



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

February 1, 2013

Mr. Tom E. Tynan
Vice President - Vogtle
Southern Nuclear Operating Company, Inc.
Vogtle Electric Generating Plant
7821 River Road
Waynesboro, GA 30830

**SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION
REPORT 05000424/2012005 AND 05000425/2012005**

Dear Mr. Tynan:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant, Units 1 and 2. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 11, 2013, with you and other members of your staff.

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

Three self-revealing findings of very low safety significance (Green) were identified during this inspection. These findings were determined to involve violations of NRC requirements. Two licensee-identified violations which were determined to be of very low safety significance are listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Vogtle Electric Generating Plant.

If you disagree with the cross-cutting aspects assigned in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II; and the NRC Resident Inspector at the Vogtle Electric Generating Plant.

T. Tynan

2

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

Sincerely,

/RA/

Frank Ehrhardt, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos.: 05000424, 05000425
License Nos.: NPF-68 and NPF-81

Enclosures: Inspection Report 05000424/2012005 and 05000425/2012005
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

T. Tynan

2

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Sincerely,

/RA/

Frank Ehrhardt, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos.: 05000424, 05000425
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cc w/encl: (See page 3)

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3

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4

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5

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6

Letter to Tom E. Tynan from Frank Ehrhardt dated February 1, 2013

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION
REPORT 05000424/2012005 AND 05000425/2012005

Distribution w/encl:

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-424, 50-425

License Nos.: NPF-68, NPF-81

Report Nos.: 05000424/2012005 and 05000425/2012005

Licensee: Southern Nuclear Operating Company, Inc. (SNC)

Facility: Vogtle Electric Generating Plant, Units 1 and 2

Location: Waynesboro, GA 30830

Dates: October 1, 2012 through December 31, 2012

Inspectors: M. Cain, Senior Resident Inspector
T. Chandler, Resident Inspector
B. Caballero, Senior Operations Engineer
A. Nielsen Senior Health Physicist
C. Dykes Health Physicist
W. Pursley Health Physicist
J. Laughlin Emergency Preparedness Inspector
R. Williams Reactor Inspector
A. Vargas-Mendez Reactor Inspector

Approved by: Frank Ehrhardt, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000424/2012-005, 05000425/2012-005; 10/01/2012 - 12/31/2012; Vogtle Electric Generating Plant, Units 1 and 2; Post-Maintenance Testing, Identification and Resolution of Problems

The report covered a three-month period of inspection by the resident inspectors. Three non-cited violations (NCVs) with very low safety significance (Green) were identified. The significance of inspection findings are indicated by their color (i.e., great than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" dated June 19, 2012. Cross-cutting aspects are determined using IMC 0310, "Components Within The Cross-Cutting Areas" dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated June 7, 2012. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" revision 3.

Cornerstone: Mitigating Systems

Green: A self-revealing non-cited violation (NCV) for failure to meet the requirements of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings" was identified for failure to provide adequate work instructions in the maintenance procedure used to modify 480V EMAX safety-related switchgear breakers. Specifically, when modifying the breaker by adding a higher amperage closing coil, failure to verify the proper placement of the wire bundle on top of the closing coil following replacement resulted in the safety-related 2A NSW cooling tower fan #3 480V EMAX breaker failing to close when demanded. The licensee replaced the failed breaker and returned the fan to operable status within 21.5 hours.

The finding was more than minor because it impacted the reactor safety mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and affected the cornerstone attribute of equipment performance. Since the inspectors answered "No" to all of the IMC 0609.04 (dated June 19, 2012) Exhibit 2, section A, questions 1-4, mitigating systems cornerstone screening questions, the inspectors concluded that the finding was of very low safety significance (Green). The cause of this finding was related to the corrective action program component of the problem identification and resolution cross-cutting area due to less-than-adequate problem evaluation. [P.1(c)] Specifically, the licensees' extent of cause evaluations performed on previous 480V EMAX breaker failures (caused by restricted movement of the close lever) did not identify the potential of the closing coil wire bundle to interfere with the proper movement of the close lever. The licensee's corrective action to the 480V EMAX breaker issue was to revise the maintenance procedure used to perform maintenance on EMAX breakers (procedure 28480-C, 480V EMAX Breaker Maintenance), and then inspect all 480V EMAX breakers on site that had been modified with the higher amperage closing coil to verify that the wire bundles were not interfering with the operation of the close coil. The licensee entered this into their corrective action program as CR 549999 and CR 550736. (Section 1R19)

Enclosure

Cornerstone: Initiating Events

Green: A self-revealing non-cited violation (NCV) for failure to meet the requirements of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings" was identified for failure to provide adequate work instructions in the operations and maintenance procedures used to open main steam isolation valves (MSIVs) that were bound in their closed seat. Specifically, the operations and maintenance procedures used to open the loop 2 and loop 3 outboard MSIVs did not provide instructions to limit the magnitude of the force applied to the valve stems while attempting to open the valves, which ultimately resulted in the brittle failure of the valve stems. The licensee conducted ultrasonic testing of the remaining six Unit 1 MSIVs to verify that the valve stems were intact. The two failed valve stems were replaced, and the reactor was restarted nine days later.

The finding was more than minor because it was associated with the procedure quality attribute of the reactor safety - initiating events cornerstone and it adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to provide adequate work instructions to operations and maintenance personnel resulted in the failure of both the loop 2 and loop 3 outboard MSIVs and the subsequent manual reactor trip. Since the inspectors answered "no" to the Exhibit 1, section B, initiating events screening question, the inspectors concluded that the finding was of very low safety significance (Green). The cause of the finding was related to the work control component of the human performance cross-cutting area due to less-than-adequate work planning. [H.3(a)] Specifically, the licensees' procedures used to open the MSIVs that were stuck on their closed seat did not contain instructions or precautions to limit the magnitude of the force applied to the valve stems while attempting to open the valves. The licensee entered this issue into their corrective action program as CR 530916. (Section 4OA2)

Cornerstone: Occupational Radiation Safety

Green: The inspectors identified a Green, self-revealing, Non-cited Violation of technical specification 5.7.1, "High Radiation Area", for an unauthorized entry into a High Radiation Area (HRA). A maintenance worker entered a HRA in Unit 1 containment without being briefed on the radiological conditions. The licensee entered this issue into their corrective action program as CR 523976 and took immediate corrective actions including an outage work crew stand down.

This finding was more than minor because it was associated with the occupational radiation safety cornerstone attribute of human performance and adversely affects the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. The finding was evaluated using the occupational radiation safety significance determination process. The finding was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. Therefore, the finding was determined to be of very low safety

Enclosure

significance (Green). This finding involved the cross-cutting aspect of human performance, work practices [H.4.b] because the HRA event was a direct result of poor communications during the pre-job briefing and a lack of procedure adherence on the part of the maintenance worker. The licensee entered this issue into the Corrective Action Program (CAP) as CR 523976. (Section 2RS1)

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

REPORT DETAILS

Summary of Plant Status

Unit 1 started the report period shutdown for a planned refueling outage. The licensee conducted a reactor startup on October 8; however the licensee shutdown unit 1 later that day due to issues with two main steam isolation valves (MSIVs). The licensee restarted unit 1 on October 17 and attained full rated thermal power (RTP) power on October 21. Unit 1 operated at essentially full RTP for the remainder of the inspection period.

Unit 2 operated at essentially full RTP for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors conducted a detailed review of the station's adverse weather procedures written for extreme low temperatures. The inspectors verified that weather related equipment deficiencies identified during the previous year had been corrected prior to the onset of seasonal extremes. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures before the onset of seasonal extreme weather conditions. Documents reviewed are listed in the Attachment. The inspectors evaluated the following risk-significant systems:

- Unit 1 emergency diesel generator (EDG) system (both trains)
- Unit 2 nuclear service cooling water (NSCW) system (both trains)

b. Findings

No findings were identified.

.2 Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors reviewed the licensee's preparations to protect risk-significant systems from predicted severe weather conditions of sub-freezing temperatures expected on December 21, 2012. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures, including operator staffing, before the onset of and during the adverse weather conditions. The inspectors

Enclosure

reviewed the licensee's plans to address the ramifications of potentially lasting effects that may result from sub-freezing temperatures. The inspectors verified that operator actions specified in the licensee's adverse weather procedure maintained readiness of essential systems. The inspectors verified that required surveillances were current, or were scheduled and completed, if practical, before the onset of anticipated adverse weather conditions. The inspectors also verified the licensee implemented periodic equipment walk-downs or other measures to ensure that the condition of plant equipment met operability requirements. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

The inspectors verified that critical portions of selected risk-significant systems were correctly aligned. The inspectors selected systems for assessment because they were a redundant or backup system/train, were important for mitigating risk for the current plant conditions, had been recently realigned, or were a single-train system. The inspectors determined the correct system lineup by reviewing plant procedures and drawings. The inspectors verified that critical portions of the selected systems were correctly aligned by performing partial walkdowns. Document reviewed are listed in the Attachment. The inspectors selected the following three systems/trains to inspect:

- Diesel-driven fire water pump #2, the motor-driven firewater pump, and the associated yard piping system while the diesel-driven firewater pump # 1 was out of service for a scheduled maintenance outage
- Unit 1 train B containment spray (CS) system while the Unit 1 train A CS system was out of service due to a planned maintenance outage.
- Unit 1 train B residual heat removal (RHR) system

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

The inspectors verified the alignment of the Unit 1 A train residual heat removal (RHR) system. The inspectors selected this system for assessment because it is a risk-significant mitigating system. The inspectors determined the correct system lineup by reviewing plant procedures, drawings, the updated final safety analysis report, and other documents. In order to identify any deficiencies that could affect the ability of the system to perform its function(s), the inspectors reviewed records related to outstanding design

Enclosure

issues and maintenance work requests. The inspectors verified that the selected system was correctly aligned by performing a complete walk down of accessible components.

To verify the licensee was identifying and resolving equipment alignment discrepancies, the inspectors reviewed corrective action documents, including condition reports and outstanding work orders, as well as periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports. Document reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)

a. Inspection Scope

Quarterly Inspection

The inspectors evaluated the adequacy of selected fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program. In evaluating the fire plans, the inspectors assessed the following items: (1) control of transient combustibles and ignition sources, (2) fire detection systems, (3) water-based fire suppression systems, (4) gaseous fire suppression systems, (5) manual firefighting equipment and capability (6) passive fire protection features, (7) compensatory measures and fire watches, and (8) issues related to fire protection contained in the licensee's corrective action program. The inspectors toured the following five fire areas to assess material condition and operational status of fire protection equipment. Documents reviewed are listed in the Attachment.

- Unit 1 north and south main steam valve room, fire zones 99, 104 and 45
- Unit 2 control building level B east penetration areas (zones 62, 63 and 82) and west penetration areas (zones 60, 61, and 64)
- Unit 1A and 1B nuclear service cooling water (NSCW) pump rooms, fire zones 160A and 160B
- Unit 1 A, B, C, and D class 1E 125 VDC station batteries and associated switchgear rooms, fire zones 71, 76, 77A, 77B, 78A, 78B, 79A, 79B, 56A, 56B, 83, and 152
- Unit 2 A, B, C, and D class 1E 125 VDC station batteries and associated switchgear rooms, fire zones 71, 76, 77A, 77B, 78A, 78B, 79A, 79B, 56A, 56B, 83, and 152

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

.1 Internal Flooding

The inspectors reviewed related flood analysis documents and walked down the areas listed below that contain risk significant structures, systems, and components susceptible to flooding. The inspectors verified plant design features and plant procedures for flood mitigation were consistent with design requirements and internal flooding analysis assumptions. The inspectors also assessed the condition of flood protection barriers and drain systems. In addition, the inspectors verified the licensee was identifying and properly addressing issues using their corrective action program. Documents reviewed are listed in the Attachment.

