceptance criteria and testing results against the ITAAC acceptance criteria to verify that they were clearly identified, and the acceptance criteria were met. Specifically, the inspectors reviewed if the designated plant parameters were used to generate visual alerts that identify challenges to critical safety functions, and visual alerts actuate in accordance with their correct logic and values.

The inspectors sampled the following plant parameters:

- neutron flux;

- startup rate;
- containment water level;
- containment pressure;
- containment area high-range radiation; and
- passive residual heat removal heat exchanger outlet temp and flow.

b. Findings

No findings were identified.

1A11 (Unit 4) ITAAC Number 2.5.02.08b.ii (543) / Family 10D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.08b.ii (543). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews
- 65001.C - 02.03 - Construction Test Record Review
- 65001.C - A4 - Appendix 4 - Construction Test Inspection for Electrical/I&C Systems and Components

The inspectors reviewed APP-PMS-T1P-008 to determine if the procedure contained sufficient information to meet the requirements of APP-PMS-T5-001 and the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedure to determine if the following attributes were met:

- appropriate licensee staff review and management approval were indicated on the document;
- procedure provided for appropriate test prerequisites and suitable environmental conditions, instrumentation, tests and equipment, and necessary monitoring;
- test requirements and acceptance criteria were in accordance with applicable design documents and construction specifications;
- the procedure required comparison of the test results to the acceptance criteria and a provision was made for the evaluator to indicate whether test data is or is not acceptable;
- initial test conditions were specified;
- step-by-step instructions for the performance of the procedure were included to the extent necessary to ensure that test objectives were met;
- provision was made for recording details of the conduct of the test, including any observed deficiencies, their resolution, and any necessary retesting;
- procedure required trained personnel conducting and evaluating the test data;
- test equipment range and accuracy were consistent with the application and complied with applicable licensing basis design calculations or code requirements;

- provisions were made for quality control verification (or independent verification) of critical steps or parameters as required by administrative or quality assurance program requirements;
- expected performance of all automatic functions or controls was specified;
- provisions were made for verification of calibration of M&TE and recording of any temporarily installed or used M&TE, equipment identification, and calibration date; and
- equipment was properly restored upon test completion, including removal of installed jumpers and test equipment, and landing of lifted leads.

The inspectors reviewed the FAT report APP-PMS-T2R-008 to determine if the channel was tested in accordance with APP-PMS-T1P-008 and the ITAAC acceptance criteria. Specifically, the inspectors reviewed the test results to determine if the following attributes were met:

- testing activities were performed in accordance with the test procedure and the test records were accurate and complete;
- test records were adequate to furnish identifiable and retrievable evidence of activities affecting quality; and
- corrective actions associated with identified unacceptable results were consistent with applicable quality and technical requirements.

The inspectors reviewed and compared the FAT procedure acceptance criteria and testing results against the ITAAC acceptance criteria to verify that they were clearly identified, and the acceptance criteria was met. Specifically, the acceptance criteria reviewed were the actuation of each transfer switch results in an alarm in the main control room (MCR) and remote shutdown workstation (RSW), the activation of operator control capability from the RSW, and the deactivation of operator control capability from the MCR for the associated safety-related division and nonsafety-related control capability.

The inspectors sampled the following actuations:

- containment recirculation;
- in-containment refueling water storage tank injection;
- normal residual heat removal system isolation; and
- core makeup tank actuation.

b. Findings

No findings were identified.

1A12 (Unit 4) ITAAC Number 2.5.02.09d (548) / Family 10D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.5.02.09d (548). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.C - 02.01 - Program and Procedure Reviews
- 65001.C - 02.03 - Construction Test Record Review
- 65001.C - A4 - Appendix 4 - Construction Test Inspection for Electrical/I&C Systems and Components

The inspectors reviewed APP-PMS-T1P-009 to determine if the procedure contained sufficient information to meet the requirements of APP-PMS-T5-001 and the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedure to determine if the following attributes were met:

- appropriate licensee staff review and management approval were indicated on the document;
- procedure provided for appropriate test prerequisites and suitable environmental conditions, instrumentation, tests and equipment, and necessary monitoring;
- test requirements and acceptance criteria were in accordance with applicable design documents and construction specifications;
- the procedure required comparison of the test results to the acceptance criteria and a provision was made for the evaluator to indicate whether test data is or is not acceptable;
- initial test conditions were specified;
- step-by-step instructions for the performance of the procedure were included to the extent necessary to ensure that test objectives were met;
- provision was made for recording details of the conduct of the test, including any observed deficiencies, their resolution, and any necessary retesting;
- procedure required trained personnel conducting and evaluating the test data;
- test equipment range and accuracy were consistent with the application and complied with applicable licensing basis design calculations or code requirements;
- provisions were made for quality control verification (or independent verification) of critical steps or parameters as required by administrative or quality assurance program requirements;
- expected performance of all automatic functions or controls was specified;
- provisions were made for verification of calibration of measuring and test equipment (M&TE) and recording of any temporarily installed or used M&TE, equipment identification, and calibration date; and
- equipment was properly restored upon test completion, including removal of installed jumpers and test equipment, and landing of lifted leads.

The inspectors reviewed the FAT report APP-PMS-T2R-009 to determine if the channel was tested in accordance with APP-PMS-T1P-009, UFSAR Chapter 7.6, and the ITAAC acceptance criteria. Specifically, the inspectors reviewed the test results to determine if the following attributes were met:

- testing activities were performed in accordance with the test procedure and the test records were accurate and complete;
- test records were adequate to furnish identifiable and retrievable evidence of activities affecting quality; and

- corrective actions associated with identified unacceptable results were consistent with applicable quality and technical requirements.

The inspectors reviewed and compared the FAT procedure acceptance criterion and testing results against the ITAAC acceptance criteria to verify if they were clearly identified, and the acceptance criterion was met. Specifically, the inspectors reviewed if the appropriate PMS output signals were generated as the interlock conditions changed.

The inspectors sampled interlock functions for the following valves:

- normal residual heat removal system suction valves;
- passive residual heat removal system heat exchanger inlet isolation valve; and
- containment vacuum relief isolation valves.

b. Findings

No findings were identified.

2. **SAFEGUARDS PROGRAMS**

Cornerstones: Security Programs for Construction Inspection and Operations

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

2P01 Security (operational)

a. Inspection Scope

The inspectors reviewed 15 samples of the licensee's performance evaluation program to verify if the program was developed and implemented to demonstrate the effectiveness of the onsite physical protective strategy and the capability of the armed response team to carry out their assigned duties and responsibilities during safeguards contingency events in accordance with the NRC-approved Security Plan and the site's protective strategy plan. The inspectors reviewed program documents to verify if measures were established to implement and maintain a performance evaluation program, conduct tactical response drills and force-on-force exercises, and conduct security program reviews in accordance with the NRC-approved Security Plan and the site's protective strategy plan. The inspectors reviewed procedures to verify if measures were established to ensure that findings, deficiencies, and failures identified during drills are entered into the corrective action program. The inspectors also reviewed the site's security plan for the use of a mock adversary force during drills, and the requirements for each person implementing the program to participate in drills and evaluations, and document post-exercise critiques in accordance with the NRC-approved Security Plan and the site's protective strategy.

b. Findings

No findings were identified.

3. OPERATIONAL READINESS

Cornerstones: Operational Programs

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

3T01 Pre-operational Testing

- 70702-02.03 - Procedure Review

a. Inspection Scope

The inspectors reviewed procedures 3-CNS-ITPP-502 and 3-CNS-ITPP-503 related to Type B and Type C Containment Local Leak Rate Testing (LLRT) to determine if they contained sufficient information to meet the requirements of Sections 6.2.5.2.2 and 14.2.9.1.10 of the UFSAR, NRC RG 1.163-1995, ANSI/ANS-56.8 1994, and 10 CFR Part 50, Appendix J. Specifically, the inspectors reviewed the procedure to determine if the following attributes were met:

- appropriate licensee staff and management approval were indicated on the document.
- test objectives were clearly stated;
- all related UFSAR commitments were included and latest codes and standards were referenced where applicable;
- all required testing prerequisites were identified, including:
 - required plant systems availability was specified;
 - any associated facility procedures were specified;
 - prior completion of calibration checks, limit switch settings, protective device settings, etc. were included;
 - all special supplies and test equipment needs were specified; and
 - test precautions and limitations were specified.
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- procedure required comparison of results with acceptance criteria;
- Initial test conditions were specified, including:
 - valve lineups;
 - electrical power and control requirements;
 - all temporary installations or equipment modifications (instrumentation, electrical, and piping); and
 - all necessary special conditions (temperatures, pressures, flows, water chemistry, etc);

- procedure included a section listing references to appropriate UFSAR sections, technical specifications, drawings, design specifications, industry codes, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points if needed, were included to the extent necessary to ensure that the test is performed correctly and the test objectives are met;
- blank spaces were provided for initialing that all items, including prerequisites, were verified as having been performed;
- provisions were made for recording details of the conduct of the test, including all test anomalies or observed deficiencies, their resolution, and all necessary retesting;
- procedure required that all temporary connections, blind flanges, disconnections or jumpers be restored to normal at the end of the test, or references their control by another procedure;
- procedure provided for the identification of both personnel conducting the testing and those evaluating the test data;
- provision was made for the evaluator to document acceptability of the data;
- procedure provided for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified; and
- procedure provided for verification of calibration of M&TE and recording of any temporarily installed or used M&TE equipment identification and calibration date.

b. Findings

No findings were identified.

3T02 Pre-operational Testing

- 70702-02.03 - Procedure Review
- 70702-02.04 - Test Witnessing

a. Inspection Scope

The inspectors reviewed procedures B-GEN-ITPCI-019-125, B-GEN-ITPCI-019-150, and RCS-OTS-16-005/006 to determine if they contained sufficient information to meet the requirements of Section 14.2.9.1.1.g of the UFSAR and Southern Nuclear Company's (SNC's) procedure writer's guide. Specifically, the inspectors reviewed the procedures for the calibration of reactor coolant system (RCS) level transmitters 160A/B to determine if the following attributes were met:

- appropriate licensee staff and management approval were indicated on the document;
- test objectives were clearly stated;
- all related UFSAR commitments were included and latest codes and standards were referenced where applicable;
- all required testing prerequisites were identified, including:

- availability of required plant systems;
- prior completion of calibration checks, limit switch setting, protective device settings, etc. were included where applicable;
- special supplies and test equipment needs; and
- test precautions and limitations;
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- procedures required comparison of results with acceptance criteria;
- initial test conditions were specified, including
 - valve lineups;
 - electrical power and control requirements; and
 - all temporary installations or equipment modifications (instrumentation, electrical, and piping);
- procedures included a section listing references to design requirements;
- step-by-step instructions for the performance of the procedures, including hold points, were included to the extent necessary to ensure that the tests objectives will be met;
- procedures included blank spaces for initialing that all items, including prerequisites, are verified as having been performed;
- procedures required that all temporary connections, blind flanges, gages, disconnections or jumpers be restored to normal at the end of the test;
- provisions were made for the evaluators to document acceptability of the data;
- provisions were made for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified;
- expected performance of all instruments was specified; and
- provisions were made for verification of calibration of M&TE and recording of any temporarily installed or used M&TE, equipment identification, and calibration date.

The inspectors observed the test performance of procedures 3-RCS-OTS-16-005 and B-GEN-ITPCI-019-150 associated with calibration of RCS Level transmitter 160B.

The inspectors attended the pre-job brief and witnessed the test performance to verify the following attributes:

- test personnel minimum staffing and qualification requirements were met;
- test prerequisites and initial conditions were met and/or those which were waived were reviewed and approved in accordance with current approved administrative procedures;
- M&TE required by the procedure were calibrated and in service at the time of the test;
- testing personnel maintained the required level of training necessary to conduct the test;
- pretest briefings were conducted and appropriate shift turnover performed to ensure continuity in ongoing test activities;
- test personnel actions and coordination activities were adequately performed, specifically the assigned individual directing the test activities was

knowledgeable and time sequencing, when required, was performed appropriately;

- test personnel adhered to the procedural limitations and precautions, and the individual test steps;
- test anomalies, problems, interruptions, and/or deficiencies were recorded in the test narrative logs and reviewed for inclusion in the licensee's corrective action program, as applicable;
- cognizant test personnel performed a preliminary review of test results to determine that the observed test results met the established acceptance criteria and that the test did not warrant repeating or if repeating was warranted, measures would be taken to ensure the test recurred; and
- the acceptance criteria was clearly stated in the test procedure.

b. Findings

No findings were identified.

3T03 Pre-operational Testing

- 70702-02.03 - Procedure Review

a. Inspection Scope

The inspectors reviewed 3-PCS-ITPP-502 related to the passive containment cooling system (PCCWST) preoperational test to determine if the procedure contained information to meet the requirements of Section 14.2.9.1.4.c of the Unit 3 UFSAR. Specifically, the inspectors reviewed the procedure to determine if the following attributes were met:

- appropriate licensee staff and management approval were indicated on the document;
- test objectives were clearly stated;
- all related UFSAR commitments were included;
- all required testing prerequisites were identified, including:
 - availability of required plant systems;
 - associated facility procedures;
 - prior completion of calibration checks;
 - special supplies and test equipment needs; and
 - test precautions and limitations;
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- the procedure required comparison of results with acceptance criteria;
- initial test conditions were specified, including:
 - valve lineups;
 - electrical power and control requirements;
 - all temporary installations or equipment modifications (instrumentation, electrical, and piping); and

- all necessary special conditions such as temperatures, pressures, and flows;
- the procedure included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points, were included to the extent necessary to ensure that the tests objectives will be met;
- the procedure included blank spaces for initialing that all items, including prerequisites, are verified as having been performed;
- provisions were made for recording details of the conduct of the test, including any test anomalies;
- the procedure required that all temporary connections or blind flanges be restored to normal at the end of the test;
- provisions were made for the evaluators to document acceptability of the data;
- provisions were made for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified;
- expected performance of all automatic functions or controls was specified; and
- provisions were made for verification of calibration of M&TE and recording of any temporarily installed or used M&TE, equipment identification, and calibration date.

b. Findings

No findings were identified.

