



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

January 20, 2009

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 05000424/2008005 AND 05000425/2008005

Dear Mr. Tynan:

On December 31, 2008, 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 15, 2009, 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.

This report documents one self-revealing finding of very low safety significance (Green) which was determined to be a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance and because it was entered into your corrective action program. If you contest this NCV, 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.

In accordance with the Code of Federal Regulations 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 document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Scott M. Shaeffer, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos.: 50-424, 50-425
License Nos.: NPF-68 and NPF-81

Enclosures: Inspection Report 05000424/2008005 and 05000425/2008005
w/Attachment: Supplemental Information

cc w/encl: (See next page)

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Letter to Tom E. Tynan from Scott M. Shaeffer dated January 20, 2009

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION
REPORT 05000424/2008005 AND 05000425/2008005

Distribution w/encl:

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R. Martin, NRR

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-424, 50-425

License Nos.: NPF-68, NPF-81

Report Nos.: 05000424/2008005 and 05000425/2008005

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Electric Generating Plant, Units 1 and 2

Location: Waynesboro, GA 30830

Dates: October 1, 2008 through December 31, 2008

Inspectors: G. McCoy, Senior Resident Inspector (SRI)
E. Crowe, SRI, Farley Nuclear Plant
E. Morris, Acting SRI
T. Chandler, Resident Inspector
C. Fletcher, Reactor Inspector (Section 1R08)
E. Michel, Senior Reactor Inspector (Section 1R08)
B. Caballero, Operations Engineer (Section 1R11)
D. Mas-Penaranda, Reactor Inspector (Section 1R17)
J. Hamman, Reactor Inspector (Section 1R17)
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R. Berryman, P.E., Senior Reactor Inspector (Section 1R17)
R. Patterson, Reactor Inspector (Section 1R17)
R. Williams, Reactor Inspector (Section 1R17)
G. Kuzo, Sr. Health Physicist (Sections 2OS2, 4OA1)
A. Nielsen, Health Physicist (Sections 2OS1, 2PS1, 2PS2)
J. Rivera-Ortiz, Sr. Project Inspector (Section 4OA5.2)

Approved by: Scott M. Shaeffer, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000424/2008-005, 05000425/2008-005; 10/1/2008 - 12/31/2008; Vogtle Electric Generating Plant, Units 1 and 2; Access Control to Radiologically Significant Areas

The report covered a three-month period of inspection by four resident inspectors, nine reactor inspectors, two health physicists, and a project engineer. One Green non-cited violation (NCV) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, Significance Determination Process (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, Reactor Oversight Process, Rev 4 dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Occupational Radiation Safety

Green. A Green, self-revealing, Non-cited Violation of TS 5.7.1, High Radiation Area, was identified for unauthorized entries into High Radiation Areas (HRAs). Inadequate communication between workers and Health Physics resulted in licensee personnel breaching HRA boundaries without prior knowledge of the radiological conditions. There were two examples of this violation identified. Prior to this inspection, the licensee had entered these issues into the Corrective Action Program as Condition Reports 2007105476 and 2007108830.

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. The finding was evaluated using the Occupational Radiation Safety Significance Determination Process (SDP). The finding was not related to As Low As Reasonably Achievable planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. From this SDP evaluation, the finding was determined to be of very low safety significance (Green). The cause of the finding is related to the cross-cutting aspect of Human Performance. (Section 2OS1).

B. Licensee-Identified Violations

None.

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REPORT DETAILS

Summary of Plant Status

Unit 1 operated at full rated thermal power for the entire inspection period.

Unit 2 started the report period shutdown for a planned refueling outage. The unit was restarted on October 19 and attained full power on October 29. The unit was shutdown on November 16 to replace a reactor coolant pump seal. The unit was restarted on November 21 and reached full power on November 25. The unit operated at full rated thermal power for the remainder of the inspection period.