- Unit 2 residual heat removal (RHR) and containment spray (CS) pump rooms

b. Findings

No findings were identified.

.2 Underground Cables

a. Inspection Scope

The inspectors reviewed related flood analysis documents and inspected the areas listed below that contain cables whose failure could disable risk significant equipment. The inspector directly observed the condition of cables and cable support structures and, as applicable, verified that dewatering devices and drainage systems were functioning properly. In addition, the inspectors verified the licensee was identifying and properly addressing issues using their corrective action program. Documents reviewed are listed in the Attachment.

- Cable Pull Boxes: 1NE7ADKEM40, 1NE7ADKEM39, 1NE9GHKEPB01

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

.1 Annual Review

a. Inspection Scope

The inspectors verified the readiness and availability of the Unit 1 emergency diesel generator (EDG) jacket water (JW) heat exchanger to perform its design function by observing performance tests or reviewing reports of those tests, verifying the licensee uses the periodic maintenance method outlined in Generic Letter 89-13, "Service Water

System Problems Affecting Safety Related Equipment,” observing the licensee’s heat exchanger inspections and verifying critical operating parameters through direct observation or by reviewing operating data. Additionally, the inspectors verified that the licensee had entered any significant heat exchanger performance problems into their corrective action program and that the licensee’s corrective actions were appropriate. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Requalification

a. Inspection Scope

The inspectors observed an evaluated simulator scenario administered to an operating crew conducted in accordance with the licensee’s accredited requalification training program. The inspectors assessed licensed operator performance, the ability of the licensee to administer the scenario and evaluate the operators, the quality of any post-scenario critique, any follow-up actions taken by the facility licensee, and the performance of the simulator. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Review (Licensed Operator Performance):

The inspectors observed licensed operator performance in the main control room on October 8, during the reactor startup following the 1R17 refueling outage. Documents reviewed are listed in the Attachment. Inspectors observed licensed operator performance to assess the following:

- Use of plant procedures
- Control board manipulations
- Communications between crew members
- Use and interpretation of instruments, indications, and alarms
- Use of human error prevention techniques
- Documentation of activities
- Management and supervision

b. Findings

No findings were identified.

.3 Annual Review of Licensee Requalification Examination Results (71111.11A)

a. Inspection Scope

On November 29, 2012, the licensee completed administering the annual requalification operating test and biennial written examination, which is required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating tests and the crew simulator operating tests. These results were compared to the thresholds established in Manual Chapter 609, Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors assessed the licensee's treatment of the issues listed below in order to verify the licensee appropriately addressed equipment problems within the scope of the Maintenance Rule (10 CFR 50.65). The inspectors reviewed procedures and records in order to evaluate the licensee's identification, assessment, and characterization of the problems as well as their corrective actions for returning the equipment to a satisfactory condition. Documents reviewed are listed in the Attachment. The inspectors also interviewed system engineers and the maintenance rule coordinator to assess the accuracy of performance deficiencies and extent of condition.

- Unit 2, 2PV3000 main steam atmospheric relief valve (ARV) exceeded MR performance criteria for maintenance preventable functional failures (MPFFs)
- Unit 1, 1HV8702A B train RHR pump hot leg suction valve failed to open when demanded from the control room.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the maintenance activities listed below to verify the licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and licensee procedures. The inspectors assessed the adequacy of the licensee's risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the corrective action program. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the

effectiveness of the licensee's planning and control of emergent work activities. Documents reviewed are listed in the Attachment.

- Week of 10/22: Unit 1A EDG 18 month surveillance in conjunction with ongoing work in the high voltage switchyard
- Week of 10/29: maintenance outage on the 2A EDG concurrent with maintenance activities on various breakers in the high-voltage switchyard.
- Week of 11/12: performing testing on the 2B EDG concurrent with maintenance activities in the high-voltage switchyard.
- Week of 12/3: rendering the Unit 1 B train NSCW cooling tower fans inoperable to perform inspections of the 480V EMAX breakers.
- Week of 12/17: rendering the Unit 1 A train NSCW cooling tower fans inoperable to perform inspections of the 480V EMAX breakers.

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following five evaluations to verify they met the requirements of procedure NMP-GM-002, Corrective Action Program, and NMP-GM-002-001, Corrective Action Program Instructions. The scope of these inspections included a review of the technical adequacy of the evaluations, the adequacy of compensatory measures, and the impact on continued plant operation. Inspectors reviewed licensee procedures and conducted walkdowns in accordance with OpESS FY 2012-02 "Technical Specification Interpretation and Operability Determination," inspection guidance to ensure that the licensee properly interprets Technical Specification (TS) Bases, properly develops operability determinations, and adheres to the NRC's guidance on the temporary use of manual actions to support operability determinations. Documents reviewed are listed in the Attachment.

- CR 501741, Unit 1A EDG unit available light is not working
- CR 533822, Unit 1 and 2 main steam isolation valves (MSIVs)
- CR 550736, Unit 2A NSCW fan #3 failed to close
- CR 479829, Unit 2B RHR oil sample analysis
- CR 562504, Gas void discovered at 1-1208-X4-05

b. Findings

No findings were identified.

1R18 Plant Modificationsa. Inspection Scope

Temporary Modification: The inspectors reviewed minor design change package SNC439341/1.0 which allowed the temporary installation of clamping device on valve 1-1208-U4-A11, auxiliary pressurizer spray valve, to address body-to-bonnet leakage of the non-isolable valve. Inspectors also reviewed the associated 10 CFR Part 50.59 screening criteria against the system design bases documentation and procedure 00307-C, Temporary Modifications. The inspectors reviewed implementation, configuration control, post-installation test activities, drawing and procedure updates, and operator awareness for this temporary modification.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testinga. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the following six maintenance activities to verify that the testing met the requirements of procedure 29401-C, Work Order Functional Tests, for ensuring equipment operability and functional capability was restored. The inspectors also reviewed the test procedures to verify the acceptance criteria were sufficient to meet the Technical Specification (TS) operability requirements.

- MWO SNC410412, Unit 1 Train B Safety Injection Accumulator Vent Header Isolation Valve 1HV-0943B
- MWO SNC439646, 1HV-3016B Disassemble MSIV and MWO SNC439647, 1HV-3026B Disassemble MSIV
- MWO SNC43990, 1HV-3006A Disconnect Actuator and Perform Ultra-Sonic Testing
- MWO SNC424222– 2A EDG Replace O-Rings in 2R, 2L, 7R, and 7L Fuel Injectors
- MWO SNC127251 – Clean, Inspect, and Lubricate Valve Stem
- MWO SNC447741 – 2A NSCW Fan #3 Not Operating

b. Findings

Introduction: A Green self-revealing non-cited violation (NCV) of 10 CFR 50 Appendix B Criterion V, “Instructions, Procedures, and Drawings” was identified for failure to provide adequate work instructions in the maintenance procedure used to modify 480V EMAX safety-related switchgear breakers. Specifically, when modifying the breaker by adding a higher amperage closing coil, failure to verify the proper placement of the wire bundle on top of the closing coil following replacement resulted in the safety-related 480V EMAX breaker failing to close when demanded. Investigation revealed that the wire bundle on top of the closing coil was positioned such that it prevented the close lever from fully seating, thus preventing the breaker from closing.

Enclosure

Description: At 0700 on November 19, 2012, the control room operators noted that the 2A NSCW cooling tower fan #3 did not start when the associated tower return valve opened. On Unit 2, NSCW cooling tower fan #3 is interlocked to automatically start when the associated tower return valve opens and initiates flow to the tower spray lines. At the direction of the shift supervisor, the operators attempted to start fan #3 manually from the main control room, but the fan did not start. The green light for the hand switch indicated that control power was available. The licensee declared the fan inoperable and an incident response team (IRT) was assembled. The 480V EMAX breaker was replaced and the monthly surveillance test was successfully completed. The fan was declared operable at 4:30 a.m. on November 20, 2012. The investigation of the failed breaker revealed that the wire bundle on top of the closing coil was in physical contact with the side of the close lever, preventing the close lever from fully seating, thus preventing the breaker from closing. When the wire bundle was properly anchored away from the close lever, the breaker operated normally. The IRT determined that the wire bundle on this breaker had been improperly repositioned following modification of the breaker. The 480V EMAX breakers that supply specific safety-related loads at Vogtle must be modified by installing a higher amperage closing coil because with the current plant design, the closing coils are continuously energized. Maintenance procedure 28480-C Rev.26, "480V EMAX Breaker Maintenance," did not provide any guidance on how to anchor the wire bundle following closing coil replacement so that the wire bundle did not interfere with the operation of the close lever. The licensee entered this issue into their corrective action program as condition reports (CR) 549999 and CR 550736.

Analysis: The failure of the breaker to close when demanded and start the safety-related NSCW cooling tower fan was a performance deficiency. The inspectors concluded that the finding was more than minor because it impacted the reactor safety mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and affected the cornerstone attribute of equipment performance. Specifically, failure of the 480V EMAX breaker to close when demanded resulted in the 2A NSCW cooling tower fan #3 being inoperable for approximately 21.5 hours.

Using IMC 0609, Attachment 4, "Initial Characterization of Findings" dated June 19, 2012, the inspectors determined that finding affected the mitigating systems cornerstone. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012. The inspectors used the Initial Screening and Characterization of Findings (IMC 0609.04 Exhibit 2, dated June 19, 2012) to characterize the finding. Since the inspectors answered "No" to all of the Exhibit 2, section A, questions 1-4, mitigating systems cornerstone screening questions, the inspectors concluded that the finding was of very low safety significance (Green).

The inspectors determined the primary cause of the performance deficiency was that the maintenance technicians who were modifying the 480V EMAX breakers were unaware that the improper placement of the closing coil wire bundle could interfere with the operation of the close lever. The inspectors determined that the cause of this finding was related to the corrective action program component of the problem identification and resolution cross-cutting area due to less-than-adequate problem evaluation [P.1(c).]

Enclosure

Specifically, the licensees' extent of cause evaluations performed on previous 480V EMAX breaker failures (caused by restricted movement of the close lever) did not identify the potential of the closing coil wire bundle to interfere with the proper movement of the close lever.

Enforcement: The inspectors determined that the finding represents a violation of regulatory requirements because it involved inadequate maintenance procedures used to modify safety-related plant equipment. 10 CFR Part 50 Appendix B Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that procedures shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to the above, maintenance procedure 28480-C Rev.26, "480V EMAX Breaker Maintenance," did not provide guidance on how to anchor the wire bundle following closing coil replacement so that the wire bundle did not interfere with the operation of the close lever. As a result of the violation, the 2A NSCW cooling tower fan #3 was rendered inoperable for a period of approximately 21.5 hours on November 19 and 20. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as CR 549999 and CR 550736, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000425/2012005-01, Inadequate Maintenance Procedure Results in Inoperability of NSCW Cooling Tower Fan.)