3T04 (Unit 3) ITAAC Number 2.2.01.07.i (107) / Family 11D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.01.07.i (107). The inspectors used the following Nuclear Regulatory Commission (NRC) inspection procedures (IPs)/sections to perform this inspection:

- 65001.D - 02.01 - Procedure Review

The inspectors reviewed procedures 3-CNS-ITPP-501 and associated documents related to Type A Containment Integrated Leak Rate Testing to determine if it contained sufficient information to meet the requirements of Sections 6.2.5.2.2 and 14.2.9.1.10 of the Updated Final Safety Analysis Report (UFSAR), NRC Regulatory Guide (RG)1.163-1995, ANSI/ANS-56.8 1994, and 10 CFR 50 Appendix J. Specifically, the inspectors reviewed the procedure to determine if the following attributes were met:

- appropriate licensee staff and management approval were indicated on the document;
- test objectives were clearly stated;

- all related UFSAR commitments were included and latest codes and standards were referenced where applicable;
- all required testing prerequisites were identified, including:
 - required plant systems availability was specified;
 - any associated facility procedures were specified;
 - prior completion of calibration checks, limit switch settings, protective device settings, etc. were included;
 - all special supplies and test equipment needs were specified; and
 - test precautions and limitations were specified.
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- procedure required comparison of results with acceptance criteria;
- initial test conditions were specified, including:
 - valve lineups;
 - electrical power and control requirements;
 - all temporary installations or equipment modifications (instrumentation, electrical, and piping); and
 - all necessary special conditions (temperatures, pressures, flows, water chemistry, etc).
- the procedure included a section listing references to appropriate UFSAR sections, technical specifications, drawings, design specifications, industry codes, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points if needed, were included to the extent necessary to ensure that the test was performed in accordance with the procedure and the test objectives are met;
- blank spaces were provided for initialing that all items, including prerequisites, were verified as having been performed;
- provisions were made for recording details of the conduct of the test, including all test anomalies or observed deficiencies, their resolution, and all necessary retesting;
- procedure required that all temporary connections, blind flanges, disconnections or jumpers be restored to normal at the end of the test, or references their control by another procedure;
- procedure provided for the identification of both personnel conducting the testing and those evaluating the test data;
- provision was made for the evaluator to document acceptability of the data;
- procedure provided for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified; and
- procedure provided for verification of calibration of measuring and test equipment (M&TE) and recording of any temporarily installed or used M&TE equipment identification and calibration date.

b. Findings

No findings were identified

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.02.07b.i (138). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D - 02.01 - Procedure Review

The inspectors reviewed 3-PCS-ITPP-502 related to the passive containment cooling system PCCWST preoperational test to determine if the procedure contained information to meet Chapter 14 of the UFSAR and the ITAAC acceptance criteria, specifically ITAAC 2.2.02.07b.i., Items 7.a.i and 7.b.i. The inspectors reviewed the procedure to determine if the following attributes were met:

- appropriate licensee staff and management approval were indicated on the document;
- test objectives were clearly stated;
- all related UFSAR commitments were included;
- all required testing prerequisites were identified, including:
 - availability of required plant systems;
 - associated facility procedures;
 - prior completion of calibration checks;
 - special supplies and test equipment; and
 - test precautions and limitations;
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- the procedure required comparison of results with acceptance criteria;
- initial test conditions were specified, including:
 - valve lineups;
 - electrical power and control requirements;
 - all temporary installations or equipment modifications (instrumentation, electrical, and piping); and
 - all necessary special conditions such as temperatures, pressures, and flows;
- the procedure included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points, were included to the extent necessary to ensure that the tests objectives will be met;
- the procedure included blank spaces for initialing that all items, including prerequisites, are verified as having been performed;
- provisions were made for recording details of the conduct of the test, including any test anomalies;
- the procedure required that all temporary connections or blind flanges be restored to normal at the end of the test;
- provisions were made for the evaluators to document acceptability of the data;
- provisions were made for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified;

- expected performance of all automatic functions or controls was specified; and
- provisions were made for verification of calibration of M&TE and recording of any temporarily installed or used M&TE, equipment identification, and calibration date.

b. Findings

No findings were identified.

3T06 (Unit 3) ITAAC Number 2.2.03.08c.i.01 (177) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.08c.i.01 (177). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D - 02.03 - Test Results Review

The inspectors reviewed completed portions of procedure 3-PXS-ITPP-506, relevant calculations, corrective action documents, and other test results documentation to determine if they contained sufficient information to meet the requirements of Chapter 14 of the VEGP UFSAR, the ITAAC acceptance criteria, and the licensee's program requirements. Specifically, the inspectors reviewed these documents to verify if the following attributes were met:

- personnel performing test summary and results evaluations applied independent technical analysis and judgment to ensure that the evaluation of test results were performed correctly;
- personnel, responsible for review and acceptance of test results, had documented their review and acceptance of the data package and the results evaluation;
- engineering staff had evaluated the test results and concluded that the testing demonstrated that the equipment met design requirements;
- test results evaluations compared test results with established acceptance criteria;
- the test results were examined in accordance with established administrative requirements;
- test results reviews were accomplished as prescribed in the UFSAR and licensee commitments; and
- test anomalies and deficiencies were documented, resolved, resolution had been accepted by appropriate management, and that retest requirements, if any, had been completed.

b. Findings

No findings were identified.

3T07 (Unit 3) ITAAC Number 2.2.03.08c.i.02 (178) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.08c.i.02 (178). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D - 02.03 - Test Results Review
- 65001.D - 02.06 - Quality Assurance Program (Problem Identification and Resolution)

The inspectors reviewed completed portions of procedure 3-PXS-ITPP-502, relevant calculations, corrective action documents, and other test results documentation to determine if they contained sufficient information to meet the requirements of Chapter 14 of the UFSAR, the ITAAC acceptance criteria, and the licensee's program requirements. Specifically, the inspectors reviewed these documents to verify if the following attributes were met:

- test data packages were assembled;
- testing methodology supported meeting the test objectives and acceptance criteria;
- completed portions of the "as-run" test procedure included:
 - individual test steps and data sheets were properly initialed and dated;
 - data sheets were completed;
 - all data had been recorded where required and was within acceptance tolerances;
 - test deficiencies and test procedure changes were properly identified in accordance with established administrative procedures;
- test changes made during the performance of the test, including testing deletions was approved in accordance with the pertinent administrative procedures;
- procedure had been annotated to identify test changes;
- none of the changes had altered the basic objectives of the test;
- personnel performing test summary and results evaluations applied independent technical analysis and judgment to ensure that the evaluation of test results were performed correctly;
- personnel, responsible for review and acceptance of test results, had documented their review and acceptance of the data package and the results evaluation;
- engineering staff had evaluated the test results and concluded that the testing demonstrated that the equipment met design requirements;
- test results evaluations compared test results with established acceptance criteria;
- the test results were examined in accordance with established administrative requirements;
- test results reviews were accomplished as prescribed in the UFSAR and licensee commitments;

- adequate implementation of quality assurance program requirements related to operational testing;
- problems identified associated with operational testing were entered into the corrective action program in accordance with program requirements;
- test anomalies and deficiencies were documented, resolved, resolution had been accepted by appropriate management, and that retest requirements, if any, had been completed;
- all deficiencies which constituted a reportable occurrence as defined in 10 Code of Federal Regulations (CFR) 50.55e and/or 10 CFR Part 21 were properly reported; and
- corrective actions addressed extent of condition.

b. Findings

No findings were identified.

3T08 (Unit 3) ITAAC Number 2.2.03.08c.i.03 (179) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.08c.i.03 (179). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D - 02.03 - Test Results Review
- 65001.D - 02.06 - Quality Assurance Program (Problem Identification and Resolution)

The inspectors reviewed completed portions of procedure 3-PXS-ITPP-507, relevant calculations, corrective action documents, and other test results documentation to determine if they contained sufficient information to meet the requirements of Chapter 14 of the UFSAR, the ITAAC acceptance criteria, and the licensee's program requirements. Specifically, the inspectors reviewed these documents to verify if the following attributes were met:

- test data packages were assembled;
- testing methodology supported meeting the test objectives and acceptance criteria;
- completed portions of the "as-run" test procedure included:
 - individual test steps and data sheets were properly initialed and dated;
 - data sheets were completed;
 - all data had been recorded where required and was within acceptance tolerances;
 - test deficiencies and test procedure changes were properly identified in accordance with established administrative procedures;
- test changes made during the performance of the test, including testing deletions was approved in accordance with the pertinent administrative procedures;
- procedure had been annotated to identify test changes;

- none of the changes had altered the basic objectives of the test;
- personnel performing test summary and results evaluations applied independent technical analysis and judgment to ensure that the evaluation of test results were performed correctly;
- personnel, responsible for review and acceptance of test results, had documented their review and acceptance of the data package and the results evaluation;
- engineering staff had evaluated the test results and concluded that the testing demonstrated that the equipment met design requirements;
- test results evaluations compared test results with established acceptance criteria;
- the test results were examined in accordance with established administrative requirements;
- test results reviews were accomplished as prescribed in the UFSAR and licensee commitments;
- adequate implementation of quality assurance program requirements related to operational testing;
- problems identified associated with operational testing were entered into the corrective action program in accordance with program requirements;
- test anomalies and deficiencies were documented, resolved, resolution had been accepted by appropriate management, and that retest requirements, if any, had been completed;
- all deficiencies which constituted a reportable occurrence as defined in 10 CFR 50.55e and/or 10 CFR Part 21 were properly reported; and
- corrective actions addressed extent of condition.

b. Findings

No findings were identified.

3T09 (Unit 3) ITAAC Number 2.2.03.08c.i.04 (180) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.08c.i.04 (180). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D - 02.03 - Test Results Review
- 65001.D - 02.06 - Quality Assurance Program (Problem Identification and Resolution)

The inspectors reviewed completed portions of procedure 3-PXS-ITPP-507, relevant calculations, corrective action documents, and other test results documentation to determine if they contained sufficient information to meet the requirements of Chapter 14 of the UFSAR, the ITAAC acceptance criteria, and the licensee's program requirements. Specifically, the inspectors reviewed these documents to verify if the following attributes were met:

- test data packages were assembled;
- testing methodology supported meeting the test objectives and acceptance criteria;
- completed portions of the “as-run” test procedure included:
 - individual test steps and data sheets were properly initialed and dated;
 - data sheets were completed;
 - all data had been recorded where required and was within acceptance tolerances;
 - test deficiencies and test procedure changes were properly identified in accordance with established administrative procedures;
- test changes made during the performance of the test, including testing deletions was approved in accordance with the pertinent administrative procedures;
- procedure had been annotated to identify test changes;
- none of the changes had altered the basic objectives of the test;
- personnel performing test summary and results evaluations applied independent technical analysis and judgment to ensure that the evaluation of test results were performed correctly;
- personnel, responsible for review and acceptance of test results, had documented their review and acceptance of the data package and the results evaluation;
- engineering staff had evaluated the test results and concluded that the testing demonstrated that the equipment met design requirements;
- test results evaluations compared test results with established acceptance criteria;
- the test results were examined in accordance with established administrative requirements;
- test results reviews were accomplished as prescribed in the UFSAR and licensee commitments;
- adequate implementation of quality assurance program requirements related to operational testing;
- problems identified associated with operational testing were entered into the corrective action program in accordance with program requirements;
- test anomalies and deficiencies were documented, resolved, resolution had been accepted by appropriate management, and that retest requirements, if any, had been completed;
- all deficiencies which constituted a reportable occurrence as defined in 10 CFR 50.55e and/or 10 CFR Part 21 were properly reported; and
- corrective actions addressed extent of condition.

b. Findings

No findings were identified.

3T10 (Unit 3) ITAAC Number 2.2.03.09a.i (201) / Family 03D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.09a.i (201). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D - 02.03 - Test Results Review
- 65001.D - 02.06 - Quality Assurance Program (Problem Identification and Resolution)

The inspectors reviewed completed portions of procedure 3-PXS-ITPP-507, relevant calculations, corrective action documents, and other test results documentation to determine if they contained sufficient information to meet the requirements of Chapter 14 of the UFSAR, the ITAAC acceptance criteria, and the licensee's program requirements. Specifically, the inspectors reviewed these documents to verify if the following attributes were met:

- test data packages were assembled;
- testing methodology supported meeting the test objectives and acceptance criteria;
- completed portions of the "as-run" test procedure included:
 - individual test steps and data sheets were properly initialed and dated;
 - data sheets were completed;
 - all data had been recorded where required and was within acceptance tolerances;
 - test deficiencies and test procedure changes were properly identified in accordance with established administrative procedures;
- test changes made during the performance of the test, including testing deletions was approved in accordance with the pertinent administrative procedures;
- procedure had been annotated to identify test changes;
- none of the changes had altered the basic objectives of the test;
- personnel performing test summary and results evaluations applied independent technical analysis and judgment to ensure that the evaluation of test results were performed correctly;
- personnel, responsible for review and acceptance of test results, had documented their review and acceptance of the data package and the results evaluation;
- engineering staff had evaluated the test results and concluded that the testing demonstrated that the equipment met design requirements;
- test results evaluations compared test results with established acceptance criteria;
- the test results were examined in accordance with established administrative requirements;
- test results reviews were accomplished as prescribed in the UFSAR and licensee commitments;
- adequate implementation of quality assurance program requirements related to operational testing;
- problems identified associated with operational testing were entered into the corrective action program in accordance with program requirements;

- test anomalies and deficiencies were documented, resolved, resolution had been accepted by appropriate management, and that retest requirements, if any, had been completed;
- all deficiencies which constituted a reportable occurrence as defined in 10 CFR 50.55e and/or 10 CFR Part 21 were properly reported; and
- corrective actions addressed extent of condition.

b. Findings

No findings were identified.

3T11 (Unit 3) ITAAC Number 2.2.03.10 (206) / Family 10A

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.10 (206). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D - 02.03 - Test Results Review
- 65001.D - 02.06 - Quality Assurance Program (Problem Identification and Resolution)

The inspectors reviewed procedures B-GEN-ITPCI-039 and 3-PXS-OTS-10-001, associated sub-procedures, and work packages to determine if the documents contained sufficient information to meet the requirements of the ITAAC acceptance criteria. Specifically, the inspectors reviewed these documents to determine if the following attributes were met:

- appropriate licensee staff and management approval were indicated on the document;
- test objectives were clearly stated;
- all related UFSAR commitments were included and latest codes and standards were referenced where applicable;
- all required testing prerequisites were identified, including:
 - required plant systems availabilities were specified;
 - any associated facility procedures were specified;
 - special supplies and test equipment needs were specified;
 - test precautions and limitations were specified;
 - software received the appropriate validation and verification;
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- procedures required comparison of results with acceptance criteria;
- initial test conditions were specified;
- the procedure and sub-procedures included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, design specifications, and other requirements;

- step-by-step instructions for the performance of the procedure and sub-procedures, including hold points if needed, were included to the extent necessary to ensure that the test is performed correctly and the test objectives are met;
- blank spaces were provided for initialing that all items, including prerequisites, are verified as having been performed;
- provisions were made for recording details of the conduct of the test, including all test anomalies or observed deficiencies, their resolution, and all necessary retesting;
- procedure required that all temporary connections, blind flanges, disconnections or jumpers be restored to normal at the end of the test, or references their control by another procedure;
- procedure provided for the identification of both personnel conducting the testing and those evaluating the test data;
- provision was made for the evaluator to document acceptability of the data;
- procedure provided for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- expected performance of all automatic functions or controls was specified; and
- procedure provided for verification of calibration, calibration dates, and equipment identification, for M&TE.

b. Findings

No findings were identified.

3T12 (Unit 3) ITAAC Number 2.2.03.12a.iv (216) / Family 07D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 2.2.03.12a.iv (216). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D - 02.02 - Test Witnessing

The inspectors witnessed the testing of the accumulator discharge check valves transferring open/closed under preoperational test conditions during passive core cooling system accumulator flow resistance testing performed by procedure 3-PXS-ITPP-502. Specifically, the inspector attended prejob/pretest briefings, and witnessed the test to verify if the following attributes were in accordance with procedure B-GEN-ITPA-004:

- test personnel used the current procedure revision and were familiar with the procedural requirements;
- test personnel minimum staffing requirements and the responsibilities and qualification requirements of test personnel were met;
- test prerequisites and initial conditions were met;
- measuring and test equipment required by the procedure was calibrated and in service at the time of the test;

- test data recording equipment required by the procedure was calibrated to a common time base;
- briefings were conducted and appropriate shift turnover was performed;
- test engineers' logs documented any test anomalies, problems, interruptions, and/or deficiencies, and were included in the licensee's corrective action program; and
- test personnel performed a preliminary review of test results to determine that the observed test results meet the established acceptance criteria.

b. Findings

No findings were identified.