1. **REACTOR SAFETY** **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity**

1R01 Adverse Weather Protection

a. Inspection Scope

Seasonal Readiness Review. The inspectors performed a walkdown of the following two systems to verify they would remain functional during low temperature conditions. The inspectors reviewed preventive maintenance activities associated with heat tracing and freeze protection systems to verify they were appropriately scheduled and completed prior to the onset of cold weather. The inspectors reviewed compensatory actions to verify they were implemented for degraded or inoperable heat trace and freeze protection equipment. Additionally, the inspectors reviewed the condition report (CR) database to verify that adverse weather related items were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

- Unit 1 nuclear service cooling water (NSCW) tower instrumentation rooms (both trains)
- Unit 1 and 2 refueling water storage tank instrumentation rooms

Impending Adverse Weather Condition Review. On November 25, the inspectors reviewed licensee procedure 11877-1 and 11877-2, Cold Weather Checklist, to verify the licensee had implemented actions to prepare the plant site for predicted severe weather conditions of sub-freezing temperatures. The inspectors walked down various safety-significant areas of the plant to verify the licensee's ability to respond to the predicted adverse weather conditions.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdown. The inspectors performed partial walkdowns of the following two systems to verify correct system alignment. The inspectors checked for correct valve and electrical power alignments by comparing positions of valves, switches, and breakers to the documents listed in the Attachment. Additionally, the inspectors reviewed the condition report database to verify that equipment alignment problems were being identified and appropriately resolved.

- Unit 2 train A auxiliary feedwater (AFW) system when the train B auxiliary feedwater pump was out of service for maintenance
- Unit 1 train B emergency diesel generator (EDG) and fuel oil transfer system following maintenance activities

Complete System Walkdown. The inspectors performed a complete walkdown of the Unit 1 train B NSCW system. The inspectors performed a detailed check of valve positions, electrical breaker positions, and operating switch positions to evaluate the operability of the redundant trains or components by comparing the required position in the system operating procedure to the actual position. The inspectors also reviewed control room logs, condition reports, and system health reports to verify that alignment and equipment discrepancies were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Area Tours. The inspectors walked down the following four plant areas to verify the licensee was controlling combustible materials and ignition sources as required by procedures 92015-C, Use, Control, and Storage of Flammable/Combustible Materials, and 92020-C, Control of Ignition Sources. The inspectors assessed the observable condition of fire detection, suppression, and protection systems and reviewed the licensee's fire protection Limiting Condition for Operation log and CR database to verify that the corrective actions for degraded equipment were identified and appropriately prioritized. The inspectors also reviewed the licensee's fire protection program to verify the requirements of Updated Final Safety Analysis Report (UFSAR) Section 9.5.1, Fire Protection Program, and Appendix 9A, Fire Hazards Analysis, were met. Documents reviewed are listed in the Attachment.

- Unit 2 EDG fuel oil storage pumps and tanks
- Unit 1 and 2 spent fuel pools
- Unit 1 safety injection pump rooms

- Unit 2 auxiliary component cooling water (ACCW) pump rooms

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

Internal Flood Review. The inspectors walked down the following two areas which contained risk-significant structures, systems, and components below flood level to verify flood barriers were in place. Motor controllers and terminal boxes that could become potentially submerged were inspected to ensure that the sealing gasket material was intact and undamaged. The inspectors reviewed selected licensee alarm response procedures to verify alarm setpoints and setpoints for sump pump operation were consistent with the UFSAR, the setpoint index, and Technical Specifications.

- Unit 1 residual heat removal pump rooms (both trains)
- Unit 1 containment spray pump rooms (both trains)

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

Annual Review. The inspectors reviewed the licensee's records of the performance tests conducted on the Unit 2 A train component cooling water (CCW) and ACCW heat exchangers. The inspectors reviewed EPRI NP-7552, "Heat Exchanger Performance Monitoring Guidelines" to ensure that the licensee's testing procedures were appropriate. Additionally, the inspectors reviewed the licensee's corrective action program for heat exchanger performance issues to ensure that discrepancies were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R08 In-service Inspection (ISI) Activities

.1 Non-Destructive Examination (NDE) Activities and Welding Activities

a. Inspection Scope

The inspectors reviewed the implementation of the licensee's ISI program for monitoring

degradation of the reactor coolant system (RCS) boundary and risk significant piping boundaries. The inspectors' activities consisted of an on-site review of NDE and welding activities to evaluate compliance with the applicable edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI (Code of record: 2001 Edition with 2003 Addenda), and to verify that indications and defects (if present) were appropriately evaluated and dispositioned in accordance with the requirements of the ASME Code, Section XI acceptance standards.