1R20 Refueling and Other Outage Activities

a. Inspection Scope

The inspectors performed the activities described below for the 1R17 refueling outage that ended on October 18, 2012. The inspectors confirmed that, when the licensee removed equipment from service, the licensee maintained defense-in-depth commensurate with the outage risk control plan for key safety functions and applicable TS and that configuration changes due to emergent work and unexpected conditions were controlled in accordance with the outage risk control plan. Inspection activities included:

- Observed refueling activities for compliance with TS, to verify proper tracking of fuel assemblies from the spent fuel pool to the core, and to verify foreign material exclusion was maintained
- Performed containment closure activities, including a detailed containment walkdown prior to startup, to verify no evidence of leakage and that debris had not been left which could affect the performance of the containment sump
- Observed heat up and startup activities to verify that TS, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes or plant conditions. Reactor coolant system (RCS) integrity was verified by reviewing RCS leakage calculations and containment integrity was verified by reviewing the status of containment penetrations and containment isolation valves

b. Findings

No findings were identified.

1R22 Surveillance Testinga. Inspection Scope

The inspectors reviewed the following eight surveillance test procedures and either observed the testing or reviewed test results to verify that testing was conducted in accordance with the procedures and that the acceptance criteria adequately demonstrated that the equipment was operable. Additionally, the inspectors reviewed the CR database to verify that the licensee had adequately identified and implemented appropriate corrective actions for surveillance test problems.

Surveillance Tests

- 14666-1 Rev. 34.1, Train A Diesel Generator and ESFAS Test
- 14670A-1 Rev. 1.2, Diesel Generator 1A Hot Restart Test
- 14802A-1 Rev. 4.1, Train A NSCW Pump/Check Valve IST and Response Time Test
- 14804A-1 Rev. 4, Safety Injection Pump A Inservice and Response Time Test

Containment Isolation Valve

- 14372B-1 Rev. 9, Containment Penetration No. 72B RCS loop 3 Accumulator Sample Line Local Leak Rate Test

In-Service Tests (IST)

- 14808A-2 Rev. 2.2, Train A Centrifugal Charging Pump and Check Valve IST and Response Time Test

RCS Leak Detection

- 14905-1 Rev. 67.2, RCS Leakage Calculation (Inventory Balance)
- 14905-2 Rev. 50.1, RCS Leakage Calculation (Inventory Balance)

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changesa. Inspection Scope

The NSIR headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan located under ADAMS accession numbers ML12188A352, ML122430598, ML12081A211, ML12093A204, and ML12115A174.

Enclosure

The licensee determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, these revisions are subject to future inspection. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2. RADIATION SAFETY [RS]

2RS1 Radiological Hazard Assessment and Exposure Controls

a. Inspection Scope

Hazard Assessment and Instructions to Workers: During facility tours, the inspectors directly observed labeling of radioactive material and postings for radiation areas, high radiation areas (HRA)s, Very High Radiation Areas (VHRA)s and airborne radioactivity areas established within the radiologically controlled area (RCA) of the auxiliary building, Unit 1 (U1) reactor containment building, and radioactive waste (radwaste) processing and storage locations. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected RCA areas. The inspectors reviewed survey records for several plant areas including surveys for alpha emitters, discrete radioactive particles, airborne radioactivity, gamma surveys with a range of dose rate gradients, and pre-job surveys for upcoming tasks. The inspectors also discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection. For selected outage jobs, the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers.

Hazard Control and Work Practices: The inspectors evaluated access barrier effectiveness for selected Locked High Radiation Area (LHRA) locations and discussed changes to procedural guidance for LHRA and VHRA controls with health physics (HP) supervisors. The inspectors reviewed implementation of controls for the storage of irradiated material within the spent fuel pool (SFP). Established radiological controls (including airborne controls) were evaluated for selected Unit 1 Refueling Outage 17 (1R-17) tasks including maintenance activities in the transfer canal, removal of pressurizer code safety valves, and steam generator (S/G) eddy current testing. In addition, the inspectors reviewed licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations.

Through direct observations and interviews with licensee staff, inspectors evaluated occupational workers' adherence to selected RWPs and HP technician (HPT) proficiency in providing job coverage. Electronic dosimeter (ED) alarm set points and worker stay times were evaluated against area radiation survey results for selected 1R17 job tasks. As part of Inspection Procedure (IP) 71124.04, inspectors reviewed the use of personnel dosimetry (ED alarms, extremity dosimetry, multibadging in high dose rate gradients, etc.). The inspectors also evaluated worker responses to dose and dose rate alarms during selected work activities.

Control of Radioactive Material: The inspectors observed surveys of material and personnel being released from the RCA using small article monitor (SAM), personnel contamination monitor (PCM), and portal monitor (PM) instruments. The inspectors reviewed the last two calibration records for selected release point survey instruments and discussed equipment sensitivity, alarm setpoints, and release program guidance with licensee staff. The inspectors compared recent 10 Code of Federal Regulations (CFR) Part 61 results for the Dry Active Waste (DAW) radioactive waste stream with radio nuclides used in calibration sources to evaluate the appropriateness and accuracy of release survey instrumentation. The inspectors also reviewed records of leak tests on selected sealed sources and discussed nationally tracked source transactions with licensee staff.

Problem Identification and Resolution: The inspectors reviewed and assessed Condition Reports (CR)s associated with radiological hazard assessment and control. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure NMP-GM-002, "Corrective Action Program", Ver. 12.1. The inspectors also reviewed recent self-assessment results.

Radiation protection activities were evaluated against the requirements of Final Safety Analysis Report (FSAR) Section 12; Technical Specifications (TS) Sections 5.4 and 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, "Control of Radioactively Contaminated Material". Documents reviewed are listed in Sections 2RS1, 2RS2, 2RS3, and 2RS5 of the Attachment.

b. Findings

Introduction: The inspectors identified a Green, self-revealing, Non-cited Violation (NCV) of TS 5.7.1, "High Radiation Area", for an unauthorized entry into a HRA.

Description: On September 26, 2012, a maintenance worker entered U1 containment to locate and walk down two Nuclear Service Cooling Water check valves in preparation for inspection. Prior to the entry, the worker received a pre-job briefing from HP to allow access into containment. Neither the worker nor the HPT performing the briefing were confident of the valve locations, however they determined that Quadrant 1 of the 184' elevation was the most likely area to find the valves. Since the assigned RWP (as well as TS 5.7.1) did not allow entry into any HRAs without first obtaining a briefing on the radiological conditions, the worker was briefed on conditions in HRAs on the 184'

Enclosure

elevation. The worker was not briefed on conditions in HRAs in other parts of containment. During the entry, the worker was unable to locate one of the check valves on the 184' elevation and proceeded to exit out a stairwell to the 197' elevation. On the 197' elevation, the worker observed the other check valve inside a posted HRA. Without knowledge of dose rates in the area, the worker proceeded past the HRA swing gate to verify the valve tag number and subsequently received an ED dose rate alarm of 173 mrem/hr. The worker acknowledged the ED alarm and backed out of the HRA. In addition, HP central control noted the ED alarm via telemetry and sent an HPT to intercept the worker. The worker's ED alarm setpoint was 150 mrem/hr and dose rates in the area were as high as 445 mrem/hr on contact and 117 mrem/hr at 30 cm. The licensee entered this issue into the Corrective Action Program (CAP) as CR 523976 and took immediate corrective actions including an outage work crew stand down.

Analysis: The inspectors determined that the unauthorized entry into a HRA was a performance deficiency. This finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance and adversely affects the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Workers who enter HRAs without prior knowledge of current radiological conditions could receive unintended occupational exposures. The finding was evaluated using the Occupational Radiation Safety Significance Determination Process (SDP). The finding was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. Therefore, the inspectors determined the finding to be of very low safety significance (Green). The inspectors noted that the maintenance worker responded properly to the ED dose rate alarm and was monitored by HP central control via telemetry, thereby limiting his potential for unintended exposure. This finding involved the cross-cutting aspect of Human Performance, Work Practices [H.4.b] because the HRA event was a direct result of poor communications during the pre-job briefing and a lack of procedure (RWP) adherence on the part of the maintenance worker.

Enforcement: TS 5.7.1, "High Radiation Area", requires individuals entering HRAs to meet one or more of the following criteria: 1) be provided with a survey meter; 2) wear an ED and be made aware of radiological conditions in the area; or 3) be escorted by a HPT. Contrary to the above, on September 26, 2012, a worker entered a HRA without a survey meter, without being made aware of radiological conditions in the area, and without HPT escort. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program (CR 523976), this violation is being treated as an NCV, consistent with the Enforcement Policy: NCV 05000424/425, 2012005-02, Unauthorized Entry into a High Radiation Area.

2RS2 Occupational ALARA Planning and Controls

a. Inspection Scope

Work Planning and Exposure Tracking: The inspectors reviewed planned work activities and their collective exposure estimates for the current 1R17 outage. The inspectors reviewed ALARA planning packages for the following high collective exposure tasks: S/G 1-4 job evolutions (nozzle dam removal and installation, eddy current testing, and sludge lance) and repair of unit 1 transfer canal transfer tube isolation valve work. For the selected tasks, the inspectors reviewed established dose goals and discussed assumptions regarding the bases for the current estimates with responsible ALARA planners. The inspectors evaluated the incorporation of exposure reduction initiatives and operating experience, including historical post-job reviews, into RWP requirements. Day-to-day collective dose data for the selected tasks were compared with established dose estimates and evaluated against procedural criteria (work-in-progress review limits) for additional ALARA review. Where applicable, the inspectors discussed changes to established estimates with ALARA planners and evaluated them against work scope changes or unanticipated elevated dose rates.

Source Term Reduction and Control: The inspectors reviewed the collective exposure three-year rolling average from 2009 – 2011 and reviewed historical collective exposure trends from 1988 – 2012. The inspectors evaluated historical dose rate trends for reactor coolant system piping and compared them to current 1R17 data. Crud burst evolution during the first week of the 1R17 outage and source term reduction initiatives were reviewed and discussed with Chemistry and HP staff.

Radiation Worker Performance: The inspectors observed radiation worker performance for S/G job evolutions such as the diaphragm and manway removal and nozzle dam removal and installation. The inspectors observed ALARA briefings for multiple steam generator jobs and emerging jobs such as U1 transfer canal valve work. Radiation worker performance was also evaluated as part of IP 71124.01. While observing job tasks, the inspectors evaluated the use of remote technologies to reduce dose including teledosimetry and remote visual monitoring.

Problem Identification and Resolution: The inspectors reviewed and discussed selected CAP documents associated with ALARA program implementation. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with licensee procedure NMP-GM-002, "Corrective Action Program", Ver. 12.1. The inspectors also evaluated the scope and frequency of the licensee's self-assessment program and reviewed recent assessment results.

ALARA program activities were evaluated against the requirements of FSAR Section 12, TS Section 5.4, 10 CFR Part 20, and approved licensee procedures. Records reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation

a. Inspection Scope

Engineering Controls: The inspectors reviewed the use of temporary and permanent engineering controls to mitigate airborne radioactivity during the 1R17 refueling outage. The inspectors observed the use of portable air filtration units for work in contaminated areas of the containment building and reviewed filtration unit testing certificates. The inspectors evaluated the effectiveness of continuous air monitors and air samplers placed in work area “breathing zones” to provide indication of increasing airborne levels.