3T13 (Unit 3) ITAAC Number 3.3.00.10.i (815) / Family 06D

a. Inspection Scope

The inspectors performed a direct inspection of construction activities associated with ITAAC Number 3.3.00.10.i (815). The inspectors used the following NRC IPs/sections to perform this inspection:

- 65001.D - 02.01 - Procedure Review
- 65001.D - Inspection of the ITAAC-Related Operational Testing Program

The inspectors reviewed 3-PCS-ITPP-502 related to the passive containment cooling system tank (PCCWST) preoperational test to determine if the procedure contained information to meet Chapter 14 of the UFSAR and the ITAAC acceptance criteria. Specifically, the inspectors reviewed the procedure to determine if the following attributes were met:

- appropriate licensee staff and management approval were indicated on the document;
- test objectives were clearly stated;
- all related UFSAR commitments were included;
- all required testing prerequisites were identified, including:
 - availability of required plant systems;
 - associated facility procedures;
 - prior completion of calibration checks;
 - special supplies and test equipment needs; and
 - test precautions and limitations.
- test acceptance criteria and source of the acceptance criteria were clearly identified;
- the procedure required comparison of results with acceptance criteria;
- initial test conditions were specified, including:
 - valve lineups;
 - electrical power and control requirements;
 - all temporary installations or equipment modifications (instrumentation, electrical, and piping); and

- all necessary special conditions such as temperatures, pressures, and flows.
- the procedure included a section listing references to appropriate ITAAC, UFSAR sections, technical specifications, drawings, and other requirements;
- step-by-step instructions for the performance of the procedure, including hold points, were included to the extent necessary to ensure that the tests objectives will be met;
- the procedure included blank spaces for initialing that all items, including prerequisites, are verified as having been performed;
- provisions were made for recording details of the conduct of the test, including any test anomalies;
- the procedure required that all temporary connections or blind flanges be restored to normal at the end of the test;
- provisions were made for the evaluators to document acceptability of the data;
- provisions were made for quality control, quality assurance, engineering, or other specified individual verification of critical steps or test parameters;
- special precautions for personnel and equipment safety were specified;
- expected performance of all automatic functions or controls was specified; and
- provisions were made for verification of calibration of M&TE and recording of any temporarily installed or used M&TE, equipment identification, and calibration date.

b. Findings

No findings were identified.

3P01 Containment Leak Rate Testing

- 70368-02.01 - Obtain an approved copy of the licensee procedure to be used in performing the CILRT
- 70368-02.02 - Review all regulations, licensee commitments, technical specifications (TS) for the facility
- 70368-02.03 - Verify that all prerequisites required to commence the CILRT are included in the licensee test procedure
- 70368-02.04 - Ensure that each applicable plant system is to be aligned in accordance with appropriate criteria
- 70368-02.05 - Review the CILRT procedure to determine if the procedural requirements and precautions include the appropriate items

a. Inspection Scope

The inspectors performed a review of the containment leak rate test (CLRT) program to determine if the program was developed and implemented in accordance with regulatory requirements and would meet 10 CFR Part 50, Appendix J. The inspectors reviewed CLRT program documents to verify if they contained the required information from the UFSAR, Nuclear Energy Institute (NEI) 94-01, NRC RG 1.163 and American National Standards Institute (ANSI) 56.8-94. Specifically, the inspectors reviewed the Containment Leakage Rate Testing Program Manual to verify if it contained a

description of the licensee's organization, roles and responsibilities, and the revision and approval process for the CLRT program documents and test procedures.

The inspectors reviewed the CLRT Program Manual, test procedures 3-CNS-ITPP-501, 3-CNS-ITPP-502, and 3-CNS-ITPP-503 to determine if the procedures matched the commitments in the UFSAR. The inspectors reviewed the above documents to determine if the following provisions were incorporated into the program or procedures in accordance with the UFSAR, NEI 94-01, RG 1.163, ANSI 56.8-94, and licensee's quality assurance (QA) requirements:

- containment inspection will be performed in accordance with American Society of Mechanical Engineers (ASME) Section III, Subsection NE;
- control configuration methodology for system lineups;
- M&TE calibration for both pretest and post-test calibration;
- personnel qualification for those performing the tests;
- test instrumentation locations and quantity;
- volumetric impacts for equipment left inside containment;
- hazardous material removal; and
- test review and acceptance.

The inspectors reviewed the vendor oversight process of the contractor assisting in performing the integrated leak rate test (ILRT). Specifically, the inspector reviewed an audit of ILRT, Inc. to determine if the licensee reviewed the contractor's program for software development and maintenance and M&TE calibration in accordance with their QA manual.

The inspectors reviewed the containment volume and sub-volume calculations to determine if the licensee was accurately calculating the volume of the containment vessel. The inspectors also independently calculated the volume of a sample of zones from the licensee's calculations using containment layout drawings. Specifically, the inspectors independently calculated the volume of Zone 40, which consisted of PXS Room A, PXS Room B, and the chemical and volume control system (CVS) rooms, and Zones 41 and 42, which consisted of the IRWST. The inspectors compared these results to the values listed in Table 1 of APP-CNS-M3R-501 to determine if the values used by the licensee in their calculations were adequate.

The inspectors reviewed test procedures 3-CNS-ITPP-501, 3-CNS-ITPP-502, and 3-CNS-ITPP-503 to determine if the following prerequisites are included in the integrated leak rate test procedure and will be performed before the ILRT:

- pressure strength test (i.e. structural integrity test);
- local leak rate tests;
- containment isolation functional tests;
- general inspection of interior and exterior containment surfaces;
- containment sub-volume temperature and humidity measurement locations;
- instrument calibration; and
- containment closeout.

The inspectors reviewed ILRT test procedure 3-CNS-ITPP-501, Attachment 17 and drawings to verify if valve alignments during the test would exist during and after a

design basis LOCA in accordance with UFSAR table 6.2.3-1. Specifically, the inspectors sampled valve alignments from the compressed and instrument air (CAS), component cooling water (CCS), CVS, and normal residual heat removal system (RNS) systems.

Lastly, the inspectors reviewed ILRT test procedure 3-CNS-ITPP-501 for procedural requirements to determine if they were in accordance with the UFSAR, NEI 94-01, NRC RG 1.163 and ANSI 56.8-94. Specifically, the inspectors reviewed the requirements for pressure limits, pressurization rate, stabilization time and stabilization criteria, test duration, and licensee response to excessive leakage are in accordance with ANSI 56.8. Additionally, the inspectors reviewed the process for logging test parameters, determining the leakage rate, and conducting the verification test to determine if it is in accordance with ANSI 56.8.

b. Findings

No findings were identified.

3P02 Initial Test Program (Startup)

- 72401-02.01 - Test Program
- 72401-02.02 - Test Organization
- 72401-02.03 - Test Program Administration
- 72401-02.04 - Document Control

a. Inspection Scope

The inspectors reviewed applicable documents to confirm that the licensee's administrative controls over startup testing were developed in accordance with UFSAR commitments, technical specifications, and regulatory requirements.

Test Program

The inspectors reviewed procedure B-GEN-ITPA-001 and startup test specifications to determine that the startup test program addressed general areas of testing and the assignment of responsibilities in accordance with UFSAR section 14.2.10. The inspectors review included how the startup test program addressed the functional demonstration of equipment in all modes throughout its operating range for the following:

- fuel loading into the core;
- pre-criticality tests;
- initial criticality tests;
- low power (less than 5%) tests; and
- power ascension tests.

The inspectors reviewed procedure B-GEN-PLMM-135 to determine that the startup test program addressed the identification and assigning of responsibilities for flushing and cleaning of nuclear steam supply system and auxiliary systems, and components

in accordance with ASME NQA-1-1994, Subpart 2.1. The inspectors reviewed procedures B-GEN-ITPA-011, B-GEN-ITPA-004, NMP-MA-053, and SCM-PSC-002 to determine if the startup test program addressed the identification and assigning responsibilities for instrument calibration in accordance with ASME NQA-1-1994, Section 12. The inspectors also reviewed procedures 26139-000-4MP-T81CN1601 and ND-AD-VNP-029 to determine that the startup test program addressed the identification and assigning responsibilities for system turnover from the constructor, testing organization, or maintenance organization in accordance with UFSAR Section 14.2.3.1.3.

The inspectors reviewed procedures B-GEN-ITPA-011 and NMP-AP-002 to determine if the startup test program specified the format and content of test procedures in accordance with UFSAR Section 14.2.3. The inspectors examined a sample of startup test procedures to determine that content and format of the procedures were in accordance with the startup test program procedures. The startup test procedures reviewed included steam generator level control, RTD incore cross calibration, and steam dump control.

Test Organization

The inspectors reviewed applicable portions of ITP administrative manual procedures, B-ADM-WCO-001, NMP-GM-006, and NMP-MA-050 to determine if the startup test program addressed the following in accordance with UFSAR Section 14.2.2.1:

- the operating organization was assigned overall control of all startup test activities;
- the method and responsibility for appointing key personnel in the test program were formally specified in writing;
- the lines of authority and responsibilities of test personnel and the interface with the operating organization were formally specified in writing and that the operating organizations overall control was not circumvented; and
- organizational responsibilities were clearly established in writing where interfaces exist between organizations involved in the test program.

The inspectors reviewed procedures B-GEN-ITPA-002 and B-GEN-ITPA-003 to determine if requirements for training and qualification of the startup test organization (management and staff) were established in accordance with the UFSAR Section 14.2.2.2. The inspectors reviewed qualification requirements for the Vogtle Joint Test Working Group members and Levels 1, 2 and 3 test engineers. Additionally, the inspectors reviewed procedures B-GEN-ITPA-011, NMP-AP-001-003, and 70015-D to verify if qualification requirements for personnel involved in development and review of test procedures were included. The inspectors reviewed startup test procedures and selected Test Qualification Records to verify that personnel involved in developing and reviewing the procedures were appropriately qualified. The inspectors also reviewed procedure B-GEN-ITPA-004 to verify that test control and test objective elements, as well as quality control elements (hold points) were included in the test procedures in accordance with the UFSAR Section 14.2.3.

Test Program Administration

The inspectors reviewed procedures B-GEN-ITPA-007, ND-AD-VNP-029, and 26139-000-4MP-T81C-N1601 to determine if formal methods were established for the operating and testing organization to receive the jurisdiction over systems, components, and instrumentation before beginning to test those items in accordance with UFSAR Section 14.2.3.1. The inspectors also reviewed procedures B-GEN-ITPA-007, NMP-OS-007, NMP-OS-007-001, and NMP-OS-027 to determine if the licensee had requirements for all systems, structures, or components (SSCs) not under control of the operating organization were considered inoperable and cannot affect any operable SSCs, and the operating organization to formally control the isolation boundaries between the operable SSCs and the SSCs being tested.

The inspectors reviewed B-GEN-ITPA-004 and related procedures to determine if formal administrative measures were established for jurisdictional control of SSC status before, during, and subsequent to testing in accordance with UFSAR Section 14.2.3.1. Specifically:

- the inspectors reviewed B-GEN-ITPA-004, B-GEN-ITPA-007, and NMP-OS-007-001 to determine if the licensee had provided administrative measures for the control of system status before testing;
- the inspectors reviewed B-GEN-ITPA-004 and NMP-GM-011 to determine if the licensee had provided administrative measures for returning SSCs to construction or other organizations, if necessary, to support modifications or repairs; and
- the inspectors reviewed B-ADM-MNT-006, NMP-MA-050, and NMP-MA-014-001 to determine if the licensee had provided administrative measures for the control of system status subsequent to testing, including measures to prevent invalidation of test results.

The inspectors reviewed B-GEN-ITPA-004 and related procedures to determine if formal administrative measures were established that govern the conduct of testing in accordance with UFSAR Section 14.2.2, 14.2.3 and 14.2.5. Specifically:

- the inspectors reviewed B-GEN-ITPA-004 to determine if the licensee had a method for verifying a test procedure is current before its use;
- the inspectors reviewed B-ADM-WCO-001 and ND-CS-VNP-005 to determine if the licensee had provisions for consideration of the effect of testing on other nuclear facilities at the same site;
- the inspectors reviewed B-GEN-ITPA-004, NMP-OS-007, NMP-OS-010, and NMP-OS-027 to determine if the licensee had provisions for consideration of the effect of testing on SSCs that are considered operable;
- the inspectors reviewed B-GEN-ITPA-004, NMP-OS-007, and NMP-OS-001 to determine if the licensee had a requirement for any actions that could affect reactivity be under the direction of a licensed operator;
- the inspectors reviewed B-GEN-ITPA-004 and NMP-GM-005-002 to determine if the licensee had requirements for conducting pretest briefings which should include discussion of the risk to personnel and equipment, possible malfunctions/failure modes including consequences and contingencies, operating experience applicable to the testing performed, and criteria to abort the test;

- the inspectors reviewed B-GEN-ITPA-004 and NMP-GM-005-002 to determine if the licensee had methods to ensure personnel involved in the conduct of a test are knowledgeable of the test procedures;
- the inspectors reviewed B-GEN-ITPA-004, NMP-AP-003, and B-GEN-ITPA-011 to determine if the licensee had requirements for procedure use, such as procedure in hand or other acceptable methods, performance of steps out of sequence allowance, procedure compliance, etc;
- the inspectors reviewed B-GEN-ITPA-011 and NMP-AP-001-003 to determine if the licensee had methods to change a test procedure during the conduct of testing. This includes minor changes that do not affect the intent of the procedure or acceptance criteria and major changes that do affect the intent of the procedure or acceptance criteria;
- the inspectors reviewed B-GEN-ITPA-004 and SV3-GEN-ITPS-633 to determine if the licensee had criteria for termination or interruption of a test and continuation of an interrupted test;
- the inspectors reviewed B-GEN-ITPA-004 to determine if the licensee had methods to coordinate the conduct of testing including test shift turnover requirements for continuity, communication methods to be used, and clear identification of the test director;
- the inspectors reviewed B-GEN-ITPA-004 and B-GEN-ITPA-004-F01 to determine if the licensee had methods to document significant events, unusual conditions, or interruptions to testing;
- the inspectors reviewed B-GEN-ITPA-004 and ND-AD-002 to determine if the licensee had methods for identifying deficiencies, documenting their resolutions, and documenting retesting; and
- the inspectors reviewed B-GEN-ITPA-004 to determine if the licensee had a method for providing the current test procedure and marked-up drawings showing current modification status to the operators before test commencement.

The inspectors reviewed applicable portions of the ITP administrative manual, work management documentation, and risk management procedures to determine if formal methods were established to control scheduling of test activities and the evaluation of risk on scheduling in accordance with UFSAR Section 14.2.8.

The inspectors reviewed procedures B-GEN-ITPA-004 and B-GEN-ITPA-002 to verify that a formal program for evaluation of startup test results had been established in accordance with UFSAR 14.2.3. The inspectors verified if evaluation elements included validation of test results, corrective action for test deficiencies, methods for remedial testing, and appropriate independent review of startup test results and evaluations. The inspectors also reviewed procedure 3-GEN-ITPS-618 to verify if startup and power ascension testing would be conducted in a controlled and sequenced manner.

Document Control

The inspectors reviewed procedures B-GEN-ITPA-011 and NMP-AP-001-003 to verify if administrative measures were established which control revision of approved startup test procedures in accordance with UFSAR 14.2.3.1. Specifically, the inspectors reviewed these procedures to determine if controls were in place for review,

approval and issuance of minor and major startup procedure changes. Additionally, the inspectors reviewed ND-LI-VNP-002 to verify if requirements were invoked for applicability and departure screening for all newly developed startup test procedures in accordance with 10 CFR Part 52, Appendix D, Section VIII. The inspectors reviewed ND-LI-VNP-002 to determine if qualification records were required for ITP staff involved in development of sampled startup test procedures.