The inspectors' review of NDE activities specifically covered examination procedures, NDE reports, equipment and consumables certification records, personnel qualification records, and calibration reports (as applicable) for the following examinations:

- UT examination of weld 21204-023-21, ASME Class 2, Safety Injection System, 6-inch diameter pipe-to-tee (Section XI ISI)-Direct Observation.
- UT examination of weld 21204-243-31-RI, ASME Class 2, Safety Injection System, 1.5-inch diameter pipe-to-elbow (Risk Informed ISI)-Direct Observation
- Radiography (RT) examination film of welds associated with Q.I.S. Work Order No. 08-70-0658 (ASME Section III and V NDE)

The inspectors also reviewed documentation for the following indications, which were accepted for continuous service:

- CN-RIDA-07-40, Westinghouse Thermal Sleeve Wear Criteria Analysis, Rev 0.

The inspectors' review of welding activities specifically covered the welding activity listed below in order to evaluate compliance with procedures and the ASME Code. The inspectors reviewed the work order, repair and replacement plan, weld data sheets, welding procedures, procedure qualification records, welder qualification records, and NDE reports.

- Welding Package for ACCW NCP Motor Cooler Outlet Pressure Test Point (Class 2) associated with Work Order 2081126401, Pipe to Flange Weld.

b. Findings

No findings of significance were identified.

.2 PWR Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

The inspectors reviewed the licensee's activities relative to the Bare Metal Visual examination of the reactor pressure vessel upper head (RPVUH) nozzles and the visual examination to identify potential boric acid leaks from pressure-retaining components above the RPVUH. These activities were reviewed to verify licensee compliance with the regulatory requirements of NRC Order EA-03-009 Modifying Licenses dated February 20, 2004. The inspectors specifically reviewed BMV examination procedures, final BMV examination report and disposition of indications, personnel training and qualification

Enclosure

records, final image electronic report, a sample of examination videos, and reports for the visual inspection of pressure retaining components above the head performed every outage. In addition, the inspectors reviewed the licensee's RPVUH Effective Degradation Years calculation to ensure it had been performed and updated in accordance with the NRC Order.

b. Findings

No findings of significance were identified.

.3 Boric Acid Corrosion Control (BACC) Inspection Activities

a. Inspection Scope

The inspectors reviewed the licensee's BACC program activities to ensure implementation with commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary," and applicable industry guidance documents. Specifically, the inspectors performed an on-site record review of procedures and the results of the licensee's containment walk-down inspections performed during the Unit 2 fall 2008 outage. The inspectors also interviewed the BACC program owner and conducted an independent walk-down of the reactor building to evaluate compliance with licensee's BACC program requirements and verify that degraded or non-conforming conditions, such as boric acid leaks identified during the containment walk-down, were properly identified and corrected in accordance with the licensee's BACC and corrective action programs. The inspectors reviewed the following four engineering evaluations completed for evidence of boric acid found on systems containing borated water to verify that the minimum design code required section thickness had been maintained for the affected components.

- CR 2008102122 – Boric Acid Containment Recovery Project.
- CR 2007106211 – Boric Acid Containment Recovery Project.
- CR 2007110612 – Boric Acid Containment Recovery Project.
- CR 2008108419 – Boric Acid Containment Recovery Project.

b. Findings

No findings of significance were identified.

.4 Steam Generator (SG) Tube Inspection Activities

a. Inspection Scope

The inspectors reviewed the eddy current testing (ECT) activities of Unit 2 SGs 1 and 4 to ensure compliance with Technical Specifications, applicable industry standards, SG Program Procedures, and ASME Code Section XI requirements. The inspectors reviewed the latest Degradation Assessment (DA) report to identify the scope of the inspection and verify it addressed existing and potential degradation mechanisms, plant specific degradation history, and applicable operating experience. The inspectors