Respiratory Protection Equipment: The inspectors reviewed the use of respiratory protection devices to limit the intake of radioactive material. This included review of devices used for routine tasks and devices stored for use in emergency situations. As part of IP 71124.02, the inspectors reviewed ALARA evaluations for the use of respiratory protection devices during work in the lower cavity near the transfer canal. Selected Self-Contained Breathing Apparatus (SCBA) units and negative pressure respirators (NPR)s staged for routine and emergency use in the Main Control Room and other locations were inspected for material condition, SCBA bottle air pressure, number of units, and number of spare masks and air bottles available. The inspectors reviewed maintenance records for selected SCBA units for the past two years and evaluated SCBA and NPR compliance with National Institute for Occupational Safety and Health certification requirements. The inspectors also reviewed records of air quality testing for supplied-air devices and SCBA bottles.

The inspectors observed the use of air-supplied suits during S/G maintenance work. The inspectors discussed training for various types of respiratory protection devices with HP staff and interviewed radworkers and control room operators on use of the devices including SCBA bottle change-out and use of corrective lens inserts. The inspectors reviewed respirator qualification records (including medical qualifications) for several Main Control Room operators and emergency responder personnel in the Maintenance and HP departments. In addition, inspectors evaluated qualifications for individuals responsible for testing and repairing SCBA vital components.

Problem Identification and Resolution: The inspectors reviewed and assessed CRs associated with airborne radioactivity mitigation and respiratory protection. The inspectors evaluated the licensee’s ability to identify and resolve the issues in accordance with procedure NMP-GM-002, “Corrective Action Program”, Ver. 12.1. The inspectors also reviewed recent self-assessment results.

Licensee activities associated with the use of engineering controls and respiratory protection equipment were reviewed against TS Section 5.4; 10 CFR Part 20; Regulatory Guide 8.15, “Acceptable Programs for Respiratory Protection”; and applicable licensee procedures. Documents reviewed are listed in the Attachment.

Enclosure

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment

a. Inspection Scope

External Dosimetry: The inspectors reviewed the licensee's National Voluntary Accreditation Program (NVLAP) certification data for accreditation for the current year for Ionizing Radiation Dosimetry. The inspectors reviewed program procedures for processing active personnel dosimeters (ED)s and onsite storage of Optically Stimulated Luminescent Dosimeters (OSLD)s. Comparisons between ED and OSLD results, including correction factors, were discussed in detail. The inspectors also reviewed dosimetry occurrence reports regarding alarming dosimeters.

Internal Dosimetry: Inspectors reviewed and discussed the in vivo bioassay program with the licensee. Inspectors reviewed procedures that addressed methods for determining internal or external contamination, releasing contaminated individuals, the assignment of dose, and the frequency of measurements depending on the nuclides. Inspectors reviewed and evaluated Whole Body Counter (WBC) records selected from March 2010 to September 2012. The inspectors evaluated the licensee's program for in vitro monitoring, however there were no dose assessments using this method to review. There were no internal dose assessments for internal exposure greater than 10 millirem committed effective dose equivalent to review.

Special Dosimetric Situations: The inspectors reviewed records for declared pregnant workers (DPW)s from March 2010 through September 2012 and discussed guidance for monitoring and instructing DPWs. Inspectors reviewed and witnessed the licensee's practices for monitoring external dose in areas of expected dose rate gradients, including the use of multi-badging and extremity dosimetry. The inspectors evaluated the licensee's neutron dosimetry program including instrumentation which was evaluated under procedure 71124.05. In addition, the inspectors evaluated the adequacy of shallow dose assessments for selected Personnel Contamination Events occurring between September 2011 and September 2012.

Problem Identification and Resolution: The inspectors reviewed and discussed licensee CAP documents associated with occupational dose assessment. Inspectors evaluated the licensee's ability to identify and resolve the identified issues in accordance with procedure NPM-GM-002, "Corrective Action Program", Version 12.1. The inspectors also discussed the scope of the licensee's internal audit program and reviewed recent assessment results.

HP program occupational dose assessment activities were evaluated against the requirements of FSAR Section 12; TS Section 5.4; 10 CFR Parts 19 and 20; and approved licensee procedures. Records reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation

a. Inspection Scope

Radiation Monitoring Instrumentation: During walk-downs of the auxiliary building and the RCA exit point, the inspectors observed installed and portable radiation detection equipment. These included area radiation monitors (ARM)s, continuous air samplers, liquid and gaseous effluent monitors, PCMs, SAMs, PMs, a WBC, count room equipment, and portable survey instruments. The inspectors observed the physical location of the components, noted their material condition, observed the currency of calibration and source check stickers, and discussed performance of equipment with RP personnel.

In addition to equipment walk-downs, the inspectors observed source functional checks of portable detection instruments, including ion chambers and telepoles. For the portable instruments, the inspectors observed the use of a high-range calibrator and discussed periodic output value testing, calibration, and source check processes with health physics technicians. The inspectors reviewed calibration records and discussed with chemistry personnel alarm setpoint values for PCMs, PMs, effluent monitors, WBCs, and an ARM. This included a sampling of instruments used for post-accident monitoring such as a containment high-range radiation monitor and effluent monitors for noble gas and iodine. The inspectors reviewed the most recent 10 CFR Part 61 analysis for DAW to determine if calibration and check sources are representative of the plant source term. The inspectors observed computerized performance check calibration efficiency information for count room gamma detectors and a liquid scintillation detector. The inspectors also observed the currency of calibration for selected EDs at the RCA entry point.

Problem Identification and Resolution: The inspectors reviewed selected CAP reports in the area of radiological instrumentation. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure NMP-GM-002-001, "Corrective Action Program Instructions", Ver. 29.0. Documents reviewed are listed in the Attachment.

Effectiveness and reliability of selected radiation detection instruments were reviewed against details documented in the following: 10 CFR Part 20; NUREG-0737, Clarification of TMI Action Plan Requirements; FSAR Chapters 11 and 12; and applicable licensee procedures. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee submittals for the listed mitigating systems cornerstone PIs during the period from October 1, 2011, through September 30, 2012, for Unit 1 and Unit 2. The inspectors verified the licensee's basis in reporting each data element using the PI definitions and guidance contained in procedures 00163-C, NRC Performance Indicator and Monthly Operating Report Preparation and Submittal, and Nuclear Energy Institute 99-02, Regulatory Assessment Indicator Guideline.

Mitigating Systems Cornerstone

- Emergency AC Power Systems
- Cooling Water Systems
- Safety System Functional Failures

The inspectors reviewed Unit 1 and Unit 2 operator log entries, the CR data base, the Vogtle mitigating system performance indicator basis document, the monthly operating reports and monthly PI summary reports to verify that the licensee had accurately submitted the PI data.

Occupational Radiation Safety Cornerstone: The inspectors reviewed the Occupational Exposure Control Effectiveness PI results for the Occupational Radiation Safety Cornerstone from June 2011 through September 2012. For the assessment period, the inspectors reviewed electronic dosimeter alarm logs and CRs related to controls for exposure significant areas. Documents reviewed are listed in the Attachment.

Public Radiation Safety Cornerstone: The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the Public Radiation Safety Cornerstone from June 2011 through September 2012. For the assessment period, the inspectors reviewed cumulative and projected doses to the public contained in liquid and gaseous release permits and CRs related to Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual issues. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in the Attachment.

The inspectors completed five of the required samples specified in IP 71151.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Condition Report Review. As required by inspection procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. This review was accomplished by either attending daily screening meetings that briefly discussed major CRs, or accessing the licensee's computerized corrective action database and reviewing each CR that was initiated.

.2 Focused Reviewa. Inspection Scope

The inspectors performed a detailed review of the following CR which addressed the failure of the Unit 1 Loop 2 & 3 outboard MSIVs in the closed position during startup. The goal of the review was to verify that the full extent of the issue was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated the CR against the licensee's corrective action program as delineated in licensee procedure NMP-GM-002, Corrective Action Program, and 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Documents reviewed are listed in the Attachment.

- 530916 – Unit 1 steam generators 2&3 do not indicate steam flow

b. Findings and Observations

Introduction: A Green self-revealing non-cited violation (NCV) of 10 CFR 50 Appendix B Criterion V, "Instructions, Procedures, and Drawings" was identified for failure to provide adequate work instructions in the operations and maintenance procedures used to open main steam isolation valves (MSIVs) that were bound in their closed seat. Specifically, the operations and maintenance procedures used to open the loop 2 and loop 3 outboard MSIVs did not provide instructions to limit the magnitude of the force applied to the valve stems while attempting to open the valves. Investigation revealed that the cause of the stem failures was excessive force applied to the thermally embrittled stems.

Description: On October 8, with Unit 1 in Mode 2, the operators had begun preparations for power ascension. At 1616, as the main feed pump was being placed on line, the control room operators noted a divergence in RCS loop differential temperatures (ΔT s), steam pressures, and steam flows between loops 1 & 4 and loops 2 & 3. Loops 1 & 4 showed increasing loop ΔT s, lowering steam pressure, and some minimal steam flow, while loops 2 & 3 showed no loop ΔT , increasing steam pressures (to the point of lifting the loop 2 & 3 atmospheric relief valves), and no steam flow. The Main Control Board hand switches indicated that all MSIVs and associated bypass valves were open. The operators identified the potential impact to the core neutron flux and stopped power ascension. Following discussions with plant management and engineering, the operators placed the plant in a safe condition by inserting a manual trip of the reactor at

2155. The licensee subsequently assembled an Issue Response Team (IRT) and a root cause team to investigate the cause of the diverging indications and to determine the required corrective actions.

The investigations revealed that the outboard MSIVs on both loops 2 & 3 were failed in the closed position. Upon disassembly, it was discovered the stems of both the failed MSIVs had undergone brittle fracture just above the T-head, where the valve stem is connected to the valve disk. Westinghouse representatives were consulted on the MSIV issue. They conveyed to the licensee that the material used for the MSIV stems, ASME SA564 Gr. 630PH T 17-4 PH heat treated to 1100°F, is susceptible to embrittlement when exposed to temperatures above 500°F for a sustained period (after about 10 years). Metallurgical analysis performed on the sheared stems validated that thermal embrittlement was the failure mechanism. The failure analysis concluded that both stem fractures were the result of sudden brittle failures from single tensile stress events. Further investigation by the IRT revealed that the loop 2 outboard MSIV stem failed during main steam line warming evolutions conducted on October 6 by operations personnel. The IRT also determined that the loop 3 outboard MSIV stem failed on the night of October 7 following activities performed by maintenance personnel to lift the valve disk off its closed seat.