The inspectors reviewed procedures NMP-AD-025 and ND-DC-001 to verify that administrative controls were adequately established to provide current approved supporting documents (drawings, technical manuals, etc.) to the plant site to support startup testing activities in accordance with UFSAR Section 14.2.3.1. The inspectors verified that mechanisms existed for technical records storage, access, retrieval, updating and archiving. The inspectors confirmed through review of B-GEN-ITPA-004 that ITP test engineers were required to ensure procedures reflect current design configuration and latest reference technical documents in accordance with UFSAR Section 14.2.3.1.

b. Findings

No findings were identified.

3P03 Motor-Operated Valves

- 73758-Att1 - Attachment 1. Motor Operated Valves
- 73758-Att1.02.01 - MOV Selection
- 73758-Att1.02.02 - MOV Program Scope
- 73758-Att1.02.03 - Design Calculations
- 73758-Att1.02.04 - Design-Basis Verification, Preservice Testing and Inservice Testing
- 73758-Att1.02.06 - Preventive Maintenance
- 73758-Att1.02.08 - Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the Preservice Test (PST) Program Plan, and other documents, to verify that the following sample of valves, subject to preservice testing, were included in the program and that the required preservice testing specified for each valve was in accordance with the requirements of 10 CFR 50.55a, the ASME OM Code, and applicable UFSAR licensing commitments:

- PCS-PL-V002A, PCS isolation valve (motor operated);
- PXS-PL-V002A, RCS to CMT A isolation valve (motor operated);
- PXS-PL-V117B, containment recirculation sump B to RCS isolation valve (motor operated);
- RCS-PL-V002B, automatic depressurization system (ADS) stage 2 control valve (motor operated);
- RCS-PL-V011A, ADS stage 1 isolation valve (motor operated);
- RCS-PL-V013B, ADS stage 3 isolation valve (motor operated);

- RNS-PL-V002B, RNS suction from RCS outer isolation / IC containment isolation valve (motor operated);
- RNS-PL-V011, RNS discharge header to containment OC containment isolation valve (motor operated); and
- RNS-PL-V022, RNS suction from RCS OC containment isolation valve (motor operated).

In addition, the inspectors reviewed the licensee's preparation for PST activities for the sampled motor operated valves (MOVs). Specifically, the inspectors performed the following activities to verify if the requirements of the ASME OM Code were applied to the valves:

- reviewed the available valve set point data sheets (SPDS);
- reviewed a technical evaluations quality record initiated by the licensee to develop a process to document that the applicable PST activities have been completed for each valve;
- reviewed the licensee's close-out process for applicable licensee conditions, such as PST program status, and operational program implementation schedule; and
- interviewed the licensee on various topics, including the ongoing process to ensure consistency between the PST and Inservice Test Program Plan and the UFSAR for the sampled valves.

b. Findings

No findings were identified.

3P04 Preservice Testing

- 73758-App A.02.01 - Functional Design and Qualification
- 73758-App A.02.02 - Preservice and Inservice Testing Program

a. Inspection Scope

Functional Design and Qualification

The inspectors performed the following activities with respect to the functional design and qualification of pumps, valves, and snubbers that will perform safety-related functions at Vogtle Units 3 & 4:

- the inspectors reviewed the licensee's functional design and qualification of a sample of snubbers to perform their safety functions in accordance with 10 CFR Part 50, Appendices A and B, as described in the licensee's approach justified by a 10 CFR 50.59 evaluation as an alternative to the ASME QME-1 Standard;
- provisions specified in the Vogtle Units 3 & 4 UFSAR when the COL was issued;
- the inspectors reviewed the licensee's activities to satisfy the quality assurance requirements in 10 CFR Part 50, Appendix B, for corrective action

in response to AP1000 reactor coolant pump vendor recommendations based on;

- international operating experience with the failure of an internal reactor coolant pump part;
- the inspectors reviewed an evaluation provided in EQDP APP-PV03-VBR-014 of the computational fluid analysis used to demonstrate the performance of safety-related check valves; and
- the inspectors reviewed the three condition reports initiated during the November 2019 inspection to verify if they were closed in accordance with the corrective action program procedures.

Preservice Testing (PST) Program

The inspectors reviewed the Vogtle Units 3 & 4 Preservice Test Plan, site procedures, and other documents to determine whether the licensee's PST Program was developed in compliance with the applicable regulatory requirements and license conditions, is consistent with the plant-specific UFSAR, and is ready to support the operation of the facility. Specifically, the inspectors reviewed the following:

- responsibilities and authority to persons and organizations were assigned for the following activities:
 - preparation, review, and approval of the PST Program and procedures;
 - performance of testing per approved procedures;
 - performance of post maintenance testing;
 - proper certification and calibration of test instruments; and
 - training for those personnel responsible for implementing the PST Program and procedures.
- the PST plan to verify that the edition and addenda of the ASME OM Code used in the PST program complies with the requirements of 10 CFR 50.55a or an NRC-accepted alternative request;
- the PST plan to verify that Code Cases invoked in the PST Program, if any, have been approved for use;
- license conditions applicable to PST at Vogtle Units 3 & 4 to verify if they have been incorporated into the PST Program;
- the scope of the PST Program to verify if it was consistent with the plant specific UFSAR, and was in compliance with the ASME OM Code;
- the testing specified for the PST plan to verify if it was in accordance with the requirements of 10 CFR 50.55a and the ASME OM Code;
- provisions for the submittal of requests for relief (if applicable) from 10 CFR 50.55a or the ASME OM Code to verify if they complied with the requirements of 10 CFR 50.55a;
- alternatives to the requirements of 10 CFR 50.55a or the ASME OM Code were authorized prior to their use in the PST program;
- controls in place for re-verifying or establishing reference values after component maintenance, replacement, or modification, as required by the ASME OM Code;
- controls in place to ensure that post modification testing is applied, when required, prior to returning components to service; and
- controls in place to ensure that instruments found out of calibration will be evaluated to determine the effect on previous PST or inservice testing results.

The inspectors also reviewed the PST Program Plan, and other documents, to verify that the following sample of valves, subject to preservice testing, were included in the program and that the required preservice testing specified for each valve was in accordance with the requirements of 10 CFR 50.55a, the ASME OM Code, and applicable UFSAR licensing commitments:

- PCS-PL-V002A, passive containment cooling system (PCS) isolation valve (motor operated);
- PCS-PL-V023, PCS recirculation pumps to PCCWST isolation (manual operator);
- PCS-PL-V039, PCS/spent fuel cooling system long term make-up supply check valve;
- PCS-PL-V050, recirc header discharge to SFS pool isolation valve (manual operator);
- PCS-PL-V051, spent fuel pool emergency makeup lower isolation valve (manual operator);
- PXS-PL-V002A, RCS to CMT A isolation valve (motor operated);
- PXS-PL-V017B, CMT B outlet to RCS check valve;
- PXS-PL-V028B, accumulator B outlet to RCS check valve;
- PXS-PL-V108A, passive residual heat removal heat exchanger (PRHR HX) outlet valve to RCS A (air operated);
- PXS-PL-V117B, containment recirculation sump B to RCS isolation valve (motor operated);
- PXS-PL-V118B, containment recirculation sump B to RCS actuation squib valve;
- PXS-PL-V122B, IRWST/recirculation sump to RCS B outlet to RCS check valve;
- PXS-PL-V125A, containment recirculation sump A to RCS actuation squib valve;
- RCS-PL-V002B, ADS stage 2 control valve (motor operated);
- RCS-PL-V004D, ADS stage 4 squib valve;
- RCS-PL-V005A, pressurizer safety valve;
- RCS-PL-V011A, ADS stage 1 isolation valve (motor operated);
- RCS-PL-V013B, ADS stage 3 isolation valve (motor operated);
- RCS-PL-V150C, reactor head vent valve (solenoid operated);
- RNS-PL-V002B, RNS suction from RCS outer isolation / IC containment isolation valve (motor operated);
- RNS-PL-V011, RNS discharge header to containment OC containment isolation valve (motor operated);
- RNS-PL-V017A, RNS to DVI check valve;
- RNS-PL-V021, RNS suction relief valve;
- RNS-PL-V022, RNS suction from RCS OC containment isolation valve (motor operated); and
- RNS-PL-V061, CVS return to RNS suction / IC containment isolation valve (air operated).

In addition, the inspectors reviewed the licensee's preparation for PST activities for the sampled valves, which include motor operated valves (MOVs), air-operated valves (AOVs), check valves, relief valves, squib valves, manual valves, and a solenoid-

operated valve. Specifically, the inspectors performed the following activities to verify if the requirements of the ASME OM Code were applied to the valves:

- reviewed the available valve SPDS;
- reviewed a technical evaluations quality record initiated by the licensee to develop a process to document that the applicable PST activities have been completed for each valve;
- reviewed the licensee's close-out process for applicable licensee conditions, such as PST program status, operational program implementation schedule, and squib valve surveillance; and
- interviewed the licensee on various topics, including the ongoing process to ensure consistency between the PST/IST Program Plan and the UFSAR for the sampled valves.

In addition, the inspectors reviewed the PST Program Plan, and other documents, to verify that the following sample of dynamic restraints, subject to preservice testing, were included in the program, and that the required preservice testing specified for each valve was in accordance with the requirements of 10 CFR 50.55a, the ASME OM Code, and the applicable UFSAR licensing commitments:

- PXS-PH-11Y0020, hydraulic snubber;
- PXS-PH-11Y0578, hydraulic snubber;
- PXS-PH-11Y2052, hydraulic snubber;
- PXS-PH-11Y2059, hydraulic snubber;
- RCS-PH-11Y0039, hydraulic snubber;
- RCS-PH-11Y0067, hydraulic snubber;
- RCS-PH-11Y0388, hydraulic snubber;
- RCS-PH-11Y0528, hydraulic snubber;
- RCS-PH-11Y1130, hydraulic snubber;
- RCS-PH-11Y1134, hydraulic snubber;
- RCS-PH-11Y2005, hydraulic snubber;
- RCS-PH-11Y2264, hydraulic snubber;
- RCS-SS-E03A1, hydraulic snubber;
- RCS-SS-E03B2, hydraulic snubber; and
- RNS-PH-12Y2060, hydraulic snubber.

b. Findings

No findings were identified.

3P05 Process and Effluent Monitoring

- 83531 - Part 52, Life Cycle Minimization of Contamination and Groundwater Protection Program

a. Inspection Scope

Minimum Inspection Requirement A: Operational Procedure Incorporation

The inspectors reviewed the following procedures for minimization of contamination and groundwater monitoring to verify that Vogtle Units 3 and 4 have incorporated the operational units' procedures into their Part 52 programs. The inspectors also reviewed the procedures to verify that program elements unique to Vogtle Units 3 and 4 were implemented in accordance with 10 CFR 20, Updated Final Safety Analysis Report (UFSAR) Chapters 11 and 12, and the nuclear industry's Groundwater Protection Initiative and Lifecycle Minimization of Contamination for Part 52 licensees as described in NEI documents 07-07 and 08-08.

- NMP-EN-02, "Radiological Groundwater Protection Program", Rev 9.0
- 00256-C, "Radioactive Waste Minimization Program", Rev 9.2

Minimum Inspection Requirement B: Hydrological Studies and a Site Conceptual Model

The inspectors reviewed the licensee's groundwater hydrology study contained in NMP-EN-002-GL05, "Vogtle Electric Generating Plant (Units 3 & 4) Groundwater Monitoring Plan for Radionuclides", Rev 1.1, to verify that it supported the creation of a site conceptual model of groundwater flow as directed by NEI 07-07.

Minimum Inspection Requirement C: Structures, Systems, and Components (SSCs)

The inspectors reviewed the list of identified SSCs and work practices that have potential to leak licensed radioactive material to groundwater in order to verify the SSCs and practices were prioritized according to risk per the guidance in NEI 07-07 and NEI 08-08. In-lieu of walkdowns, the inspectors observed construction photographs of the liquid radwaste discharge line prior to burial, reviewed initial hydrostatic and pneumatic testing records, and discussed leak monitoring system operation with a system engineer in order to verify construction and monitoring of the line were as described in UFSAR Chapters 11 and 12. The following surveillance records were included in the review:

- SV3-WLS-THW-ME6213
- SV3-WLS-THW-861976

Minimum Inspection Requirement D: Groundwater Monitoring Wells

The inspectors reviewed the list of groundwater monitoring wells to verify the licensee has installed or plans to install a sufficient number of groundwater monitoring wells, in appropriate locations, to provide adequate monitoring of the subsurface based on the SSC risk ranking and site conceptual model described in NMP-EN-002-GL05. In lieu of walkdowns, the inspectors observed video recordings of the following installed groundwater monitoring wells and discussed plans for further well installation with environmental engineers.

- GWPP-9;
- GWPP-11;
- GWPP-19; and
- GWPP-20.

Minimum Inspection Requirement E: Radioactive Material and Waste Storage

In-lieu of walkdowns, the inspectors reviewed video recordings of areas designated for radioactive material and radioactive waste storage in order to verify the areas existed as described in UFSAR Chapters 11 and 12.

b. Findings

No findings were identified.

3P06 Quality Assurance (Operations)

- 35101-03.01 - QA Organizational Structure, Functional Relationships and Independence from Other Plant Organizations
- 35101-03.02 - Adequacy of the List of QAPD Plant Procedures and Personnel Training Used to Implement Plant Procedures
- 35101-03.03 - Onsite Design (or Design Change) Controls
- 35101-03.05 – Identification and Control of Material, Parts, and Components
- 35101-03.08 – Nonconforming Material, Parts, and Components
- 35101-03.10 - Inspections and Test Controls
- 35101-03.11 - Inspections and Test Controls
- 35101-03.12 - Control of Measuring and Test Equipment
- 36100-02.01 - Verify requirements of 10 CFR 21.21(a)(1) for evaluating deviations and failures to comply
- 36100-02.02 - Verify the requirements for 10 CFR 21.21(d) regarding directors or responsible officers
- 36100-02.03 - Verify the requirements of 10 CFR 21.31 regarding procurement documents for basic components
- 36100-02.04 - Verify the requirements of 10 CFR 21.51 regarding maintenance of records
- 36100-02.05 - Verify the posting requirements of 10 CFR 21.6
- 36302-02.01 - General Guidance
- 36302-02.02 - Operating Organization
- 36302-02.03 - Technical Support Organization
- 36302-02.04 - Welding and Non-Destructive Test Personnel
- 36302-02.05 - Quality Assurance/Quality Control Staff

a. Inspection Scope

The inspectors reviewed activities related to the operational phases of the QA program for Units 3 and 4. Specifically, the inspectors reviewed procedures, training and qualification records, and conducted interviews to determine if: (1) the licensee has developed a quality assurance program for operational activities in conformance with the quality assurance program description (QAPD) described in the UFSAR, (2) staff positions are filled, or administrative controls are in place to fill them, with qualified personnel, and (3) the licensee has established a program to implement the requirements of 10 CFR Part 21 after the 10 CFR 52.103(g) finding.

The inspectors performed a review of a sample of procedures used to implement the QAPD during operations of Vogtle 3 and 4. The inspectors reviewed procedures associated with the following QA aspects: organizational structure; training and qualification; design control; identification and control of materials, parts, and components; records; audits; and changes to the QAPD.

The inspectors reviewed the QA organizational structure to determine if it conformed to the QA program commitments in the UFSAR and that the QA organization is independent from the line organization and cost or scheduling efforts. The inspectors interviewed nine QA organization and operations and maintenance personnel to determine if they had an adequate understanding of the program and the appropriate qualifications and training to understand their position's quality requirements and responsibilities.