reviewed portions of the tube inspection plan to verify it complied with the inspections cited in the DA. The inspectors reviewed the licensee's SG Program Strategic Plan to ensure SG tube inspection intervals were in accordance with EPRI Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 7. The inspectors selected a sample of site-specific acquisition and analysis Examination Technique Specification Sheets (ETSS) to ensure that equivalency was maintained with the associated qualified ETSS's per the EPRI Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 7. The inspectors discussed in-situ pressure testing requirements and monitoring with engineering personnel associated with the site's ECT vendor. None of the SG tubes met the criteria for in-situ pressure testing. The inspectors also reviewed the last Condition Monitoring and Operational Assessment report in conjunction with the inspection status reports to assess the licensee's prediction capability for expected tube degradation. The inspectors reviewed licensee criteria for tube repair to verify they were consistent with EPRI guidelines. Additionally, the inspectors reviewed documentation to ensure that resolution analysts, ECT probes, and equipment configurations were certified to detect the expected types of SG tube degradation, including performance of a site specific performance demonstration. The inspectors also directly observed acquisition for a sample of tubes, and directly observed a qualified resolution analyst perform calibration and resolution of tubes from calibration group 66. The inspectors discussed the status of foreign objects, and associated foreign object search and recovery for objects discovered as a result of Digital Metal Impact Monitoring System alarms received during shutdown. The inspectors reviewed the licensee's Secondary Side Integrity plan, and interviewed plant personnel to ensure compliance with EPRI SG Integrity Assessment Guidelines, Revision 2.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI-related problems, including welding, BACC, and SG inspections that were identified by the licensee and entered into the corrective action program as CRs. The inspectors reviewed the CRs to confirm that the licensee had appropriately described the scope of the problem and had initiated corrective actions. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the report attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalificationa. Inspection Scope

Resident Quarterly Observation. The inspectors observed operator performance on October 21, during licensed operator simulator training described in Operating Test Dynamic Simulator Scenario DS#9, Rev. 21. The simulator scenarios covered operator actions resulting from NSCW pump shaft shear, main turbine trip below P-9, loss of the running main feed pump and subsequent loss of all feed water, anticipated transient without trip, rod control failure, and emergency boration. Documents reviewed are listed in the Attachment. The inspectors specifically assessed the following areas:

- Correct use of the abnormal and emergency operating procedures
- Ability to identify and implement appropriate actions in accordance with the requirements of the Technical Specifications
- Clarity and formality of communications in accordance with procedure 10000-C, Conduct of Operations
- Proper control board manipulations including critical operator actions
- Quality of supervisory command and control
- Effectiveness of the post-evaluation critique

Annual Review of Licensee Requalification Examination Results. On January 08, 2009, the licensee completed administering the 2008 biennial written examinations and annual requalification operating tests, which are required to be given 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 written examinations, 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 of significance were identified.

1R12 Maintenance Effectivenessa. Inspection Scope

The inspectors reviewed the following three CRs to evaluate the effectiveness of the licensee's handling of equipment performance problems and to verify the licensee's maintenance efforts met the requirements of 10 CFR 50.65 (the Maintenance Rule) and licensee procedure 50028-C, Engineering Maintenance Rule Implementation. The inspector also reviewed the safety-significant system to verify that the licensee's maintenance efforts met the requirements of 10 CFR 50.65 (the Maintenance Rule) and licensee procedure 50028-C, Engineering Maintenance Rule Implementation. The reviews included adequacy of the licensee's failure characterization, establishment of performance criteria or 50.65(a)(1) performance goals, and adequacy of corrective actions. Other documents reviewed during this inspection included control room logs,

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system health reports, the maintenance rule database, and maintenance work orders (WO). Also, the inspectors interviewed system engineers and the maintenance rule coordinator to assess the accuracy of identified performance deficiencies and extent of condition.

- CR 2008107271, Containment cooling fan number 7 did not start in fast speed
- CR 2008107662, NSCW pump number 3 Agastat timing relay out of tolerance
- CR 2008112205, Unit 2 first bank steam dumps; 2PV-0507A, B, and C; control signal not properly connected

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the following two work activities to verify plant risk was properly assessed by the licensee prior to conducting the activities. The inspectors reviewed risk assessments and risk management controls implemented for these activities to verify they were completed in accordance with procedure 00354-C, Maintenance Scheduling, and 10 CFR 50.65(a)(4). The inspectors also reviewed the CR database to verify that maintenance risk assessment problems were being identified at the appropriate level, entered into the corrective action program, and appropriately resolved.