The root cause team determined that the root cause of the MSIV stem failures was temperature aging embrittlement of the stem material. The team also determined that the major contributing causes of the event were thermal binding of the valve disks in the closed seat and inadequate procedural guidance, i.e. procedures used to open the MSIVs did not provide instructions or guidance to limit the magnitude of the force applied to the valve stems while attempting to open the valves, which ultimately resulted in the brittle failure of the valve stems. The inadequate procedures specified by the root cause team were operating procedures 12001-C, "Unit Heat Up to Hot Shutdown (Mode 5 to Mode 4)", and 14850-1/2, "Cold Shutdown Valve In-Service Test", and maintenance procedure 26854-C, "MSIV Actuator Maintenance". The licensee conducted ultrasonic testing on the remaining six Unit 1 MSIVs to verify that the valve stems were intact. The two failed valve stems were replaced, and the reactor was restarted on October 17. The licensee entered this issue into their corrective action program as CR 530916.

Analysis: The failure to provide adequate work instructions in the operations and maintenance procedures used to open main steam isolation valves (MSIVs) that were stuck on their closed seat was a performance deficiency. The inspectors concluded that the finding was more than minor because it was associated with the procedure quality attribute of the reactor safety - initiating events cornerstone and it adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to provide adequate work instructions to operations and maintenance personnel resulted in the failure of both the loop 2 and loop 3 outboard MSIVs and the subsequent manual reactor trip.

Using IMC 0609, Attachment 4, "Initial Characterization of Findings" dated June 19, 2012, the inspectors determined that finding affected the Initiating Events cornerstone. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance

Enclosure

Determination Process (SDP) for Findings At-Power,” dated 06/19/12. The inspectors used the Initial Screening and Characterization of Findings (IMC 0609.04 Exhibit 1, dated June 19, 2012) to characterize the finding. Since the inspectors answered “No” to the Exhibit 1, section B, Initiating Events screening question, the inspectors concluded that the finding was of very low safety significance (Green).

The primary cause of the performance deficiency, as determined by the inspectors, was less than adequate work planning and coordination. The inspectors determined that the cause of this finding was related to the work control component of the human performance cross-cutting area due to less-than-adequate work planning [H.3 (a)]. Specifically, the licensees’ procedures used to open the MSIVs that were stuck on their closed seat did not contain instructions or precautions to limit the magnitude of the force applied to the valve stems while attempting to open the valves.

Enforcement: The inspectors determined that the finding represents a violation of regulatory requirements because it involved inadequate operations and maintenance procedures used to operate safety-related plant equipment. 10 CFR 50 Appendix B Criterion V requires, in part, that procedures shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to the above, the licensees’ procedures used to open the loop 2 and loop 3 outboard MSIVs did not provide instructions to limit the magnitude of the force applied to the valve stems while attempting to open the valves. As a result of the violation, the loop 2 and loop 3 MSIVs failed in the closed position, and the reactor was manually tripped on October 8, extending the 1R17 refueling outage for an additional nine days. The licensee conducted ultrasonic testing on the remaining six Unit 1 MSIVs to verify that the valve stems were intact. The stems of the loop 2 and loop 3 outboard MSIVs were replaced, and the Unit 1 reactor was restarted on October 17. Because this violation was of very low safety significance and it was entered into the licensee’s corrective action program as CR 530916, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000424/2012005-03, Inadequate Operations and Maintenance Procedures Results in Brittle Failure of the Loop 2 and Loop 3 Outboard MSIV Stems.)

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee’s Corrective Action Program and associated documents to identify trends which could indicate the existence of a more significant safety issue. The review was focused on repetitive equipment issues, but also considered the results of inspector daily CR screening and the licensee’s trending efforts. The review nominally considered the six month period of April 2012 through September 2012 although some examples extended beyond those dates when the scope of the trend warranted. The inspectors also reviewed several CRs associated with operability determinations which occurred during the period. Corrective actions associated with a sample of the issues identified in the licensee’s trend reports were reviewed for adequacy. The inspectors also evaluated the trend reports against the

requirements of the licensee's corrective action program as specified in licensee procedure NMP-GM-002, Corrective Action Program, and 10 CFR 50, Appendix B.

b. Findings and Observations

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) LER 05000424/2012-003-00 Failure to Comply with Technical Specification LCOs 3.7.14 and 3.0.3

a. Inspection Scope

On August 17, 2012, 1A ESF Chiller condenser vacuum was noted to be 12 inches of mercury, with a vacuum of 15 inches of mercury specified as the low limit on operating logs. The shift supervisor mistakenly believed condenser pressure was one of the parameters which engineering had evaluated and was continuing to monitor with a recorder. Condenser pressure was not one of the parameters being monitored and recorded on a recorder. When the condenser pressure was recorded as out of specification on the operator rounds log sheet, the shift supervisor failed to initiate operability and reportability determination processes. This misinformation was carried forward through subsequent shifts via logs. During the next five days, 1A ESF Chiller condenser vacuum decreased to 4 inches of mercury and stabilized for an additional four days prior to initiation of a CR on August 26, 2012. Subsequent investigation and consultation with the vendor determined the 1A ESF Chiller was inoperable and the TS LCO was entered at 1437 on August 26, 2012. As a result of the delay in recognition of the status of the subject chiller, appropriate actions of LCOs 3.7.14 and 3.0.3 were not taken. The inspectors reviewed the LER, the associated CR and enhanced apparent cause determination, and subsequent action items.

b. Findings

One licensee-identified violation was identified, and is documented in section 4OA7 of this report. This LER is closed.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings and Observations

No findings were identified.

.2 (Discussed) Temporary Instruction 2515/187 – Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns

a. Inspection Scope

Inspectors conducted independent walkdowns to verify that the licensee completed the actions associated with the flood protection feature specified in paragraph 03.02.a.2 of this TI. Inspectors are performing walkdowns at all sites in response to a letter from the NRC to licensees, entitled "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated March 12, 2012 (ADAMS Accession No. ML12053A340).

Enclosure 4 of the letter requested licensees to perform external flooding walkdowns using an NRC-endorsed walkdown methodology (ADAMS Accession No. ML12056A050). Nuclear Energy Industry (NEI) document 12-07 titled, "Guidelines for Performing Verification Walkdowns of Plant Protection Features," (ADAMS Accession No. ML12173A215) provided the NRC-endorsed methodology for assessing external flood protection and mitigation capabilities to verify that plant features, credited in the CLB for protection and mitigation from external flood events, and are available, functional, and properly maintained.

b. Findings and Observations

Findings or violations associated with the flooding, if any, will be documented in the 1st quarter integrated inspection report of 2013.

.3 Temporary Instruction 2515/188 – Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

a. Inspection Scope

The inspectors accompanied the licensee on their seismic walkdowns of the following SWEL 1 and SWEL 2 components:

- Unit 1 Diesel Fuel Oil Transfer Pump A, SWEL 1 item #60, on August 15 in the Diesel Fuel Oil Storage Tank Building
- Unit 1B Diesel Generator Control Panel, SWEL 1 item #61, on August 15 in the Diesel Generator Building

- Unit 1 Turbine-Driven AFW Pump and Turbine Driver, SWEL 1 item #13, on August 16 in the AFW Pump House
- Unit 2 Spent Fuel Pool Heat Exchanger B, SWEL 2 item #1, on August 21 in the Auxiliary Building

The inspectors verified that the licensee confirmed that the following seismic features associated with the above listed components were free of potential adverse seismic conditions:

- Anchorage was free of bent, broken, missing or loose hardware
- Anchorage was free of corrosion that is more than mild surface corrosion
- Anchorage is free of visible cracks in the concrete near the anchors
- Anchorage configuration was consistent with plant documentation
- SSCs will not be damaged from impact by nearby equipment or structures
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment
- Attached lines have adequate flexibility to avoid damage
- The area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area
- The area appears to be free of potentially adverse seismic interactions that could cause a fire in the area
- The area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding)

The inspectors independently performed their walkdowns and verified that the following components were free of the potential adverse seismic conditions listed above:

- Unit 2A Diesel Generator Air Start Receiver #1, SWEL 1 item #55, on December 17 in the Diesel Generator Building
- Unit 1 Spent Fuel Pool Pump B, SWEL item #2, on December 17 in the Auxiliary Building

Observations made during the walkdowns that could not be determined to be acceptable were entered into the licensee's corrective action program for evaluation.

Additionally, inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the SWEL and these items were walked down by the licensee.

b. Findings and Observations

No findings were identified.

40A6 Meetings, Including Exit

.1 Exit Meeting

On January 11, the resident inspectors presented the inspection results to Mr. Tom Tynan and other members of his staff, who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

40A7 Licensee-Identified Violations

The following violations of very low significance (Green) or Severity Level IV were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as Non-cited Violations.

.1 Failure to Comply with Technical Specification LCOs 3.7.14 and 3.0.3

TS 3.0.3 requires, in part, that when a limiting condition of operation (LCO) is not met and the associated actions are not met, an associated action is not provided, or if directed by the associated actions, the unit shall be placed in a mode or other specified condition in which the LCO is not applicable. TS 3.7.14 require that two engineered safety feature (ESF) room cooler and safety-related chiller trains shall be operable. Contrary to the above, on August 17, 2012, at approximately midnight, the unit 1 shift supervisor failed to enter the required action statement for TS LCO 3.7.14, Condition 'A' when the unit 1A ESF chiller condenser purge pressure was noted to be out of specification high. Inoperability of the chiller was not recognized until August 26, 2012, and the LCO entered at 1437. Further, during the extended period during which the 1A ESF chiller was inoperable (albeit unrecognized as inoperable), opposite train supported components as well as redundant room coolers on the train B ESF Chiller and room cooler train were removed from service for unrelated activities which resulted in two occasions during which TS 3.0.3 should have been applied. The licensee documented this event in their corrective action program as CR 507143. Using IMC 0609, dated June 19, 2012, Attachment 4, Table 2, the inspectors verified that the finding affected the mitigation systems cornerstone. IMC 0609 Attachment 4 Table 3 directed the inspectors to use IMC 0609 Appendix A to characterize the finding. Because the finding represented an actual loss of function of one train of ECCS for greater than its TS Allowed Outage Time, a detailed risk evaluation was required. A detailed risk evaluation was performed by a regional senior reactor analyst in accordance with IMC 0609 Appendix A guidance using the NRC Vogtle SPAR model and the Sapphire 8 risk analysis code. An Event/Condition Analysis module in Sapphire was run with the unit 1A train ESF chiller failed with no recovery allowed for a 9 day exposure period. The dominant sequence was a loss of offsite power with success of reactor trip and emergency power with late failure of feedwater and failure to implement feed and bleed cooling due to failure of the Unit 1B train chiller and loss of the safety related switchgear. The detailed risk evaluation determined that the risk due to the performance deficiency was an increase in core damage frequency of $<1E-6$ /year, a GREEN finding of very low safety significance. The risk was mitigated by the availability of alternate train components and the short exposure period.