The inspectors reviewed a sample of plant procedures, personnel training, and processes for oversight of the QA program to determine if the quality of training and procedures is appropriate to meet the Nuclear Development Quality Assurance Manual (NDQAM) requirements, independent auditing of plant work organizations is conducted, and review boards such as the Plant Review Board and the Nuclear Safety Review Board will be an effective oversight mechanism to maintain quality. The inspectors reviewed a sample of 17 QA training and qualification records and interviewed 9 personnel to determine if QA personnel had adequate training to implement the operational QAPD. The inspectors reviewed a sample of normal, abnormal, emergency, and annunciator operating procedures; and conduct of operations, maintenance, engineering, chemistry, and emergency preparedness procedures to determine if they identified that items important to safety are subject to the QA program and reflected good quality and completeness to meet NDQAM requirements. The inspectors reviewed the 2019 corrective action program audit and the 2020 Global Nuclear inspection of QAPD and NDQAM. The inspectors reviewed a sample of QA procedures that covered aspects of audits of training, the corrective action program, and plant changes (10 CFR 50.59) to determine if the guidance provided to auditors and plant personnel in the sample of audits reviewed was in accordance with approved procedures and the NDQAM.

The inspectors reviewed design control implementing procedures to determine if they met the requirements of the SNC NDQAM, ASME NQA-1, and the UFSAR. Specifically, the inspectors reviewed the procedures to verify if:

- organization(s) or person(s) responsible for performing design change work are identified;
- design change request forms (or equivalent) have provisions for documenting completion of required reviews, evaluations, and approvals prior to change implementation;
- methods exist to ensure that applicable design change inputs are identified, and their selection reviewed and approved;
- design change activities are prescribed and accomplished in accordance with procedures of a type sufficient to ensure that applicable design inputs are correctly translated into specifications, drawings, procedures, or instructions;

- procedures requiring design change analysis, such as physics, stress, thermal, hydraulic, and accident analyses, are performed in a planned, controlled, and correct manner;
- procedures exist that identify the external interfaces between the onsite design organizations, including those responsible for design specifications, changes, technical direction, and approvals;
- procedures exist to ensure that design changes have an adequate design verification performed or are checked by applicable methods;
- administrative controls exist to ensure design change have been incorporated into appropriate plant procedures, the training program and plant drawings; and
- administrative controls require design documentation and records that provide evidence the design change review process was performed.

The inspectors reviewed procedures related to identification and control of materials, parts, and components to determine if they met the requirements of the SNC NDQAM, ASME NQA-1, and the UFSAR. Specifically, the inspectors reviewed the procedures to verify if:

- measures are established for the identification and control of material, parts and components, including partially fabricated assemblies; and these measures identify the item by heat number, part number, serial number, or other means either on the item or traceable to the item, as required throughout the fabrication, erection, installation and use of the item;
- licensee identification and controls be designed to prevent the use of incorrect or defective material, parts and components; and
- program procedures for control of material, equipment, parts, components, and services policies and guidelines for procurement and receipt inspections are provided.

The inspectors reviewed procedures related to records to determine if they met the requirements of the SNC NDQAM, ASME NQA-1, NRC RIS-2000-18, and the UFSAR. Specifically, the inspectors reviewed the procedures to verify they contained provisions that:

- evidence of activities affecting quality is documented by qualified personnel;
- specified documentation for procured items is received at the site and is reviewed;
- quality records are reviewed by qualified personnel, including records of appropriate subsequent corrective action, if needed;
- records are stored in a manner which precludes deterioration;
- describe the record storage facility or facilities;
- designate a custodian(s) in charge of storage facilities;
- describe the filing system(s) to be used to allow for the retrieval of records;
- methods to verify that records received agree with the transmittal documents;
- govern access to files and maintain an accountability of records removed from the storage facility; and
- establish methods for correcting or filing supplemental information and disposing of superseded records.

In addition, the inspectors reviewed procedures for electronic records to verify if they contained provisions to establish the following:

- QA records are authentic, complete and accurate with digital signatures and custody controls for electronic records through their entire life cycle from draft initial to final signature;
- QA storage media used will have a standard life expectancy equal to the retention period required for electronic QA records;
- Environmental controls for temperature and humidity for electronic QA storage media;
- management controls for electronic QA records, including generation, disposition, distribution, maintenance, retention, security, use, retirement and media archiving, including storage and inspection requirements;
- electronic QA records system is reliable, easy to maintain and use with adequate change controls for software errors;
- reporting process for identifying problems with the QA records system;
- on-line storage locations and data backup/disaster recovery storage locations for electronic QA records are in place if the primary QA records storage system is lost;
- disaster Support Team (DST) and an Electronic Records Disaster Recovery Plan (ERDRP);
- ERDRP has policies and procedures for disaster prevention and disaster recovery;
- test and maintenance activities on the DST and the ERDRP, including disaster drills; and
- after action observations (post-disaster drill) and updates the ERDRP accordingly with improvements in the plan.

The inspectors reviewed procedures related to audits to determine if they met the requirements of the SNC NDQAM, ASME NQA-1, and the UFSAR. Specifically, the inspectors reviewed the procedures to verify if provisions exist that:

- the scope of the audit program has been procedurally defined and that it is consistent with QA program requirements;
- an overall plan exists by which management ensures that the audit program addresses all aspects of activities affecting quality;
- responsibilities have been assigned in writing for the overall management of the audit program;
- define methods or administrative channels for taking corrective actions when deficiencies are identified during audits;
- define distribution requirements for audit reports and corrective action responses; and
- checklists or procedures are required to be used in the performance of audits.

The inspectors reviewed procedures for reporting changes to the QAPD to determine if they met the requirements of 10 CFR 50.54(a) and 50.55(f). The inspectors reviewed

these procedures to verify if a process is established for any reductions in licensee commitments to be submitted to the NRC for approval.

The inspectors reviewed QA implementing procedures, reviewed the licensee's organizational structure, and conducted interviews with personnel to determine if the minimum education, experience, and qualification requirements have been met in accordance with the UFSAR, NDQAM, and ASME NQA-1. The inspectors reviewed the organizational structure and the assignment of responsibilities and authorities to determine if staff positions are filled with qualified personnel that conform to the qualifications identified in the UFSAR and license. The inspectors reviewed training procedures to determine if they contained the minimum education, experience, and qualification requirements in accordance with the UFSAR and ASME NQA-1. The inspectors reviewed welding and nondestructive examination procedures to determine if training and qualification requirements have been established in accordance with the NDQAM; ANSI/ASNT CP-189; ASME Boiler and Pressure Vessel Code, Section IX; and ASME Boiler and Pressure Vessel Code, Section XI. The inspectors reviewed a sample of training and qualification records from 17 individuals to determine if personnel from the operating organization and QA/QC staff satisfied the minimum qualification and training requirements identified in QA implementing procedures, the UFSAR, and applicable codes and standards. For the shift technical advisor training program, the inspectors reviewed training procedures to determine if the program's training topics met the requirements of the UFSAR and ASME NQA-1.

The inspectors reviewed procedures related to the licensee's 10 CFR Part 21 program to determine if administrative controls are in place to effectively implement the requirements of 10 CFR Part 21 for reporting defects and failures to comply associated with a substantial safety hazard. Specifically, the inspectors reviewed program documents to determine if:

- controls are established to evaluate deviations and failures to comply in accordance with 10 CFR 21.21(a), and that notifications of these evaluations are made in accordance with 10 CFR 21.21(a);
- QA processes to control nonconformance and corrective actions provide a direct connection to the 10 CFR Part 21 program and procedures in accordance with the NDQAM;
- procedures implement the requirements regarding directors or responsible officers notifying the NRC of identified defects or failures to comply in accordance with 10 CFR 21.21(d);
- information required by 10 CFR 21.21(d)(4) is included in written notifications;
- measures are in place to inform purchasers or affected licensees of potential 10 CFR Part 21 reportable conditions in accordance with 10 CFR 21.21(b);
- procedures require that procurement documents specify the applicability of 10 CFR Part 21 in accordance with the NDQAM and 10 CFR 21.31;
- records are prepared and maintained in accordance with 10 CFR 21.51; and
- procedures implement the posting requirements of 10 CFR 21.6.

b. Findings

No findings were identified.

3P07 Radiation Protection

- 83533 - Part 52, External Occupational Exposure Control and Personal Dosimetry

a. Inspection Scope

Minimum Inspection Requirement A: Operational Procedure Incorporation

The inspectors reviewed licensee procedures for external occupational exposure control and personal dosimetry to verify that Vogtle Units 3 and 4 have incorporated the operational units' procedures into their Part 52 programs. The inspectors also reviewed the procedures to verify that program elements unique to Vogtle Units 3 and 4 were implemented in accordance with 10 CFR Part 20 and UFSAR Chapter 12.

Minimum Inspection Requirement B: Physical Controls to Limit External Exposure

The inspectors performed a virtual walkdown, via a pre-recorded video, of the following Unit 3 plant areas to verify that physical controls, including permanent shielding and doors for potential Locked High and Very High Radiation Areas, designed to limit external exposure are adequate to protect occupational workers, in accordance with 10 CFR Part 20 and UFSAR Chapter 12.

- RNS pump room
- RNS valve room
- RNS and spent fuel pool piping penetration room
- SFP cooling pump area
- transfer tube entry point
- demineralizer drain valves hallway
- waste liquid area
- "A" and "B" heat exchanger room
- resin transfer pump room
- under-vessel room
- reactor coolant drain tank pump area
- containment sump area
- auxiliary sump area
- containment shield building
- chemistry sample panel area

b. Findings

No findings were identified.

3P08 Radiation Protection

- 83534 - Part 52, Internal Exposure Control and Assessment

a. Inspection Scope

Minimum Inspection Requirement A: Operational Procedure Incorporation

The inspectors reviewed licensee procedures for internal exposure control, internal dose assessment, radiological respiratory protection, and airborne radioactivity monitoring to verify that Vogtle Units 3 and 4 have incorporated the operational units' procedures into their Part 52 programs. The inspectors also reviewed the procedures to verify that program elements unique to Vogtle Units 3 and 4 were implemented in accordance with 10 CFR Part 20 and UFSAR Chapter 12.

Minimum Inspection Requirement B: Airborne Radioactivity Mitigation

The inspectors evaluated installed and planned ventilation systems including the radiologically controlled area (RCA) Ventilation System, Main Control Room Emergency Habitability System, Containment Air Filtration System, Health Physics and Hot Machine Shop Ventilation System, and the Radwaste Building Ventilation System. In order to verify the systems would operate as described in UFSAR Chapters 6 and 9, the inspectors discussed the systems with plant staff, evaluated operator lesson plans, and reviewed the following procedures:

- 3-VAS-SOP-001- "Radiologically Controlled Area Ventilation System", Revision (Rev) E-0.4
- 3-VES-SOP-001- "Main Control Room Emergency Habitability System", Rev. D-0.3
- 3-VFS-SOP-001- "Containment Air Filtration System", Rev. E-0.4
- 3-VHS-SOP-001 - "Radiation Protection and Hot Machine Shop HVAC System", Rev. B-0.1
- 3-VRS-SOP-001 - "Radwaste Building HVAC System", Rev. D-0.3

The inspectors also discussed the use of temporary ventilation equipment with licensee staff, observed videos of purchased components, and evaluated procedure NMP-HP-509, "Selection and Control of Portable Ventilation Units", Rev. 1.4, in order to verify the licensee's ability to provide temporary local engineering controls as required by 10 CFR Part 20 and UFSAR Chapter 12.

Minimum Inspection Requirement C: Respiratory Equipment Availability

The inspectors reviewed the following purchase orders in order to verify that self-contained breathing apparatus (SCBA) required to support the sites' emergency plan will be available for use as described in UFSAR Chapters 12 and 15.

- Purchase Request 208607, Radiation Protection (RP) Dept MSA GS SCBA Kits
- Purchase Request 229790, RP Dept POSICHEK 3

The inspectors also observed videos of non-SCBA respiratory protection equipment in order to verify the type of equipment and quantities were available for use to support normal plant operation as required by UFSAR Chapter 12.

Minimum Inspection Requirement D: Air Sampling and Airborne Monitoring Equipment

The inspectors observed video walkdowns of air sampling and airborne monitoring equipment currently onsite and reviewed the licensee's acquisition plan in order to verify that sufficient equipment will be available to monitor in-plant airborne radioactivity levels as required by 10 CFR Part 20 and UFSAR Chapter 12.

Minimum Inspection Requirement E: Equipment for Evaluation Intakes of Radioactive Material

The inspectors observed video walkdowns of whole-body counting equipment in order to verify that equipment needed to evaluate intakes of radioactive material is available for use as required by UFSAR Chapter 12.

b. Findings

No findings were identified.

3P09 Radiation Protection

- 83535 - Part 52, Control of Radioactive Materials and Contamination, Surveys, and Monitoring

a. Inspection Scope

Minimum Inspection Requirement A: Operational Procedure Incorporation

The inspectors reviewed the following licensee procedures related to control of radioactive material and radiological surveys to verify that Vogtle Units 3 and 4 have incorporated the operational units' procedures into their Part 52 programs. The inspectors also reviewed the procedures to verify that program elements unique to Vogtle Units 3 and 4 were implemented in accordance with 10 CFR Part 20 and UFSAR Chapter 12.

- NMP-HP-300, "Radiation and Contamination Surveys", Rev. 5.4
- NMP-HP-305, "Alpha Radiation Monitoring", Rev. 5.10
- NMP-HP-401, "Receipt of Radioactive Materials", Rev. 3.8
- NMP-HP-403, "Control and Monitoring of Materials in Radiation Controlled Areas", Rev. 3.11
- NMP-HP-404, "Release of Materials from the RCA and Protected Areas", Rev. 4.2

Minimum Inspection Requirement C: Portable Survey, Sampling, and Contamination Monitoring Instruments

The inspectors reviewed Radiation Protection instrument/equipment budget and purchasing plans to determine if the type and quantity of portable survey, sampling, and contamination monitoring instruments are as described in UFSAR Chapter 12. The inspectors also remotely observed in-service survey instruments, reviewed

calibration records of selected in-service survey instruments, and reviewed portable radiation survey instrument procedures to verify that Vogtle Units 3 and 4 have incorporated the operational units' procedures for calibration, performance check, maintenance of portable survey, sampling, and contamination monitoring instruments, into their Part 52 programs. The inspectors also reviewed the procedures to verify that program elements unique to Vogtle Units 3 and 4 were implemented in accordance with 10 CFR 20 and UFSAR Chapter 12. The review included the following calibration records:

- Ludlum Model 3 Count Rate Meter, VEGP-HP-1633, Serial Number (S/N) 324206, 7/3/2018 and 7/18/2019
- Ludlum Model 9-3 Ion Chamber Dose Rate Meter, VEGP-HP-1663, Serial Number 328335, 2/15/2017
- Ludlum 12S Micro R Meter, VEGP-HP-1644, 2/21/2020
- MGPI Telepole, VEGP-HP-1641, 11/15 2018 and 10/30/2019

The inspectors noted that parts of this inspection procedure dealing with portable survey instruments were previously performed and documented in inspection report 05200025/2017001, 05200026/2017001 (ML17132A345). Credit was taken for this previous inspection effort during the performance of Minimum Inspection Requirement C.

b. Findings

No findings were identified.