- November 10, planned maintenance for Unit 1 train B NSCW pump #4
- December 18, planned maintenance for Unit 1 train B CCW pump

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following four 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 this inspection included a review of the technical adequacy of the evaluations, the adequacy of compensatory measures, and the impact on continued plant operation.

- CR 2008111760, Unit 2 train B AFW check valve, 2-1302-U4-116, failed surveillance testing
- CR 2008111970, Unit 2 turbine driven AFW steam inlet valve, 2-HV-5106, stroke time out of specification
- CR 2008110669, Unit 2 train B containment spray pump low differential pressure

- CR 2008112035, Unit 1 train B missed surveillances on NSCW pumps 2 and 6

b. Findings

No findings of significance were identified.

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed selected 10 CFR 50.59 evaluations to confirm that the licensee had appropriately considered the conditions under which changes to the facility, UFSAR, or procedures may be made and tests can be conducted without prior NRC approval. The inspectors reviewed the nine evaluations for changes listed in the Attachment and reviewed additional information, such as drawings, calculations, supporting analyses, the UFSAR, and Technical Specifications (TS) to confirm that the licensee had appropriately concluded the changes could be accomplished without prior NRC approval. The inspectors also reviewed the nineteen changes listed in the Attachment which the licensee had determined that 10 CFR 50.59 evaluations were not required to confirm that the licensee's conclusions to "screen out" these changes were correct and consistent with 10 CFR 50.59.

The inspectors evaluated the engineering design change packages for the following eleven modifications to verify there were no adverse effects on system availability, reliability, and functional capability. The inspectors' review also verified that all details were incorporated in licensing and design basis documents and associated plant procedures. Additionally, the inspectors reviewed test documentation to ensure adequacy in scope and conclusion. Documents reviewed are listed in the Attachment.

The inspectors also reviewed selected CRs and the licensee's recent self-assessment associated with modifications and screening/evaluation issues to confirm that problems were identified at an appropriate threshold, were entered into the corrective action process, and appropriate corrective actions had been initiated and tracked to completion.

- 1049501701, Containment Spray Pump Overcurrent Relay Setpoint Change (Mitigating Systems)
Attributes: Control Signals, Equipment Protection, Process Medium, Failure Modes, Licensing Basis, Post Modification Testing
- 1060607901, Mitigating Actions on Alloy 600 Materials in Pressurizer Nozzle Welds (Barrier Integrity)
Attributes: Materials/Replacement Components, Pressure Boundary, Licensing Basis, Failure Modes
- 1070824101 "Replace Electrical and Mechanical Lockout Valve Solenoids", (Mitigating Systems)
Attributes: Energy Needs, Material/Replacement Components, Post Modification Test, Vendor Information, Walkdown

- 1071579101, Valve 1HV-11817 Internals Removal (Mitigating Systems)
Attributes: Operations, Flowpaths, Pressure Boundary, Process Medium, Failure Modes, Licensing Basis, Post Modification Testing
- 2049000601, Snubber Reduction (Mitigating Systems)
Attributes: Materials/Replacement Components, Structural
- 2060336901, 480V Switchgear Transformer and Breaker Replacements (Mitigating Systems)
Attributes: Materials/Replacement Components, Control Signals, Operations, Failure Modes
- 2060609501, Mitigating Actions on Alloy 600 Materials in Pressurizer Nozzle Welds (Barrier Integrity)
Attributes: Materials/Replacement Components, Pressure Boundary, Licensing Basis, Failure Modes
- 2061287901, TDAFW Governor Valve Bonnet Gasket (Mitigating Systems)
Attributes: Materials/Replacement Components, Flowpath, Pressure Boundary
- 2071073601, Installation of Manual Valves on the SIS Test Header (Unit 2), (Barrier Integrity)
Attributes: Flowpaths, Process Medium
- 2081590101/2, Addition of Vent Valve to CCP Suction Line (Unit 2), (Barrier Integrity)
Attributes: Equipment Protection, Flowpaths, Process Medium
- 2081605401, Replace Motor 2HV8103C with New Motor in Stock, (Mitigating Systems)
Attributes: Materials Replacement Components, Operations, Post Modification Testing, Energy Needs, Control Signals, Licensing Basis