Enclosure

.2 Failure to Conduct Required ASME Code Section XI Inspections

On April 12, 2012, Vogtle staff identified that in-service inspections for the second 10-year ISI period were missed for eight ASME Code Class 1 valves. Valves 1/2 1208U6035, 1/2 1208U6036, 1/2 1208U6037 and 1/2 1208U6038 are chemical and volume control system normal and alternate charging check valves to the reactor coolant system. Leakage control devices (seal encapsulation devices) were installed on the Unit 1 valves in 1987 to address recurring body-to-bonnet leakage per an industry approved Westinghouse design change. The seal caps were subsequently installed on the unit 2 valves in 1989. Title 10 CFR 50.55a(g)(4) requires, in part, that licensees follow the pressure test requirements of ASME Code Section XI. ASME Code, Section XI, IWA-5240, requires visual examinations as part of system pressure tests. ASME Code Section XI, IWA-5242, 1998 Edition through 2000 addenda, requires VT-2 visual examinations for pressure retaining bolted connections in borated water systems. Contrary to the above, from October, 1987, to the present, Vogtle did not perform a visual inspection of the valve body-to-bonnet studs. This finding was more than minor because it impacted the initiating events cornerstone and its attribute of equipment performance. Specifically, it affected the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection manual chapter 0609, dated June 19, 2012, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," this finding was determined to be of very low safety significance because the licensee's evaluation was able to demonstrate structural integrity. Specifically, stud stress was not sufficiently close to the yield stress to cause a loss of integrity. Therefore, the finding does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment will not be available. The licensee has entered this issue into their corrective action program as CRs 438268, 458567, 505111 and 547078. To address the issue for the short term, the licensee plans to follow the 'needed' and 'good practice' recommendations detailed by the PWROG in letter OG-12-330 which was issued on August 16, 2012. The long term corrective actions will be to remove all of the existing seal caps and install a bonnet with a canopy seal weld to remove the need for a seal cap as a way to mitigate the effects of leakage and to allow visual examination of the bolted connections.

.3 Failure to Post High Radiation Area

10 CFR 20.1902(b) requires licensees to post each HRA with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA". Contrary to this, on September 18, 2012, the entryway into the Unit 1 spent fuel pool cooling system demineralizer valve gallery was discovered to be missing a conspicuous sign bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA." Accessible areas inside the Valve Gallery room contained dose rates up to 327 mrem/hr at 30 cm. A HP foreman discovered this violation while performing a walkdown of HRA postings in the auxiliary building. The licensee took immediate corrective actions upon discovery including restoration of the HRA posting (CR 519818). There was no evidence of unauthorized worker entry into the affected area. Although this event involved the failure to maintain proper control for a HRA, this finding is of very low safety

Enclosure

significance because it was not related to ALARA planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

S. Bargeron, Plant Manager
B. Brown, Training Manager
R. Collins, Chemistry Manager
K. Dyar, Security Manager
G. Gunn, Licensing
I. Kochery, Health Physics Manager
D. McCary, Maintenance Manager
K. Molina, Heat Exchanger Engineer
D. Puckett, Performance Analysis Supervisor
J. Robinson, Engineering Programs Manager
S. Swanson, Site Support Manager
T. Tynan, Site Vice-President

NRC personnel:

M. Cain, Senior Resident Inspector
T. Chandler, Resident Inspector
F. Ehrhardt, Chief, Region II Reactor Projects Branch 2
T. Lighty, Project Engineer

LIST OF ITEMS OPENED AND CLOSED

Opened and Closed

| | | |
|--------------------------|-----|---|
| 050000425/2012005-01 | NCV | Inadequate Maintenance Procedure Results in Inoperability of NSCW Cooling Tower Fan (Section 1R19) |
| 05000424, 425/2012005-02 | NCV | Unauthorized Entry into a High Radiation Area. (Section 2RS1) |
| 05000424/2012005-03 | NCV | Inadequate Operations and Maintenance Procedures Results in Brittle Failure of the Loop 2 and Loop 3 Outboard MSIV Stems (Section 4OA2) |

Closed

| | | |
|-----------------------|-----|--|
| 05000424/2012-003-00 | LER | Failure to Comply with Technical Specification LCOs 3.7.14 and 3.0.3 |
| 05000424/425/2515/188 | TI | Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns (Section 4OA5.3) |

Discussed

05000424/425/2515/187 TI Inspection of Near-Term Task Force
Recommendation 2.3 Flooding Walkdowns
(Section 4OA5.2)

LIST OF DOCUMENTS REVIEWED**Section 1R01: Adverse Weather Protection**Procedures

11877-1 Rev. 23, Cold Weather Checklist
11877-2 Rev. 21, Cold Weather Checklist
11901-1 Rev. 17.2, Heat Tracing System Alignment
11901-2 Rev. 12.3, Heat Tracing System Alignment

Section 1R04: Equipment AlignmentProcedures

11903-C Rev. 30.4, Fire Protection System Alignment, Section A
11011-1 Rev. 14.2, Residual Heat Removal System Alignment
13011-1 Rev. 70.3, Residual Heat Removal System
11115-1 Rev. 10.2, Containment Spray System Alignment

Drawings

CX4DB173-1 Rev. 41.0, P&I Diagram Fire Protection – Pump House No. 1 & 2, System 2301
CX4DB173-2 Rev. 29.0, P&I Diagram Fire Protection – Yard Piping System, System 2301
1X4DB122 Rev. 51.0, P&I Diagram Residual Heat Removal System 1205
1X4DB131 Rev. 35.0, P&I Diagram Containment Spray System – System No. 1206

Section 1R05: Fire ProtectionProcedures

92799-1 Rev. 3.2, Zone 99 – Control Building Level A Fire Fighting Preplan
92804-1 Rev. 4.2, Zone 104 – MSIV Room Level 1 Fire Fighting Preplan
92745-1 Rev. 2.2, Zone 45 – Auxiliary Building Level 1 Fire Fighting Preplan
92760-2 Rev. 1.0, Zone 60 – Control Building – Level B Fire Fighting Preplan
92761-2 Rev. 1.1, Zone 61 – Control Building – Level B Fire Fighting Preplan
92764-2 Rev. 1.1, Zone 64 – Control Building – Level B Fire Fighting Preplan
92762-2 Rev. 2.0, Zone 62 – Control Building – Level B Fire Fighting Preplan
92763-2 Rev. 0.2, Zone 63 – Control Building – Level B Fire Fighting Preplan
92782-2 Rev. 1.2, Zone 82 – Control Building – Level B Fire Fighting Preplan
92860A-1 Rev. .2, Zone 160A – NSCW Pumphouse – Train A Fire Fighting Preplan
92860B-1 Rev. .2, Zone 160B – NSCW Pumphouse – Train B Fire Fighting Preplan
92771-1, Rev. 4.1, Zone 71 – Control Building – Level B Fire Fighting Preplan
92776-1, Rev. 2.1, Zone 76 – Control Building – Level B Fire Fighting Preplan
92777A-1, Rev. 1.1, Zone 77A – Control Building – Level B Fire Fighting Preplan
92777B-1, Rev. 1.2, Zone 77B – Control Building – Level B Fire Fighting Preplan
92778A-1, Rev. 2.1, Zone 78A – Control Building – Level B Fire Fighting Preplan
92778B-1, Rev. 1.2, Zone 78B – Control Building – Level B Fire Fighting Preplan

92779A-1, Rev. 0.2, Zone 79A – Control Building – Level B Fire Fighting Preplan
 92779B-1, Rev. 1.2, Zone 79B – Control Building – Level B Fire Fighting Preplan
 92756A-1, Rev. 0.2, Zone 56A – Control Building – Level B Fire Fighting Preplan
 92756B-1, Rev. 1.2, Zone 56B – Control Building – Level B Fire Fighting Preplan
 92783-1, Rev. 2.2, Zone 83 – Control Building – Level B Fire Fighting Preplan
 92852-1, Rev. 2.2, Zone 152 – Control Building – Level B Fire Fighting Preplan
 92771-2, Rev. 1.1, Zone 71 – Control Building – Level B Fire Fighting Preplan
 92776-2, Rev. 1.1, Zone 76 – Control Building – Level B Fire Fighting Preplan
 92777A-2, Rev. 1.1, Zone 77A – Control Building – Level B Fire Fighting Preplan
 92777B-2, Rev. 1.2, Zone 77B – Control Building – Level B Fire Fighting Preplan
 92778A-2, Rev. 0.2, Zone 78A – Control Building – Level B Fire Fighting Preplan
 92778B-2, Rev. 1.2, Zone 78B – Control Building – Level B Fire Fighting Preplan
 92779A-2, Rev. 0.2, Zone 79A – Control Building – Level B Fire Fighting Preplan
 92779B-2, Rev. 1.2, Zone 79B – Control Building – Level B Fire Fighting Preplan
 92756A-2, Rev. 1.1, Zone 56A – Control Building – Level B Fire Fighting Preplan
 92756B-2, Rev. 0.2, Zone 56B – Control Building – Level B Fire Fighting Preplan
 92783-2, Rev. 0.2, Zone 83 – Control Building – Level B Fire Fighting Preplan
 92852-2, Rev. 0.2, Zone 152 – Control Building – Level B Fire Fighting Preplan

Section 1R06: Flood Protection Measures

Work Orders

SNC 395851

Calculations

X6CXC-27 Rev.8, Flooding Analysis Auxiliary Building Level D

Procedures

25512-C Rev.1.0, General Inspection Outdoor Electrical Duct Run Pull Boxes/Manholes

Drawings

2X4DB147-1 Rev. 18.0, P&I Diagram Aux BLDG. Flood Retaining Rooms Alarms & Drains System No. 1218

Section 1R07: Heat Sink Performance

Work Orders:

SNC 121039

Procedures

83309-C Rev. 6.4, Safety-Related Heat Exchanger Inspection

83305-C Rev. 7.6, Heat Exchanger Test/Maintenance Program

Condition Reports:

CR 523190

Other

Heat Exchanger 'as-found' and 'as-left' photos taken 09/24/2012

Section 1R11: Licensed Operator Regualification ProgramOther

V-RQ-SE-12705, Simulator Exercise Guide: Steam Generator Tube Leak

Procedures

18009-C Rev. 29.2, Steam Generator Tube Leak

18007-C Rev. 23, Chemical and Volume Control System Malfunction

Section 1R12: Maintenance EffectivenessEngineering Documents

System 1301-2, Main Steam System 2012 health reports

System 1205 RHR System, 4th quarter 2012 system health report

Condition Reports:

348759, 2PV3000 has exceeded its MR OOS time

343991, 2PV3000 SG-1 ARV Failure

518228, 1HV8702A will not open

534190, MR evaluation identified FF

Procedures

50028-C Rev. 18.1, Engineering Maintenance Rule Implementation

Section 1R15: Operability EvaluationsCondition Reports:

501741, U-1 D/G "A" unit available light is not working

533822, Unit 1 and 2 main steam isolation valves (MSIVs)

530916, Unit 1 steam generator loops 2 & 3 do not indicate steam flow

Engineering Documents

RER SNC440108, MSIV stem failure evaluation

DOEJ-VRSNC440108-M001, Unit 1 MSIVs ((1HV3016B & 1HV3026B) disk separation

Other

VNP-12-008 REV. 1.0, ODMI worksheet for degraded MSIV stems

Operating Experience Smart Sample (OpESS) 2012/02, Revision 1, Technical Specification Interpretation and Operability Determination