3P10 Radiation Protection

- 83536 - Part 52, Facilities and Equipment

a. Inspection Scope

Minimum Inspection Requirement A: Operational Procedure Incorporation

The inspectors reviewed the following documents related to RP facilities and equipment to verify that Vogtle Units 3 and 4 have incorporated the operational units' procedures into their Part 52 programs. The inspectors also reviewed the procedures to verify that program elements unique to Vogtle Units 3 and 4 were implemented in accordance with 10 CFR Part 20, and UFSAR Chapter 12.

- 43021-C, "Health Physics Central Monitoring Station Duties and Responsibilities", Rev. 5.0
- NMP-HP-008-001, "Radiation Protection Standards and Expectations," Rev. 6.1
- Plant Drawing IFC SV3-4030-AF-001-R4, Annex Building El. 100' - 0" & 107' - 2"

Minimum Inspection Requirement B: Decontamination Facilities

In-lieu of walkdowns, inspectors reviewed video recordings provided by plant personnel of areas that are designated as personnel and equipment decontamination facilities and reviewed the following procedures to verify the facilities will be as described in UFSAR Chapters 1 and 12.

- NMP-HP-303, "Personnel Decontamination," Rev. 4.1
- NMP-HP-304, "Decontamination of Areas, Tools, and Equipment", Rev. 2.3

Minimum Inspection Requirement C: RCA Entrance and Exit

In-lieu of walkdowns, the inspectors reviewed video recordings provided by plant personnel of areas that are designated as RCA entrance and exit points and reviewed videos of exit point instrumentation in storage in order to verify that sufficient planned calibrated equipment will be available as described in UFSAR Chapter 12.

Minimum Inspection Requirement D: Facilities for Storage of Contaminated Tools

In-lieu of walkdowns, the inspectors reviewed video recordings provided by plant personnel of areas that are designated for the storage and control of contaminated tools to verify these facilities will be available as described in UFSAR Chapter 12.

b. Findings

No findings were identified.

3P11 Radiation Protection

- 83537 - Part 52, Maintaining Occupational Exposures ALARA

a. Inspection Scope

Minimum Inspection Requirement A: Operational Procedure Incorporation

The inspectors reviewed licensee procedures for maintaining individual and collective radiation doses ALARA in order to verify that Vogtle Units 3 and 4 have incorporated the operational units' procedures into their Part 52 programs. The inspectors also reviewed the procedures to verify that program elements unique to Vogtle Units 3 and 4 were implemented in accordance with 10 CFR Part 20 and UFSAR Chapter 12.

b. Findings

No findings were identified.

3P12 Preservice Inspection

- 73757-02.02 - ASME Class 1 Records Review

a. Inspection Scope

The inspectors conducted an onsite review of the implementation of the licensee's preservice inspection (PSI) activities for Unit 4. The PSI inspections are designed to provide baseline nondestructive examination (NDE) data. These PSI results can then be compared to future inservice inspection results to help the licensee identify degradation of pressure retaining components in vital system boundaries. The scope of these PSI activities includes components within the reactor coolant system boundary, risk-significant piping boundaries, and containment system boundaries.

In accordance with IP 73757, "Preservice Inspection – Data Review and Evaluation," Section 02.02, the inspectors selected the following NDE samples for review/observation:

- Eddy Current Testing (ECT)
 - Unit 4 steam generator (SG)1 – tubes R65C21, R79C27, R93C103, R139C115
 - Unit 4 SG2 – tubes R33C3, R71C89, R96C140, R109C95

For the samples identified above:

The inspectors reviewed the examination records and verified the method, extent, and technique complied with ASME Sections III and XI, the licensee's PSI program, and the NDE procedure used. The inspectors also verified that the examination data were within the acceptance criteria listed in the NDE procedure and the requirements of ASME Sections III and XI and that the NDE method used was sufficient to determine the full extent of the indications and their acceptance. Additionally, the inspectors confirmed that the recording, evaluation, and disposition of NDE findings complied with the NDE procedure and ASME Section III and XI requirements.

b. Findings

No findings were identified.

3P13 Preservice Inspection

- 73754-02.02 - Personnel Qualification & Certification
- 73754-02.03 - Non-destructive Examination (NDE) Review

a. Inspection Scope

The inspectors conducted an onsite review of the implementation of the licensee's PSI activities for Unit 4. The PSI inspections are designed to provide baseline NDE data. These PSI results can then be compared to future inservice inspection results to help the licensee identify degradation of pressure retaining components in vital system boundaries. The scope of these PSI activities includes components within the reactor coolant system boundary, risk-significant piping boundaries, and containment system boundaries.

In accordance with IP 73754, "Preservice Inspection – Non-Destructive Examination," Sections 02.02 and 02.03, the inspectors selected the following NDE samples for review/observation:

- Eddy Current Testing
 - Unit 4 SG1 – tubes R65C21, R79C27, R93C103, R139C115
 - Unit 4 SG2 – tubes R33C3, R71C89, R96C140, R109C95

For the samples identified above:

The inspectors reviewed Level II and III personnel qualification/certification records to verify that they contained qualification certificates and the most recent visual acuity examination report (including color vision test results). The inspectors also reviewed the vendor's ECT examination procedures to ensure they specified the multi-channel examination unit, described the method of examination, described the method and sequence of calibration, addressed the requirements of the ASME Code, Sections III and XI, referenced steam generator tube examinations consistent with the licensing basis (items 1.a-b), and referenced written approval for use of Code cases.

Additionally, the inspectors verified that the requirements for the ECT exams were specified and agreed with the licensee's commitments, the qualification requirements for ECT personnel were specified and were in accordance with the licensee's PSI program, and the methods of recording, evaluating and dispositioning findings and any reports thereof were in compliance with applicable Code requirements.

The inspectors also observed the ECT activities directly to verify acceptable performance in accordance with ASME Code, Electric Power Research Institute Steam Generator Guidelines (items 1.a-b), and applicable regulatory requirements. In conducting these observations, the inspectors also confirmed that the SGs and PRHR HX were provided with the access necessary to perform both the PSI exams and future inservice inspection exams.

Finally, the inspectors confirmed that approved procedures were available, were followed, and specified NDE equipment was used. The inspectors verified that the personnel conducting the ECT were appropriately qualified/certified to do so, and that the examination results, evaluation, and any corrective actions were recorded as specified in the licensee's PSI program and NDE procedures.

b. Findings

No findings were identified.

4. OTHER INSPECTION RESULTS

4OA6 Meetings, Including Exit

.1 Exit Meeting.

On July 20, 2020, the inspectors presented the inspection results to Mr. M. Meier, SNC Vice President of Regulatory Affairs, and other licensee and contractor staff members. Proprietary information was reviewed during the inspection period, but was not included in the inspection report

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licenses and Contractor Personnel

E. Riffle, ITP Director
A. Nix, NI Manager
T. Petrak, ITAAC Manager
M. Hickox, Test Support Manager
C. Alexander, Milestone Manager
S. Boyle, Milestone Manager
D. Pagan-Diaz, ITP Turnover. Manager
J. Olsen, NI Supervisor
S. Leighty, SNC Licensing Supervisor
C. Castell, SNC Licensing Engineer
N. Patel, SNC Licensing Engineer
J. Cole, SNC Licensing Engineer
J. Weathersby, SNC Licensing Engineer
C. Main, ITAAC Project Manager
D. Wade, ITAAC Project Manager
B. Macioce, Principle Engineer Digital Testing
R. McKay, ITP Test Engineer
S. Turner, ITP Test Engineer
G. Weaver, ITP Test Engineer
R. Nicoletto, ITP Test Engineer
W. Pipkins, ITP Test Engineer
D. Melton, ITP Test Engineer
R. Espara, ITP Test Engineer
J. Clark, ITP Test Engineer
K. Morgan, ITP Test Engineer

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

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

LIST OF DOCUMENTS REVIEWED

1. CONSTRUCTION REACTOR SAFETY

Section 1A01

Procedures

NMP-AP-001-003, Review and Approval of Site Procedures, Rev. 14.0

NMP-AP-001, Development and Control of Southern Nuclear Procedures, Rev. 20.0

B-GEN-ITPA-011, Initial Test Program Administrative and Test Procedure Development, Rev. 7.1

B-ADM-MNT-006, Work Package Preparation, Rev. 6

NMP-AP-002, SNC Fleet Procedures Writers' Guide, Rev. 8.1

Work Package

SV3-CCS-T0W-SNC920991, Perform ITAAC 2.2.01.09 Items 9 and 10a, ITAAC 2.2.01.11b, Rev. 0

Section 1A02

Procedures

NMP-AP-001-003, Review and Approval of Site Procedures, Rev. 14.0

NMP-AP-001, Development and Control of Southern Nuclear Procedures, Rev. 20.0

B-GEN-ITPA-011, Initial Test Program Administrative and Test Procedure Development, Rev. 7.1

B-ADM-MNT-006, Work Package Preparation, Rev.6

NMP-AP-002, SNC Fleet Procedures Writers' Guide, Rev. 8.1

Work Package

SV3-PXS-T0W-SNC921628, Perform ITAAC 2.2.03.12b, Rev. 0

Section 1A03

Miscellaneous

ND-RA-001-008-F01, PCD Review for ITAAC 2.5.02.06a.ii, Rev. 9.0, 5/10/2020

APP-PMS-J4-020, AP1000 System Design Specification for the Protection and Safety Monitoring System, Rev. 16

APP-PMS-T5-001, AP1000 Protection and Safety Monitoring System Test Plan, Rev. 5

APP-PMS-T1P-026, AP1000 Protection and Safety Monitoring System Display Partial Actuate / Partial Bypass Test Procedure, Rev. 4

APP-PMS-T1D-026, AP1000 Protection and Safety Monitoring System Display Partial Actuate / Partial Bypass Test Data Sheets, Rev. 7

VS3-PMS-T2R-026, V.C. Summer Unit 3 AP1000 Protection and Safety Monitoring System Display Partial Actuate / Partial Bypass Test Report, Rev. 2

Drawings

APP-PMS-J3-331, AP1000 Detailed Functional Diagram Steam Generator 2 Wide Range Water Level and THot High, Rev. 8

APP-PMS-J3-334, AP1000 Detailed Functional Diagram Battery Charger Input Voltage Low,

Rev. 7

APP-PMS-J3-368, AP1000 Detailed Functional Diagram CMT Tanks A and B Narrow Range Low-6 Level, Rev. 8

Section 1A04

Miscellaneous

NA-RL-06533-SV0, Configuration Management Release Report, Rev. 0

GIC-AP1000-SSSE-19-014, Supplemental Release Information for Vogtle AP1000 PMS Software, Rev. 0

SV3-GW-GCW-300, Vogtle Unit 3 AP1000 PMS Initial Software Installation, Rev. 0

ND-EN-VNP-014, Vogtle 3&4 Instrumentation and Control Field Change Notice Implementation, Rev. 6.0

Procedures

B-GEN-ITPCI-001, PMS Cabinets, Rev. 3.0

B-GEN-ITPCI-001-004, Cabinet Energization Instructions for BCC PMS Cabinets, Rev. 1.0

B-GEN-ITPCI-001-003, PMS Cabinet Energization Test Procedure for MTC, Rev. 1.0

B-GEN-ITPA-011, Initial Test Program Administrative and Test Procedure Development, Rev. 8/9

Drawings

SV3-PMS-J8Y-001, AP1000 Protection and Safety Monitoring System Cabinet Configuration Drawing Package, Rev. 2.0

Section 1A05

Procedures

B-GEN-ITPCI-001, PMS Cabinets, Rev. 3

B-GEN-ITPCI-001, PMS Cabinets, Rev. 2

B-GEN-ITPCI-001-003, PMS Cabinets- PMS Cabinet Energization Test Procedure for MTC, Rev. 1

B-GEN-ITPCI-001-009, PMS Cabinets- PMS Cabinet Energization Test Procedure for QDP, Rev. 3

B-GEN-ITPA-004, Conduct of Test, Rev. 19/20

B-GEN-ITPA-011, Initial Test Program Administrative and Test Procedure Development, Rev. 8/9

Drawings

SV3-PMS-J8Y-001, AP1000 Protection and Safety Monitoring System Cabinet Configuration Drawing Package, Rev. 2

Miscellaneous

SV3-PMS-J7-001, AP1000 Protection and Safety Monitoring System -System Specification Document, Rev. 0

Section 1A06

Procedures

B-GEN-ITPCI-001, PMS Cabinets, Rev. 3

B-GEN-ITPCI-001, PMS Cabinets, Rev. 2

B-GEN-ITPCI-001-003, PMS Cabinets- PMS Cabinet Energization Test Procedure for MTC, Rev. 1

B-GEN-ITPCI-001-004, PMS Cabinets- PMS Cabinet Energization Test Procedure for BCC, Rev. 1
B-GEN-ITPA-004, Conduct of Test, Rev. 19
B-GEN-ITPA-004, Conduct of Test, Rev. 20
B-GEN-ITPA-011, Initial Test Program Administrative and Test Procedure Development, Rev. 8/9

Drawings

SV3-PMS-J8Y-001, AP1000 Protection and Safety Monitoring System Cabinet Configuration Drawing Package, Rev. 2
SV3-PMS-J7-001, AP1000 Protection and Safety Monitoring System -System Specification Document, Rev. 0

Section 1A07

Procedures

B-GEN-ITPA-004, Conduct of Test, Rev. 19/20
B-GEN-ITPCI-001, PMS Cabinets, Rev. 3.0
B-GEN-ITPCI-001, PMS Cabinets, Rev. 2.0
B-GEN-ITPCI-004, PMS Cabinets- PMS Cabinet Energization Test Procedure for BCC, Rev. 1
B-GEN-ITPCI-005, PMS Cabinets- PMS Cabinet Energization Test Procedure for ILC, Rev. 1
B-GEN-ITPA-011, Initial Test Program Administrative and Test Procedure Development, Rev. 8/9

Drawings

SV3-PMS-J8Y-001, AP1000 Protection and Safety Monitoring, System Cabinet Configuration Drawing Package, Rev. 2.0

Section 1A08

Procedures

3-ECS-SOP-003, AC Motor Control Center and Distribution Panels, Rev. .4
3-IDSA-SOP-001, Class 1E DC System-Division A, Rev. 0.4
3-IDSA-SOP-002, Class 1E AC System-Division A, Rev. 0.3
3-IDSB-SOP-001, Class 1E DC System-Division B, Rev. 0.2
3-IDSB-SOP-002, Class 1E AC System-Division B, Rev. 0.1
3-IDSC-SOP-001, Class 1E DC System-Division C, Rev. 0.2
3-IDSC-SOP-002, Class 1E AC System-Division C, Rev. 0.1
3-IDSD-SOP-001, Class 1E DC System-Division D, Rev. 0.2
3-IDSD-SOP-002, Class 1E AC System-Division D, Rev. 0.1
3-PMS-SOP-001, Protection and Safety Monitoring System, Rev. 6
B-GEN-ITPA-004, Conduct of Test, Rev. 16.1
B-GEN-ITPA-004-F11, Pre-Test Checklist, Rev. 04.0

Drawings

SV3-ECS-E3-EC12101, One Line Diagram AC MCC APP-ECS-EC-121 Aux Bldg Rm 12213 Sheet 1 of 5, Rev. 5
SV3-ECS-E3-EC22102, One Line Diagram AC MCC APP-ECS-EC-221 Aux Bldg Rm 12211 Sheet 2 of 4, Rev. 5

Miscellaneous

SV0-DC01-V0M-001, Vogtle Units 3&4 Class 1E Battery Charger Multipurpose
Manuals: Operating and Maintenance Instructions (DC01), Rev. 0
SV3-ITAAC-ST-2.6.03.04c Item 4.h, IDS 24-Hour Battery Charger Undervoltage Verifications-
ITAAC:SV3-2.6.03.04c Item 4.h