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

a. Inspection Scope

Temporary Modifications. The inspectors reviewed temporary modification TM 2081803801 and associated 10CFR50.59 screening criteria against the system design bases documentation and procedure 00307-C, Temporary Modifications. This temporary modification installed a camera inside containment to allow operators to observe the leak rate of the number 2 seal on reactor coolant pump 3 on local flow indicator, 2FIS0192. The inspectors reviewed implementation, configuration control, post-installation test activities, drawing and procedure updates, and operator awareness for this temporary modification.

Permanent Modifications. The inspectors reviewed minor design change MDC 2081590101 and associated 10CFR50.59 screening criteria against the system design bases documentation and procedure 58007-C, Design Change Packages. This design change installed a high-point vent valve, 2-1208-X4-054, on the common coolant charging pump suction line, 2-1208-L4-139-6. The inspectors conducted a visual walkdown to verify the installed vent valve was consistent with specifications and drawings provided in the design change package. The inspectors verified that the modification did not degrade the system design bases, licensing bases, or equipment performance capability. Additionally, the inspectors verified that plant risk was not increased unnecessarily during implementation of the modification.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the following seven 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 Specifications operability requirements.

- WO 2071889201 and 2061382201, Unit 2 train B motor-driven AFW pump outage
- WO 1081701001, Unit 1 train A control building control room filter
- WO 1081751501, Unit 1 train A EDG vibration switch
- WO 2080253001, Unit 2 train B NSCW transfer pump motor (located in A tower)
- WO A081808201, Technical Support Center air handling unit
- WO 1080381901, Unit 1 train B NSCW pump #4
- WO 1081073801 and 1081073601, Unit 1 train B CCW pump #6 outage

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

The inspectors performed the following inspection activities described below for the Unit 2 refueling outage that began on September 17 and for the Unit 2 maintenance outage to replace a reactor coolant pump seal that began on November 16. The inspectors confirmed that the licensee maintained defense-in-depth commensurate with the outage risk control plan for key safety functions and applicable technical specifications and that configuration changes due to emergent work and unexpected conditions were controlled

in accordance with the outage risk control plan. Documents reviewed are listed in the Attachment.

- Reviewed RCS pressure, level, and temperature instruments to verify that the instruments provided accurate indication and that allowances were made for instrumentation errors.
- Verified that outage work did not impact the operation of the spent fuel cooling system during and after core load..
- Reviewed the status and configuration of electrical systems to verify that those systems met technical specification requirements and the licensee's outage risk control plan.
- Observed decay heat removal parameters to verify that the system was properly functioning and providing cooling to the core.
- Reviewed system alignments to verify that the flow paths, configurations and alternative means for inventory addition were consistent with the outage risk plan
- Reviewed selected control room operations to verify that the licensee was controlling reactivity in accordance with the TSs.
- Observed the licensee's control of containment penetrations to verify that the requirements of the TSs were met.
- Reviewed the licensee's plans for changing plant configuration to verify that technical specifications, license conditions, and other requirements, commitments, and administrative procedure prerequisites were met prior to changing plant configuration.
- Observed refueling activities for compliance with TSs, 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 heatup and startup activities to verify that TSs, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes.
- 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 of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the following four 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

- 14905-2, Unit 2 RCS Leakage Calculation (Inventory Balance)
- 14666-2, Unit 2 Train A Diesel Generator and ESFAS Test

In-Service Tests

- 14545-2, Unit 2 Motor Driven Auxiliary Feedwater Pump Operability Test

Containment Isolation Valve

- 14313-A-2, Unit 2 Containment Penetration 13A Local Leakrate Test

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors reviewed the facility activation exercise guide and observed the following emergency response activity to verify the licensee was properly classifying emergency events, making the required notifications, and making appropriate protective action recommendations in accordance with procedures 91001-C, Emergency Classifications, and 91305-C, Protective Action Guidelines.