Section 1R18: Plant ModificationsOther

MDC SNC439341/1.0, 1-1208-U4-A11, Auxiliary Pressurizer Spray Valve Seal Leak

Section 1R19: Post Maintenance TestingProcedures

25022-C Rev. 7, General Small Bore Piping Installation

14240-1 Rev. 5.2, Manual SLI TADOT

14850-1 Rev. 52, Cold Shutdown Valve Inservice Test

14980A-2 Rev. 23, Diesel Generator Operability Test

14825-1 Rev. 97, Quarterly Inservice Valve Test

14430-2 Rev. 9.0, NSCW Cooling Tower Fans Monthly Test

Condition Reports

523221
530916
550378

Work Orders

SNC410412
SNC439646
SNC439647
SNC439900
SNC424222
SNC387201
SNC127251
SNC447741

Section 1R22: Surveillance TestingProcedures

14666-1 Rev. 34.1, Train A Diesel Generator and ESFAS Test
14372B-1 Rev. 9, Containment Penetration No. 72B RCS Loop #3 Accumulator Sample Line
Local Leak Rate Test
14670A-1 Rev. 1.2, Diesel Generator 1A Hot Restart Test
14808A-2 Rev. 2.2, Train A Centrifugal Charging Pump and Check Valve IST and Response
Time Test
14804A-1 Rev. 4, Safety Injection Pump A Inservice and Response Time Test
14905-1 Rev. 67.2, RCS Leakage Calculation (Inventory Balance)
14905-2 Rev. 50.1, RCS Leakage Calculation (Inventory Balance)
14802A-1 Rev. 4.1, Train A NSCW Pump/Check Valve IST and Response Time Test

Work Orders

SNC356759
SNC335801
SNC371576
SNC385697
SNC380426
SNC392870

Section 1EP4: Emergency Action Level and Emergency Plan ChangesChange Packages

Emergency Plan, Revision 57
NMP-EP-110, "Emergency Classification Determination and Initial Action," Version 3.0
NMP-EP-110, "Emergency Classification Determination and Initial Action," Version 4.0
NMP-EP-111, "Emergency Notifications," Version 7.0
NMP-EP-112, "Protective Action Recommendations," Version 2.0
91201-C, "Activation and Operation of the Technical Support Center," Revision 17
91202-C, "Activation and Operation of the Operations Support Center," Revision 22

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures, Guidance Documents, and Manuals

43014-C, "Special Radiological Controls", Ver. 46
 46024-C, "Release of Materials from the RCA", Ver. 9.3
 93240A-C, "Reactor Vessel Disassembly Instructions", Ver. 33
 NMP-HP-300, "Radiation and Contamination Surveys", Ver. 2.0
 NMP-HP-302, "Restricted Area Classification, Postings, and Access Control", Ver. 2.1
 NMP-HP-303, "Personnel Decontamination", Ver. 1.4
 NMP-HP-305, "Alpha Radiation Monitoring", Ver. 4.0
 NMP-CH-013-001, "Vogtle RCS Chemistry During Scheduled Plant Shutdowns with Fuel Defects Suspected", Ver. 1.0
 NMP-GM-002, "Corrective Action Program", Ver. 12.1

Records and Data

NMP-HP-109, "Investigation, Evaluation and Management of Damaged, Lost, Malfunctioning or Alarming Dosimetry", Ver. 1.1, Data Sheet 2, Worker's Statement for Dose/Rate Alarm or Malfunctioning Electronic Dosimeter, 9/26/12
 Unit 1 Spent Fuel Pool Inventory Log Non Fuel Radioactive Material Stored in Unit 1 Spent Fuel Pool
 Contingency Plan for: Health Physics Controls for High Noble Gas Activity During Code Safety Valve Removal During 1R17
 ALARA Briefing Notes: Rx Head/ Upper Internals Lift and Set
 Alpha Levels, Comparing 100 cm² Samples
 RWP 12-1618, Repair of Unit 1 Transfer Canal Transfer Tube ISO Valve 1-1213-U6-086, Rev. 0
 RWP 12-1505, Under Rx Vessel Work, Rev. 0
 RWP 12-1608, Remove/Install Pzr Code Safety Valves, Rev. 0
 RWP 12-1600, CM/PM, VLVS, Motors, Misc Activities in U1 CTMT, Rev. 0
 Radiological Survey 124805, U1 SFP Transfer Canal
 Radiological Survey 124876, U1 SFP Transfer Canal
 Radiological Survey 152222, Unit 1 Transfer Canal – Top View (1FHBC1)
 Radiological Survey 151559, Valve Gallery SFP Cooling Demin (1AXA46)
 Radiological Survey 153033, Inside Bioshield Area (1RXC)
 Radiological Survey 152915, Inside Bioshield Area (1RXC)
 Radiological Survey 152836, Inside Bioshield Area (1RXC)
 Radiological Survey 152699, Seal Table Rack Pulled Back (1RXA3)
 Radiological Survey 152711, Seal Table (1RXA3)
 Radiological Survey 151834, Auxiliary Building Level D (CAXD)
 Radiological Survey 9/18/2012 15:38, Under Vessel
 Radiological Survey 152143, Top of PZR – 252' el. (1RX32)
 Radiological Survey 152054, Top of PZR – 252' el. (1RX32)
 Radiological Survey 135176, Top of PZR – 252' el. (1RX32)
 Radiological Survey 152283, S/G 4 Channel Head Cold Leg (1RXB27)
 Radiological Survey 152282, S/G 4 Channel Head Hot Leg (1RXB26)
 Radiological Survey 152281, S/G 1 Channel Head Cold Leg (1RXB19)
 Radiological Survey 152281, S/G 1 Channel Head Cold Leg (1RXB19)
 Radiological Survey 151964, U1 Containment Building Level 1 (1RX1)
 Radiological Survey 152549, U1 Containment Level A Lower Overview (1RXA)
 Radiological Survey 151986, U1 Containment 184' El. Quadrant 1 (1RXB)

Radiological Survey 152662, U1 Containment 197' El. Quadrant 1 (1RXA)
 Radiological Survey 151910, U1 Containment 197' El. Quadrant 1 (1RXA)
 Radioactive Sealed Source Leak Test Certification, Source ID 0413-00-00, 6/22/12, 12/5/11,
 6/28/11, 1/19/10
 Air Sample Log, 9/18/12 – 9/20/12

CAP Documents

V-HP-2011, Fleet Oversight Audit of Health Physics, 8/15/11
 CR 382120
 CR 335736
 CR 519818
 CR 527832
 CR 523976
 CR 434496
 CR 434498
 CR 481012

Section 2RS2: Occupational ALARA Planning and Controls

Procedures, Guidance Documents, and Manuals

16035-1, "Chemistry Operations Interface for RCS Chemistry Control During Scheduled Plant
 Shutdowns", Ver. 13
 43031-C, "Steam Generator Job Coverage", Rev. 5.3
 00910-C, "VEGP ALARA Program", Rev. 15.3
 41001-C, "ALARA Job Review", Rev. 33.1
 NMP-AD-035, "ALARA Program", Ver. 1.0
 NMP-HP-204, "ALARA Planning and Job Review", Ver. 2.0
 43014-C, "Special Radiological Controls", Ver. 46

Records and Data

Audit No. V-HP-2011, Fleet Oversight Audit of Health Physics, 8/15/2011
 NMP-GM-003-F04 Self-Assessment Final Report; ALARA Outage Planning, CR#2011100194,
 12/17/10
 Shutdown Chemistry Review: Vogtle Unit 2 Fuel Cycle 15, Final report October 24, 2011
 ALARA Committee Meeting Minutes First Quarter 2012
 2011 Annual ALARA Report, March 30, 2012
 Pre-1R17 ALARA Sub-Committee Meeting Minutes, August 10, 2012
 Vogtle 1R17 EPRI Standard Radiation Monitoring Points
 Chemistry Crud Burst chart 9/16/12 22:00-9/20/12 22:00
 ALARA Steam Generator Work Package:
 ALARA Briefing Records
 RWP 12-1300, R/I Primary Manway Covers & Diaphragms on S/G 1-4; ALARA Briefing
 Record RWP 12-1301, Install and Remove Nozzle Dams for SGs 1-4; ALARA Briefing
 Record RWP 12-1302, EDDY Current Testing on SG 1-4 & All Associated Work; ALARA
 Briefing Record RWP 12-1303, Sludge Lance on S/G 1-4 & all Associated Work; ALARA
 Briefing Record RWP 12-1305,
 Radiological Surveys
 #152638, 9/25/12 20:58, S/G Manway Platt #1; #152279, 9/20/12 14:59, S/G Channel Head
 Hot leg; #152281 9/20/12 15:30, S/G Channel Head Cold Leg; #152688 9/26/12 11:15, S/G

Manway Platt 2; #152244 9/20/12 6:25 S/G Channel Head Hot Leg; #152245 9/20/12 6:35 S/G Channel Head Cold Leg; #152690 9/26/12 11:26 S/G Manyway Platt 3; #152246 9/20/12 6:43 S/G 3 Channel Head Hot Leg; #152282 9/20/12 15:57 S/G 4 Channel Head Hot Leg; #152639 9/25/12 21:05 S/G Manway Platt 4; #152653 9/26/12 1:29 S/G #3 Hand-Hole Plat

Work-In-Progress Reviews NMP-HP-104 (or equivalent)

RWP 12-1303, 9/27/12 80% Review; RWP 12-1302, 9/23/12 50% Review; RWP 12-1300 9/24/12 50% Review; RWP 12-1301 9/24/12 50% Review; RWP 12-1303 9/25/12 50% Review; RWP 12-1304 9/25/12 50% Review

NMP-HP-204 Form 8 Respirator Use Evaluation Worksheets for RWP 12-1301

Radiological Surveys:

#38622, 1/22/02, Plant Vogtle U1 Transfer Canal- top view

#117917, 7/14/09, U1 Transfer Canal- topview

#152208, 9/19/12, U1 Transfer Canal- Side view

ALARA Briefing Record RWP 12-1004, Install/Remove Scaffold in U1 CTMT

ALARA Briefing Record RWP 12-1104, Waste and Decon Routines in U1 CTMT

ALARA Briefing Record RWP 12-1618, Repair of U1 Transfer Canal

ALARA Post-Job Report 11-2509, RPV Cold Leg Nozzle Inspection in U2 Annulus

ALARA Post-Job Report 11-2302, Eddy Current Testing on S/G 1&4

CAP Documents

CR 167416, The accumulated dose for the U-1 Aux Bldg ECCS Flowpath Verification that was performed

CR 339453, HP Self Assessment on High Rad Area Controls

CR 346242, Dose goal exceeded for placing old UFC skid into shipping container

Section 2RS3: In-Plant Airborne Radioactivity Control and Mitigation

Procedures, Guidance Documents, and Manuals

43635-C, "Operation and Calibration of the AMS-4 Continuous Air Monitor", Rev. 18.1

47013-C, "Inspection, Repair, and Storage of Self Contained Breathing Apparatus", Ver. 37

NMP-HP-301, "Airborne Radioactivity Sampling and Evaluation", Ver. 1.2

00970-C, "Respiratory Protection Program", Rev. 11.4

NMP-GM-002, "Corrective Action Program", Ver. 12.1

Records and Data

Compressed Air/Gas Quality Testing, SCBA Compressor (Demin Plant), 2/5/10, 5/10/10, 8/11/10, 11/9/10, 2/14/11, 5/11/11, 8/25/11, 11/7/11, 2/9/12, 5/7/12, 8/14/12

00012-C, "Shift Manning Requirements", Rev. 17.1, Data Sheet 1, Minimum Shift Manning (Either Unit in Mode 1-4), Day Shift, 9/21/12

Qualification List, ID V-GE-099H, MSA High Pressure Firehawk MMR SCBA, Maintenance, Health Physics, and Operations