Section 1A09

Miscellaneous

FEMA Final After Action Report for Vogtle Unit 1 & 2 Radiological Emergency Preparedness
May 15, 2018 Exercise, dated August 2, 2018

Section 1A10

Miscellaneous

ND-RA-001-008-F01, PCD Review: APP-PMS-T2R-010 Rev. 0, AP1000 Protection and Safety
Monitoring System Qualified Data Processing System Channel Integration Test Report, ITAAC
2.5.02.08a.ii Rev. 9.0, 1/17/2020

APP-PMS-T1P-010, AP1000 Protection and Safety Monitoring System Qualified Data
Processing System Channel Integration Test Procedure, Rev. 4

APP-PMS-T2R-010, AP1000 Protection and Safety Monitoring System Qualified Data
Processing System Channel Integration Test Report, October 2017

APP-PMS-T5-001, AP1000 Protection and Safety Monitoring System Test Plan, Rev. 5

Drawings

APP-PMS-J3-400, AP1000 Detailed Functional Diagram Intermediate Range Neutron Flux and
SUR Monitoring, Rev. 6

APP-PMS-J3-413, AP1000 Detailed Functional Diagram Subcriticality CSF Calculation, Rev. 5

APP-PMS-J3-415, AP1000 Detailed Functional Diagram Passive Containment Cooling Water
Flow and Visual Alert Enable Monitoring, Rev. 8

APP-PMS-J3-417, AP1000 Detailed Functional Diagram PRHR HX Outlet Temperature and
Flow Monitoring, Rev. 8

APP-PMS-J3-423, AP1000 Detailed Functional Diagram Containment CSF Calculation, Rev. 8

APP-PMS-J3-424, AP1000 Detailed Functional Diagram PRHR Flow Path Valve Monitoring,
Rev. 6

Section 1A11

Miscellaneous

ND-19-1538, Southern Nuclear Operating Company Vogtle Electric Generating Plant Unit 3 and
Unit 4 Notice of Uncompleted ITAAC 225-days Prior to Initial Fuel Load Item 2.5.02.09d (Index
Number 548), January 2, 2020

ND-RA-001-008-F01, PCD Review for ITAAC 2.5.02.08b.ii Rev. 9.0, 3/3/2020

APP-PMS-T1P-008, AP1000 Protection and Safety Monitoring System System-Level
Engineered Safety Features Channel Integration Test Procedure, Rev. 2

VS3-PMS-T2R-008, V.C. Summer Unit 3 AP1000 Protection and Safety Monitoring System
System-Level Engineered Safety Features Channel Integration Test Report, Rev. 0

VS3-PMS-T2R-034, V. C. Summer Unit 3 AP1000 Protection and Safety Monitoring System
Maintenance and Test Panel Miscellaneous Test Report, Rev. 0, July 2017

APP-PMS-T1P-034, AP1000 Protection and Safety Monitoring System Maintenance and Test
Panel Miscellaneous Test Procedure, Rev. 3

Section 1A12

Miscellaneous

ND-19-1538, Southern Nuclear Operating Company Vogtle Electric Generating Plant Unit 3 and Unit 4 Notice of Uncompleted ITAAC 225-days Prior to Initial Fuel Load Item 2.5.02.09d (Index Number 548), January 2, 2020

ND-RA-001-008-F01, PCD Review: APP-PMS-T2R-009 Rev. 0, AP1000 Protection and Safety Monitoring System Integrated Logic Processor Component Logic Channel Integration Test Report, ITAAC 2.5.02.09d Rev. 9.0, February 25, 2020

APP-PMS-T1P-009, AP1000 Protection and Safety Monitoring System Integrated Logic Processor Component Logic Channel Integration Test Procedure, Rev. 8, December 2017

APP-PMS-T2R-009, AP1000 Protection and Safety Monitoring System Integrated Logic Processor Component Logic Channel Integration Test Report, Rev. 0, August 2017

Drawings

APP-PMS-J3-519, AP1000 Detailed Functional Diagram RNS Inner Hot Leg Suction Isolation Valves APP-RNS-PL-V001A and APP-RNS-PL-V001B Component Functional Logic Division D, Rev. 8

APP-PMS-J3-520, AP1000 Detailed Functional Diagram RNS Outer Hot Leg Suction Isolation Valves APP-RNS-PL-V002A and APP-RNS-PL-V002B Component Functional Logic Division B, Rev. 8

APP-PMS-J3-541, AP1000 Detailed Functional Diagram Motor Operated Valves (MOV) (2 of X), Rev. 9

APP-PMS-J3-542, AP1000 Detailed Functional Diagram Motor Operated Valves (MOV) (3 of X), Rev. 8

APP-PMS-J3-543, AP1000 Detailed Functional Diagram Motor Operated Valves (MOV) (4 of X), Rev. 8

APP-PMS-J3-547, AP1000 Detailed Functional Diagram Motor Operated Valves (MOV) (5 of X), Rev. 7

APP-PMS-J3-367, AP1000 Detailed Functional Diagram RCS Wide Range Pressure, Rev. 7

APP-PMS-J3-578, AP1000 Detailed Functional Diagram PMS Loads and Component Types - RNS Suction Isolation Valves, Rev. 8

APP-PMS-J3-352, AP1000 Detailed Functional Diagram PRHR Manual Actuation and Reset Control, Rev. 6

2. SAFEGUARDS PROGRAMS

Section 2P01

Procedures

NMP-SE-006-Security Drills and Exercise Program, Rev. 7.0

NMP-SE-012-Safety/Security Interface, Rev. 4.0

NMP-SE-020-SNC Security Training Program, Rev. 6.0

Miscellaneous

S-SE-117-Adversary Training Course, Rev. 0

S-SE-LM-17001-SNC Adversary Training, Rev. 2.0

Technical Evaluations

TE 60005592

TE 60006267

3. OPERATIONAL READINESS

Section 1T01

Procedures

3-CNS-ITPP-502, Containment Penetration Leak Rate (Type B) Preoperational Test, Rev. 3.0
3-CNS-ITPP-503, LLRT Containment Leak Rate Test Type C, Rev. 3.0

Miscellaneous

SV3-CNS-T1-501, Containment System Preoperational Test Specification, Rev. 1
APP-CNS-M3-001, Containment System: System Specification Document, Rev. 4
ANSI/ANS-56.8, Containment System Leakage Testing Requirements, 1994

Section 1T02

Procedures

3-RCS-OTS-16-005, Division B – RCS Hot Leg Level Calibration (RCS-LT160B), Rev. A (0)
3-RCS-OTS-16-006, Division A- RCS Hot Leg Level Calibration- RCS-LT-160A, Rev. B (0.1)
B-GEN-ITPCI-019-125, PMS Channel Calibration for RCS LT 160B, Rev. 1
B-GEN-ITPCI-019-150, PMS Channel Calibration for RCS LT 160A, Rev. 1

Miscellaneous

Technical Evaluation 60010494, B-GEN-ITPCI-125-125 Needs to be Corrected, 03/16/2020
Condition Report 50045216, SNC Surveillance Procedure Errors Causing Concerns,
03/16/2020

Section 3T03

Procedures

3-PCS-ITPP-502, Passive Containment Cooling System PCCWST Preoperational Test Procedure, Rev. 1.0
3-PCS-SOP-001, Passive Containment Cooling System, Rev. F
APP-PCS-M3C-015, PCS Minimum Cooling Water Flow Rates and Tank Sizing, Rev. 5
B-GEN-ITPA-004, Conduct of Test, Rev. 16.1
B-GEN-ITPA-004-F11, Pre-Test Checklist, Rev. 4.0

Miscellaneous

APP-FSAR-GEF-093, PCS Wetted Perimeter Test Modification (LAR-228), Rev. 0
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SV3-PCS-T1-501, Passive Containment Cooling System Preoperational Test Specification, Rev. 5
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LIST OF ACRONYMS

ADS	automatic depressurization system
ANSI	American National Standards Institute
BCC	bistable/coincidence logic cabinets
CAS	compressed and instrument air system
CCS	component cooling water system
CFR	Code of Federal Regulations
CLRT	containment leak rate test
CMT	core makeup tank
COL	Combined License
CR	Condition Report
CVS	chemical and volume control system
DC	direct current
ECT	eddy current testing
ERDRP	Electronic Records Disaster Recovery Plan
FAT	factory acceptance test
FCN	field change notice
gpm	gallons per minute
ILC	integrated logic cabinet
ILRT	integrated leak rate test
IP	inspection procedure
IR	inspection report
ITAAC	inspections, tests, and acceptance criteria
LLRT	local leak rate test
MOV	motor operated valve
MT&E	measuring test and equipment
MTC	main control room
MTC	maintenance and test cabinets
NDE	nondestructive examination
NDQAM	Nuclear Development Quality Assurance Manual
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PARS	publicly available records
PCCWST	passive containment cooling system water storage tank
PCS	passive containment cooling system
PMS	protection and monitoring system
PRHR HX	passive residual heat removal heat exchanger
PSI	preservice inspection
PST	preservice test
QA	quality assurance
QDP	qualified data processing
QAPD	quality assurance program description
RCA	radiologically controlled area

RCS	reactor coolant system
Rev	revision
RNS	normal residual heat removal system
RWS	remote work station
SCBA	self-contained breathing apparatus
SG	steam generator
SNC	Southern Nuclear Company
SPDS	set point data sheet
SSC	systems, structures, or components
UFSAR	Updated Final Safety Analysis Report

ITAAC INSPECTED

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
107	2.2.01.07.i	7. The CNS provides the safety-related function of containment isolation for containment boundary integrity and provides a barrier against the release of fission products to the atmosphere.	i) A containment integrated leak rate test will be performed.	i) The leakage rate from containment for the integrated leak rate test is less than La.
118	2.2.01.11b	11.b) After loss of motive power, the remotely operated valves identified in Table 2.2.1-1 assume the indicated loss of motive power position.	Testing of the remotely operated valves will be performed under the conditions of loss of motive power.	After loss of motive power, each remotely operated valve identified in Table 2.2.1-1 assumes the indicated loss of motive power position.

138	2.2.02.07b.i	<p>7.a) The PCS delivers water from the PCCWST to the outside, top of the containment vessel.</p> <p>7.b) The PCS wets the outside surface of the containment vessel. The inside and the outside of the containment vessel above the operating deck are coated with an inorganic zinc material.</p> <p>7.c) The PCS provides air flow over the outside of the containment vessel by a natural circulation air flow path from the air inlets to the air discharge structure.</p> <p>7.d) The PCS drains the excess water from the outside of the containment vessel through the two upper annulus drains.</p> <p>7.e) The PCS provides a flow path for long-term water makeup to the PCCWST.</p> <p>9. Safety-related displays identified in Table 2.2.2-1 can be retrieved in the MCR.</p> <p>10.a) Controls exist in the MCR to cause the remotely operated valves identified in Table 2.2.2-1 to perform active functions.</p> <p>10.b) The valves identified in Table 2.2.2-1 as having PMS control perform an active safety</p>	<p>i) Testing will be performed to measure the PCCWST delivery rate from each one of the three parallel flow paths.</p> <p>ii) Testing and or analysis will be performed to demonstrate the PCCWST inventory provides 72 hours of adequate water flow.</p> <p>i) Testing will be performed to measure the outside wetted surface of the containment vessel with one of the three parallel flow paths delivering water to the top of the containment vessel.</p> <p>ii) Inspection of the containment vessel exterior coating will be conducted.</p> <p>iii) Inspection of the containment vessel interior coating will be conducted.</p> <p>Inspections of the air flow path segments will be performed.</p> <p>Testing will be performed to verify the upper annulus drain flow performance.</p> <p>ii) Testing will be performed to measure the delivery rate from the long-term makeup connection to the PCCWST.</p> <p>Inspection will be performed for retrievability of the safety-related displays in the MCR.</p>	<p>i) When tested, each one of the three flow paths delivers water at greater than or equal to: – 469.1 gpm at a PCCWST water level of 27.4 ft + 0.2, - 0.0 ft above the tank floor – 226.6 gpm when the PCCWST water level uncovers the first (i.e. tallest) standpipe – 176.3 gpm when the PCCWST water level uncovers the second tallest standpipe – 144.2 gpm when the PCCWST water level uncovers the third tallest standpipe – or a report exists and concludes that the as-measured flow rates delivered by the PCCWST to the containment vessel provides sufficient heat removal capability such that the limiting containment pressure and temperature values are not affected and the PCS is able to perform its safety function to remove heat from containment to maintain plant safety.</p> <p>ii) When tested and/or analyzed with all flow paths delivering and an initial water level at 27.4 + 0.2, □ 0.00 ft, the PCCWST water inventory provides greater than or equal to 72 hours of flow, and the flow rate at 72 hours is greater than or equal to 100.7 gpm</p>
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		<p>function after receiving a signal from the PMS. 11.a) The motor-operated valves identified in Table 2.2.2-1 perform an active safety-related function to change position as indicated in the table. 11.b) After loss of motive power, the remotely operated valves identified in Table 2.2.2-1 assume the indicated loss of motive power position.</p>	<p>Stroke testing will be performed on the remotely operated valves identified in Table 2.2.2-1 using the controls in the MCR. Testing will be performed on the remotely operated valves in Table 2.2.2-1 using real or simulated signals into the PMS. iii) Tests of the motor-operated valves will be performed under preoperational flow, differential pressure, and temperature conditions. Testing of the remotely operated valves will be performed under the conditions of loss of motive power.</p>	<p>or a report exists and concludes that the as-measured flow rates delivered by the PCCWST to the containment vessel provides sufficient heat removal capability such that the limiting containment pressure and temperature values are not affected and the PCS is able to perform its safety function to remove heat from containment to maintain plant safety. i) A report exists and concludes that when the water in the PCCWST uncover<u>Revs</u>s the standpipes at the following levels, the water deliver<u>Rev</u>.ed by one of the three parallel flow paths to the containment shell provides cover<u>Rev</u>.age measured at the spring line that is equal to or greater than the stated cover<u>Rev</u>.ages. - 24.1 ± 0.2 ft above the tank floor; at least 90% of the perimeter is wetted. - 20.3 ± 0.2 ft above the tank floor; at least 72.9% of the perimeter is wetted. - 16.8 ± 0.2 ft above the tank floor; at least 59.6% of the perimeter is wetted. ii) A report exists and concludes that the containment vessel exterior surface is coated with an</p>
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				<p>inorganic zinc coating above elevation 135'±3". iii) A report exists and concludes that the containment vessel interior surface is coated with an inorganic zinc coating above the operating deck. Flow paths exist at each of the following locations: – Air inlets – Base of the outer annulus – Base of the inner annulus – Discharge structure With a water level within the upper annulus 10" + 1" above the annulus drain inlet, the flow rate through each drain is greater than or equal to 525 gpm. ii) With a water supply connected to the PCS long-term makeup connection, each PCS recirculation pump delivers greater than or equal to 100 gpm when tested separately. Safety-related displays identified in Table 2.2.2-1 can be retrieved in the MCR. Controls in the MCR operate to cause remotely operated valves identified in Table 2.2.2-1 to perform active functions. The remotely operated valves identified in Table 2.2.2-1 as having PMS control perform the active function identified in the table after</p>
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No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
				receiving a signal from the PMS. iii) Each motor-operated valve changes position as indicated in Table 2.2.2-1 under preoperational test conditions. After loss of motive power, each remotely operated valve identified in Table 2.2.2-1 assumes the indicated loss of motive power position.
177	2.2.03.08c.i.01	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each test is initiated by opening isolation valve(s) in the line being tested. Test fixtures may be used to simulate squib valves. 1. CMTs: Each CMT will be initially filled with water. All valves in these lines will be open during the test.	i) The injection line flow resistance from each source is as follows: 1. CMTs: The calculated flow resistance between each CMT and the reactor vessel is $\geq 1.81 \times 10^{-5}$ ft/gpm ² and $\leq 2.25 \times 10^{-5}$ ft/gpm ² .