- On November 5, the licensee conducted an emergency preparedness drill involving a steam generator tube rupture and loss of AC power to emergency buses, 1AA02 and 1BA03. The technical support center was activated and the site participated in the exercise.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control To Radiologically Significant Areas

a. Inspection Scope

Access Controls The inspectors evaluated control of worker access to radiologically significant areas and monitoring jobs in-progress associated with the Unit 2 refueling outage. The inspectors directly observed implementation of administrative and physical radiological controls; evaluated radiation worker (radworker) and health physics technician (HPT) knowledge of and proficiency in implementing radiation protection requirements; and assessed worker exposures to radiation and radioactive material.

During facility tours, the inspectors directly observed postings and physical controls for radiation areas, HRAs, and potential airborne radioactivity areas established within the radiation control area (RCA) of the Unit 2 containment, Unit 1 and Unit 2 auxiliary buildings, and radioactive waste (radwaste) processing and storage locations. The inspectors independently measured radiation dose rates or directly observed licensee radiation surveys for selected RCA areas. Results were compared to current licensee surveys and assessed against established postings and Radiation Work Permit (RWP) controls. Licensee key control and access barrier effectiveness were evaluated for selected Unit 1 and Unit 2 Locked High Radiation Area (LHRA) and Very High Radiation Area (VHRA) locations. Changes to procedural guidance for LHRA and VHRA controls were discussed with health physics (HP) supervisors. Controls for storage of irradiated material within the spent fuel pool were observed and evaluated. Established radiological controls were observed for selected HRA tasks including SG eddy current work and movement of a spent resin container. In addition, licensee controls for areas where dose rates could change significantly as a result of plant shutdown, refueling operations, and resin sluicing activities were reviewed and discussed.

For selected tasks, the inspectors attended pre-job briefings and reviewed RWP details to assess communication of radiological control requirements to workers. Occupational workers' adherence to selected RWPs and HPT proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff. Electronic dosimeter (ED) alarm set points were evaluated against area radiation survey results for selected 2R13 outage tasks.

The inspectors evaluated the effectiveness of radiation exposure controls, including air sampling, barrier integrity, engineering controls, and postings through a review of both internal and external exposure results. Worker exposure as measured by ED and by licensee evaluations of skin doses resulting from discrete radioactive particle or dispersed skin contamination events were reviewed and assessed. Licensee activities for monitoring and controlling alpha-emitting radio-nuclides were evaluated. For HRA tasks involving significant dose rate gradients, e.g. SG work, the inspectors evaluated the use and placement of whole body and extremity dosimetry to monitor worker exposure. Radiation protection activities were evaluated against the requirements of UFSAR

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Section 12; TS Sections 5.4 and 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. Documents reviewed are listed in the report Attachment. The inspectors completed 21 of the required line-item samples described in Inspection Procedure (IP) 71121.01.

Problem Identification and Resolution. The inspectors reviewed corrective action program (CAP) documents associated with access control to radiologically significant areas. This included review of selected CRs related to radworker and HPT performance. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure NMP-GM-002. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed are listed in the Attachment.

b. Findings

Introduction: Two examples of a Green, self-revealing, non-cited violation (NCV) of TS 5.7.1, High Radiation Area, were identified for unauthorized entries into HRAs. Inadequate communication between workers and HP resulted in licensee personnel breaching HRA boundaries without prior knowledge of the radiological condition.

Description: On May 9, 2007, a Shift Operator (SO) performed a visual inspection in the Unit 2 Residual Heat Removal Pump Room A. This room contained both a Radiation Area (RA) and a posted and barricaded HRA. The SO contacted HP prior to entering the room, but failed to communicate that entry into the HRA might be required. As a result, HP briefed the SO on current radiological conditions outside the rope barricade and not on conditions inside the HRA. The assigned RWP did not allow entry into HRAs without first obtaining a briefing on the HRA radiological conditions. Typically, this inspection does not require the SO to pass the HRA boundary, however insulation obstructed the SO's view from outside the HRA. Without knowledge of dose rates in the HRA, the SO proceeded past the HRA boundary and subsequently received an ED dose rate alarm. Dose rates inside the area were as high as 160 mrem/hr.