Qualification List, ID V-HP-999 MSA C.A.R.E. Tech

Control Room Monthly Emergency SCBA Inspection, 8/7/12

TSC Monthly Emergency SCBA Inspection, 8/10/12

SCBA PosiChek3 Test Results, SCBA Unit HP-82, 11/26/10, 12/30/10, 11/23/11

SCBA PosiChek3 Test Results, SCBA Unit HP-61, 12/29/10, 12/28/11

SCBA PosiChek3 Test Results, SCBA Unit HP-58, 8/24/10, 8/25/11, 8/27/12

Maintenance Record Report, SCBA Units HP-58, HP-61, HP-82, 8/1/10 – 9/16/12

CAP Documents

V-HP-2011, Fleet Oversight Audit of Health Physics, 8/15/11
CR 167804

Section 2RS4: Occupational Dose AssessmentProcedures, Guidance Documents, and Manuals

NMP-HP-107-001, "Instructions for Retrieving, Printing and Updating Individual Radiation Exposure Records", Version 1.0
NMP-HP-105, "Comparisons of OSLD and ED Dosimetry Results", Ver. 1.0
NMP-HP-106, "Investigating of Exposures Exceeding Fleet Administrative Limits", Ver. 1.0
NMP-HP-103, "Skin Dose Assessment", Ver. 1.1
NMP-HP-100, "Bioassay Program", Ver. 1.0
NMP-HP-101, "In-Vivo Bioassay and Internal Dose Assessment", Ver. 1.0
45013-C, "Issuance, Use and Collection of Personnel Dosimetry", Ver. 26.3

Records and Data

Canberra Report of Performance Testing Results for Nuclear Enterprises (NE) Model SPM 904B/906 Personnel Portal Monitor, May 18, 2012
Personnel Contamination Events/Personnel Contamination Reports (PCE/PCR) Logs, 9/2011-9/2012
EDE & NRC Form 5 Calculations for Steam Generator Multibadging Jobs entry made on 9/20/12; Multibadge RCA Authorization/Worksheets
NMP-HP-109 Data Sheets, Investigation of Lost, Damaged or Malfunctioning Personnel Dosimetry, for occurrence on 9/26/12
NMP-HP-109 Data Sheet 2, Investigation of Lost, Damaged or Malfunctioning Personnel Dosimetry, for occurrence on 9/28/12
Varskin 3 Calculations 10/5/2011

CAP Documents

CR 149580, On 4-16-10 there were (62) EPD's and (1) EPD "Vibe Mesh Transmitter" found at the RPF control room
CR 152467, A vendor arrived on site on June 22 at 08:45 am. and asked for a source that was shipped to Plant Vogtle.
CR 466572, HP Tier 1 outage readiness Health Physics Tier 1 outage review was performed with the HP Manager.

Section 2RS5: Radiation Monitoring InstrumentationProcedures, Guidance Documents, and Manuals

17005-1, "Annunciator Response Procedures for ALB 05 on Panel 1A2 on MCB", Ver. 33
17100-2, "Annunciator Response Procedure for the Process and Effluent Radiation Monitoring System (RMS)", Rev. 20.1
24625-1, "Containment High Range (2RE-0005) Area Monitor 2RX-0005 Channel Calibration", Rev. 29.1
24652-1, "Plant Vent Wide Range Radiogas Monitor 1RX-12444 Channel Operational Test and Channel Calibration", Rev. 19
34313-C, "Operation of the DRMS Plant Vent Effluent Wide Range Monitor 1(2) RE-12444," Rev 17
43802-C, "Calibration of Gamma Standards", Rev. 12.1

43500-C, "Health Physics Instrument Calibration and Control Program," Rev. 53.10
 43685-C, "Calibration and Operation of the Asp-1", Rev 20.3
 43693-C, "Operation and Use of the JI Shepherd Model 89-400 Shielded Calibrator, Rev. 2.1
 NMP-HP-703, "RO-2, RO-2A and RO-20 Operation and Calibration, Ver.1.0
 NMP-HP-703, "Daily Instrumentation Source Checks," Ver 1.1
 NMP-EP-110-GL03, "VEGP EALs – ICs, Threshold Values and Basis", Ver. 3.0
 Vogtle Electric Generating Plant (VEGP), ODCM, Ver. 28

Records and Data

10 CFR Part 61 Analysis, DAW, Dated 12/21/2011
 10 CFR Part 61 Analysis, DAW, Dated 12/28/2010
 Chemistry Issues Turnover Log, Dated 09/17/2012
 In Situ Calibration of High Range Monitors, VEGP Units 1&2, Dated 02/18/1997
 LS 6500 SN 7069842 Source Check Response Charts, Dated 02/11/2011 – 03/28/2012
 HPGE Detector #1 Control Charts, Dated 12/25/2011 – 04/03/2012
 Radiation Monitor RE-005 Monthly Tech Spec Response Surveillance, Dated May 2010 – September 2012
 Radiation Monitor System Health Reports for 1st and 2nd Quarters 2012
 LCO/TR Status Sheet, 1RE006 Failure, initiated 08/14/2010
 Special Report 2011-001-00, Inoperable Radiation Monitor 1RE-006, Dated 03/29/2011
 RadCal Electrometer Model 2025, SN4676 Calibration Record, Dated 10/31/2011
 RadCal Probe Model 20X5-3, SN14166 Calibration Record, Dated 10/31/2011
 RadCal Probe Model 20X5-180, SN16121 Calibration Record, Dated 10/31/2011
 RadCal Probe Model 20X5-1800, SN21721 Calibration Record, Dated 10/31/2011
 Instruments Missing Operation Checks Report, Dated 09/19/2012
 Online Instruments Issued Report, Dated 09/19/2012
 IPM-7A/8/9, VEGP-HP 0637, Calibration Records, Dated 06/14/2011 and 06/12/2012
 Model 28-5 Calibrator, Source VEGP 0292, Calibration Record, Dated 05/18/12
 Model 89-400 Calibrator, Source VEGP 0413, Calibration Record, Dated 08/12/2012
 Model 878-10 Calibrator, Source VEGP 1049, Calibration Record, Dated 08/12/2012
 SAM-11, VEGP-HP 1151, Calibration Records, Dated 05/26/2011 and 05/23/2012
 SPM-904B, VEGP-HP 0754, Calibration Records, Dated 02/8/2011 and 02/10/2012
 WO 1090817001, Plant Vent Wide Range Radiogas Flow 1F-12444 Channel Operational Test and Channel Calibration, Dated 03/03/11
 WO SNC332418, Plant Vent Wide Range Radiogas Flow 1F-12444 Channel Operational Test and Channel Calibration, Dated 03/28/2012
 WO 1090816001, Plant Vent Wide Range Radiogas Radiation Monitor 1RX12444 Channel Operational Test and Channel Calibration, Dated 10/15/10
 WO 1100068601, 2RE0005 Containment High Range Monitor Channel Calibration, Dated 08/09/2010
 WO 11000408201, 2RE0005 Containment High Range Monitor Channel Calibration, Dated 03/29/2011
 WO 1080853101, 1RE0011 In-Core Instrumentation Room Area Monitor Calibration, Dated 09/26/2009
 WO 1100216601, 1RE0011 In-Core Instrumentation Room Area Monitor Calibration, Dated 03/14/2011
 WO SNC328096, 1RE0018 Waste Liquid Effluent Channel Operational Test and Calibration, Dated 03/09/2012

WO 1090816201, 1RE0018 Waste Liquid Effluent Channel Operational Test and Calibration, Dated 01/28/2011

WO 1090816201, 1RE0018 Waste Liquid Effluent Isotopic Channel Calibration, Dated 02/23/2012

WBC Calibration Report, "Calibration of the Canberra Fastscan-1 WBC System at the Vogtle Electric Generating Plant", Dated 06/08/2011 and 06/13/2012

WBC Calibration Report, "Calibration of the Canberra Fastscan-2 WBC System at the Vogtle Electric Generating Plant", Dated 06/09/2011 and 06/15/2012

CAP Documents

Fleet Oversight Audit of Health Physics, V-HP-2011, Dated 08/15/2011

CR 285751

CR 302822

CR 410359

CR 321427

CR 472385

CR 483434

CR 481949

CR 490231

CR 521213

Section 40A1: Performance Indicator Verification

Procedures, Guidance Documents, and Manuals

00163-C, "NRC Performance Indicator and Monthly Operating Report Preparation and Submittal", Ver. 14.3

Records and Data

Liquid Permit Post-Release Data Permit # L-20120725-087-B

Gas Permit Post-Release Data Permit # G-20120813-171-C

Gas Permit Post-Release Data Permit # G-20120808-165-C

Liquid Permit Post-Release Data Permit # G-20120803-091-B

ED Alarm Log Sept 2011-Sept 2012

CAP Documents

CR 349797, Trouble shoot plan for U2 CVCS Demin Results in Resin in Drain Line

CR 474221, Dose equivalent Iodine definition in Tech Specs and ODCM does not match

CR 480703, U-1 RMWST degassifier dissolved oxygen anomaly

CR 354479, Increased dose rates in 2AB-A-72

Section 40A2: Identification and Resolution of Problems

Procedures/Calculations/Engineering Documents

CAR 196113 – Root Cause and Corrective Actions Evaluation for the Unit 1 Steam Generator Loop ΔT Mismatch

12001-C, Unit Heat Up to Hot Shutdown (Mode 5 to Mode 4)

14850-1/2, Cold Shutdown Valve In-Service Test

26854-C, MSIV Actuator Maintenance

Condition Reports

530916 – Unit 1 steam generators 2&3 do not indicate steam flow

Section 40A7: Licensee Identified Violations

Radiological Survey 151559, Valve Gallery SFP Cooling Demin (1AXA46)
CR 519818

LIST OF ACRONYMS

| | |
|----------|---|
| 1R17 | Unit 1 Refueling Outage 17 |
| ALARA | As Low As Reasonably Achievable |
| ARM | Area Radiation Monitor |
| CAP | Corrective Action Program |
| CFR | Code of Federal Regulations |
| CR | Condition Report |
| DAW | Dry Active Waste |
| DPW | Declared Pregnant Worker |
| ED | Electronic Dosimeter |
| FSAR | Final Safety Analysis Report |
| HP | Health Physics |
| HPT | HP Technician |
| HRA | High Radiation Area |
| IP | Inspection Procedure |
| LHRA | Locked High Radiation Area |
| NCV | Non-cited Violation |
| NPR | Negative Pressure Respirator |
| NVLAP | National Voluntary Laboratory Accreditation Program |
| OA | Other Activities |
| OSLD | Optically Stimulated Luminescent Dosimeter |
| PCM | Personnel Contamination Monitor |
| PI | Performance Indicator |
| PM | Portal Monitor |
| Radwaste | Radioactive Waste |
| RCA | Radiologically Controlled Area |
| RS | Radiation Safety |
| RWP | Radiation Work Permit |
| S/G | Steam Generator |
| SAM | Small Article Monitor |
| SCBA | Self-contained Breathing Apparatus |
| SDP | Significance Determination Process |
| SFP | Spent Fuel Pool |
| TS | Technical Specification |
| U1 | Unit 1 |
| VHRA | Very High Radiation Area |
| WBC | Whole Body Counter |