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
178	2.2.03.08c.i.02	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	<p>i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each test is initiated by opening isolation valve(s) in the line being tested. Test fixtures may be used to simulate squib valves. 2.</p> <p>Accumulators: Each accumulator will be partially filled with water and pressurized with nitrogen. All valves in these lines will be open during the test. Sufficient flow will be provided to fully open the check valves.</p>	<p>i) The injection line flow resistance from each source is as follows: 2.</p> <p>Accumulators: The calculated flow resistance between each accumulator and the reactor vessel is $\geq 1.47 \times 10^{-5}$ ft/gpm² and $\leq 1.83 \times 10^{-5}$ ft/gpm².</p>

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
179	2.2.03.08c.i.03	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each test is initiated by opening isolation valve(s) in the line being tested. Test fixtures may be used to simulate squib valves. 3. IRWST Injection: The IRWST will be partially filled with water. All valves in these lines will be open during the test. Sufficient flow will be provided to open the check valves.	i) The injection line flow resistance from each source is as follows: 3. IRWST Injection: The calculated flow resistance for each IRWST injection line between the IRWST and the reactor vessel is: Line A: $\geq 5.35 \times 10^{-6}$ ft/gpm ² and $\leq 9.09 \times 10^{-6}$ ft/gpm ² and Line B: $\geq 6.15 \times 10^{-6}$ ft/gpm ² and $\leq 1.05 \times 10^{-5}$ ft/gpm ² .

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
180	2.2.03.08c.i.04	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	i) A low-pressure injection test and analysis for each CMT, each accumulator, each IRWST injection line, and each containment recirculation line will be conducted. Each test is initiated by opening isolation valve(s) in the line being tested. Test fixtures may be used to simulate squib valves. 4. Containment Recirculation: A temporary water supply will be connected to the recirculation lines. All valves in these lines will be open during the test. Sufficient flow will be provided to open the check valves.	i) The injection line flow resistance from each source is as follows: 4. Containment Recirculation: The calculated flow resistance for each containment recirculation line between the containment and the reactor vessel is: Line A: $\leq 1.33 \times 10^{-5}$ ft/gpm ² and Line B: $\leq 1.21 \times 10^{-5}$ ft/gpm ² .
201	2.2.03.09a.i	9.a) The PXS provides a function to cool the outside of the reactor vessel during a severe accident.	i) A flow test and analysis for each IRWST drain line to the containment will be conducted. The test is initiated by opening isolation valves in each line. Test fixtures may be used to simulate squib valves.	i) The calculated flow resistance for each IRWST drain line between the IRWST and the containment is $\leq 4.44 \times 10^{-6}$ ft/gpm ² .

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
206	2.2.03.10	<p>10. Safety-related displays of the parameters identified in Table 2.2.3-1 can be retrieved in the MCR. 11.a) Controls exist in the MCR to cause the remotely operated valves identified in Table 2.2.3-1 to perform their active function(s). 11.b) The valves identified in Table 2.2.3-1 as having PMS control perform their active function after receiving a signal from the PMS. 12.b) After loss of motive power, the remotely operated valves identified in Table 2.2.3-1 assume the indicated loss of motive power position. 13. Displays of the parameters identified in Table 2.2.3-3 can be retrieved in the MCR.</p>	<p>Inspection will be performed for the retrievability of the safety-related displays in the MCR. ii) Stroke testing will be performed on remotely operated valves other than squib valves identified in Table 2.2.3-1 using the controls in the MCR. ii) Testing will be performed on the remotely operated valves other than squib valves identified in Table 2.2.3-1 using real or simulated signals into the PMS. iii) Testing will be performed to demonstrate that remotely operated PXS isolation valves PXS-V014A/B, V015A/B, V108A/B open within the required response times. Testing of the remotely operated valves will be performed under the conditions of loss of motive power. Inspection will be performed for retrievability of the displays identified in Table 2.2.3-3 in the MCR.</p>	<p>Safety-related displays identified in Table 2.2.3-1 can be retrieved in the MCR. ii) Controls in the MCR operate to cause remotely operated valves other than squib valves to perform their active functions. ii) Remotely operated valves other than squib valves perform the active function identified in the table after a signal is input to the PMS. iii) These valves open within 20 seconds after receipt of an actuation signal. After loss of motive power, each remotely operated valve identified in Table 2.2.3-1 assumes the indicated loss of motive power position. Displays identified in Table 2.2.3-3 can be retrieved in the MCR.</p>

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
216	2.2.03.12a.iv	12.a) The squib valves and check valves identified in Table 2.2.3-1 perform an active safety-related function to change position as indicated in the table.	iv) Exercise testing of the check valves with active safety functions identified in Table 2.2.3-1 will be performed under preoperational test pressure, temperature, and fluid flow conditions.	iv) Each check valve changes position as indicated in Table 2.2.3-1

530	2.5.02.06a.ii	<p>6.a) The PMS initiates an automatic reactor trip, as identified in Table 2.5.2-2, when plant process signals reach specified limits.</p> <p>6.b) The PMS initiates automatic actuation of engineered safety features, as identified in Table 2.5.2-3, when plant process signals reach specified limits.</p> <p>6.c) The PMS provides manual initiation of reactor trip and selected engineered safety features as identified in Table 2.5.2-4.</p> <p>8.a) The PMS provides for the minimum inventory of displays, visual alerts, and fixed position controls, as identified in Table 2.5.2-5. The plant parameters listed with a "Yes" in the "Display" column and visual alerts listed with a "Yes" in the "Alert" column can be retrieved in the MCR. The fixed position controls listed with a "Yes" in the "Control" column are provided in the MCR.</p> <p>8.c) Displays of the open/closed status of the reactor trip breakers can be retrieved in the MCR.</p> <p>9.a) The PMS automatically removes blocks of reactor trip and</p>	<p>An operational test of the as-built PMS will be performed using real or simulated test signals. An operational test of the as-built PMS will be performed using real or simulated test signals. An operational test of the as-built PMS will be performed using the PMS manual actuation controls.</p> <p>i) An inspection will be performed for retrievability of plant parameters in the MCR.</p> <p>iii) An operational test of the as-built system will be performed using each MCR fixed position control. Inspection will be performed for retrievability of displays of the open/closed status of the reactor trip breakers in the MCR.</p> <p>An operational test of the as-built PMS will be performed using real or simulated test signals. An operational test of the as-built PMS will be performed. An operational test of the as-built PMS will be performed. With one channel in bypass, an attempt will be made to place a redundant channel in bypass.</p>	<p>ii) PMS output signals to the reactor trip switchgear are generated after the test signal reaches the specified limit. This needs to be verified for each automatic reactor trip function. Appropriate PMS output signals are generated after the test signal reaches the specified limit. These output signals remain following removal of the test signal. Tests from the actuation signal to the actuated device(s) are performed as part of the system-related inspection, test, analysis, and acceptance criteria.</p> <p>ii) PMS output signals are generated for reactor trip and selected engineered safety features as identified in Table 2.5.2-4 after the manual initiation controls are actuated.</p> <p>i) The plant parameters listed in Table 2.5.2-5 with a "Yes" in the "Display" column, can be retrieved in the MCR.</p> <p>iii) For each test of an as-built fixed position control listed in Table 2.5.2-5 with a "Yes" in the "Control" column, an actuation signal is generated. Tests from the actuation signal to the actuated device(s) are performed as part of the system-related</p>
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No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
		<p>engineered safety features actuation when the plant approaches conditions for which the associated function is designed to provide protection. These blocks are identified in Table 2.5.2-6. 9.b) The PMS two-out-of-four initiation logic reverts to a two-out-of-three coincidence logic if one of the four channels is bypassed. All bypassed channels are alarmed in the MCR. 9.c) The PMS does not allow simultaneous bypass of two redundant channels.</p>		<p>inspection, test, analysis and acceptance criteria. Displays of the open/closed status of the reactor trip breakers can be retrieved in the MCR. The PMS blocks are automatically removed when the test signal reaches the specified limit. The PMS two-out-of-four initiation logic reverts to a two-out-of-three coincidence logic if one of the four channels is bypassed. All bypassed channels are alarmed in the MCR. The redundant channel cannot be placed in bypass.</p>
540	2.5.02.08a.ii	<p>8.a) The PMS provides for the minimum inventory of displays, visual alerts, and fixed position controls, as identified in Table 2.5.2-5. The plant parameters listed with a "Yes" in the "Display" column and visual alerts listed with a "Yes" in the "Alert" column can be retrieved in the MCR. The fixed position controls listed with a "Yes" in the "Control" column are provided in the MCR.</p>	<p>ii) An inspection and test will be performed to verify that the plant parameters are used to generate visual alerts that identify challenges to critical safety functions.</p>	<p>ii) The plant parameters listed in Table 2.5.2-5 with a "Yes" in the "Alert" column are used to generate visual alerts that identify challenges to critical safety functions. The visual alerts actuate in accordance with their correct logic and values.</p>

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
543	2.5.02.08b.ii	8.b) The PMS provides for the transfer of control capability from the MCR to the RSW using multiple transfer switches. Each individual transfer switch is associated with only a single safety-related group or with nonsafety-related control capability.	ii) An operational test of the as-built system will be performed to demonstrate the transfer of control capability from the MCR to the RSW.	ii) Actuation of each transfer switch results in an alarm in the MCR and RSW, the activation of operator control capability from the RSW, and the deactivation of operator control capability from the MCR for the associated safety-related division and nonsafety-related control capability.
548	2.5.02.09d	9.d) The PMS provides the interlock functions identified in Table 2.5.2-7.	An operational test of the as-built PMS will be performed using real or simulated test signals.	Appropriate PMS output signals are generated as the interlock conditions are changed.

603	2.6.03.04c	<p>4.c) Each IDS 24-hour battery bank supplies a dc switchboard bus load for a period of 24 hours without recharging. 4.d) Each IDS 72-hour battery bank supplies a dc switchboard bus load for a period of 72 hours without recharging. 4.e) The IDS spare battery bank supplies a dc load equal to or greater than the most severe switchboard bus load for the required period without recharging. 4.f) Each IDS 24-hour inverter supplies its ac load. 4.g) Each IDS 72-hour inverter supplies its ac load. 4.h) Each IDS 24-hour battery charger provides the PMS with two loss-of-ac input voltage signals. 5.a) Each IDS 24-hour battery charger supplies a dc switchboard bus load while maintaining the corresponding battery charged. 5.b) Each IDS 72-hour battery charger supplies a dc switchboard bus load while maintaining the corresponding battery charged. 5.c) Each IDS regulating transformer supplies an ac load when powered from the 480 V MCC. 6. Safety-related</p>	<p>Testing of each 24-hour as-built battery bank will be performed by applying a simulated or real load, or a combination of simulated or real loads which envelope the battery bank design duty cycle. The test will be conducted on a battery bank that has been fully charged and has been connected to a battery charger maintained at 270 ± 2 V for a period of no less than 24 hours prior to the test. Testing of each 72-hour as-built battery bank will be performed by applying a simulated or real load, or a combination of simulated or real loads which envelope the battery bank design duty cycle. The test will be conducted on a battery bank that has been fully charged and has been connected to a battery charger maintained at 270 ± 2 V for a period of no less than 24 hours prior to the test. Testing of the as-built spare battery bank will be performed by applying a simulated or real</p>	<p>The battery terminal voltage is greater than or equal to 210 V after a period of no less than 24 hours with an equivalent load that equals or exceeds the battery bank design duty cycle capacity. The battery terminal voltage is greater than or equal to 210 V after a period of no less than 72 hours with an equivalent load that equals or exceeds the battery bank design duty cycle capacity. The battery terminal voltage is greater than or equal to 210 V after a period with a load and duration that equals or exceeds the most severe battery bank design duty cycle capacity. Each 24-hour inverter supplies a line-to-line output voltage of $208 \pm 2\%$ V at a frequency of $60 \pm 0.5\%$ Hz. Each 72-hour inverter supplies a line-to-line output voltage of $208 \pm 2\%$ V at a frequency of $60 \pm 0.5\%$ Hz. Two PMS input signals exist from each 24-hour battery charger indicating loss of ac input voltage when the loss-of-input voltage condition is simulated. Each 24-hour battery charger provides an output current of at least 150 A with an output voltage in the range 210 to 280 V. Each 72-hour battery</p>
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		<p>displays identified in Table 2.6.3-1 can be retrieved in the MCR. 11. Displays of the parameters identified in Table 2.6.3-2 can be retrieved in the MCR.</p>	<p>loads which envelope the most severe of the division batteries design duty cycle. The test will be conducted on a battery bank that has been fully charged and has been connected to a battery charger maintained at 270 ± 2 V for a period of no less than 24 hours prior to the test. Testing of each 24-hour as-built inverter will be performed by applying a simulated or real load, or a combination of simulated or real loads, equivalent to a resistive load greater than 12 kW. The inverter input voltage will be no more than 210 Vdc during the test. Testing of each 72-hour as-built inverter will be performed by applying a simulated or real load, or a combination of simulated or real loads, equivalent to a resistive load greater than 7 kW. The inverter input voltage will be no more than 210 Vdc during the test. Testing will be performed by simulating a loss of input voltage to each 24-hour battery charger. Testing of</p>	<p>charger provides an output current of at least 125 A with an output voltage in the range 210 to 280 V. Each regulating transformer supplies a line-to-line output voltage of $208 \pm 2\%$ V. Safety-related displays identified in Table 2.6.3-1 can be retrieved in the MCR. Displays identified in Table 2.6.3-2 can be retrieved in the MCR.</p>
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No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
			<p>each as-built 24-hour battery charger will be performed by applying a simulated or real load, or a combination of simulated or real loads. Testing of each 72-hour as-built battery charger will be performed by applying a simulated or real load, or a combination of simulated or real loads. Testing of each as-built regulating transformer will be performed by applying a simulated or real load, or a combination of simulated or real loads, equivalent to a resistive load greater than 30 kW when powered from the 480 V MCC. Inspection will be performed for retrievability of the safety-related displays in the MCR. Inspection will be performed for retrievability of the displays identified in Table 2.6.3-2 in the MCR.</p>	

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
815	3.3.00.10.i	10. The shield building roof and PCS storage tank support and retain the PCS water sources. The PCS storage tank has a stainless steel liner which provides a barrier on the inside surfaces of the tank. Leak chase channels are provided on the tank boundary liner welds.	i) A test will be performed to measure the leakage from the PCS storage tank based on measuring the water flow out of the leak chase collection system.	i) A report exists and concludes that total water flow from the leak chase collection system does not exceed 10 gal/hr.
872	E.3.9.08.01.03	8.1 The licensee conducts a partial participation exercise to evaluate portions of emergency response capabilities, which includes participation by each State and local agency within the plume exposure EPZ that have not been tested in a previous exercise. [N.1]	8.1 A partial participation exercise (test) will be conducted within the specified time periods of 10 CFR Part 50, Appendix E.	8.1.3 The exercise is completed within the specified time periods of Appendix E to 10 CFR Part 50, offsite exercise objectives have been met, and there are either no uncorrected offsite deficiencies, or a license condition requires offsite deficiencies to be corrected prior to operation above 5% of rated power.