On August 16, 2007, two Facilities personnel entered the Unit 2 Fuel Handling Building room 2-FHB-A-01 to perform cleaning duties and replace light bulbs. This area contained a Contaminated Area (CA), RA, and a posted and barricaded HRA. Prior to starting work, the personnel were briefed by HP on radiological conditions in the CA and RA, but not on dose rates in the HRA. There was no clear understanding between the two groups that a HRA entry would be required. The assigned RWP did not allow entry into HRAs without first obtaining a briefing on the HRA conditions. Without knowledge of dose rates in the HRA, one worker proceeded past the HRA boundary in room 2-FHB-A-01 to continue the housekeeping activities and received an ED dose rate alarm. Dose rates in the area were as high as 238 mrem/hr at 30cm.

Analysis: The inspectors determined that the unauthorized entries into HRAs were performance deficiencies. 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

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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 SDP and determined to be of very low safety significance (Green). The finding 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. This finding involved the cross-cutting aspect of Human Performance, Work Practices [H.4.a] because the HRA events were a direct result of poor communications during pre-job briefings and a willingness on the part of licensee personnel to proceed in the face of uncertainty.

Enforcement: TS 5.7.1, High Radiation Area, requires individuals entering HRAs to meet one or more of the following criteria: 1) carry a survey meter; 2) wear an ED and be made aware of radiological conditions in the area; or 3) be escorted by a HP technician. Contrary to the above, on May 9, 2007, and on August 16, 2007, plant personnel entered HRAs without a survey meter, without being aware of radiological conditions in the area, or without HP technician escort. Because the violation is of very low safety significance and has been entered into the licensee's CAP (CR 2007105476 and CR 2007108830), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000424/425, 2008005-01, Unauthorized Entries Into High Radiation Areas.

2OS2 ALARA Planning and Controls

a. Inspection Scope

The inspectors reviewed ALARA program guidance and its implementation for ongoing 2R13 job tasks. The inspectors evaluated the accuracy of ALARA work planning and dose budgeting, observed implementation of ALARA initiatives and radiation controls for selected jobs in-progress, assessed the effectiveness of source-term reduction efforts, and reviewed historical dose information.

ALARA planning documents and procedural guidance were reviewed and projected dose estimates were compared to actual dose expenditures for the following high dose jobs: scaffolding installation/removal, reactor vessel head work, steam generator maintenance activities, motor operated valve (MOV) testing and maintenance, and installation of the external neutron monitoring system inside containment. Differences between budgeted dose and actual exposure received were discussed with cognizant ALARA staff. Changes to dose budgets relative to changes in radiation source term and/or job scope were also discussed. The inspectors attended pre-job briefings and evaluated the communication of ALARA goals, RWP requirements, and industry lessons-learned to job crew personnel.

The inspectors made direct field or closed-circuit-video observations of outage job tasks involving work inside Unit 2 containment. For the selected tasks, the inspectors evaluated radworker and HPT job performance, individual and collective dose expenditure versus percentage of job completion, surveys of the work areas, appropriateness of RWP requirements, and adequacy of implemented administrative and physical controls.

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Implementation and effectiveness of selected program initiatives with respect to source-term reduction were evaluated. Chemistry program ALARA initiatives and their effect on containment and auxiliary building dose rate trends were reviewed.

Plant exposure history for 2005 through 2008 year-to-date, and data reported to the NRC pursuant to 10 CFR 20.2206 were reviewed, as were established goals for reducing collective exposure during the current 2R13 outage. The inspectors reviewed procedural guidance for dosimetry issuance and exposure tracking. The inspectors also examined dose records of declared pregnant workers to evaluate assignment of gestation dose.

ALARA program activities and their implementation were reviewed against 10 CFR Part 20, and approved licensee procedures. In addition, licensee performance was evaluated against guidance contained in Regulatory Guide (RG) 8.8, Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be As Low As Reasonably Achievable, and RG 8.13, Instruction Concerning Prenatal Radiation Exposure. Documents reviewed are listed in of the Attachment. The inspectors completed 20 samples of specified line-items in IP 71121.02 to close the procedure.

Problem Identification and Resolution. The inspectors reviewed selected CR and Action Item (AI) data in the area of exposure control. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with NMP-GM-002. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

Groundwater Monitoring. The inspectors discussed current and future programs for onsite groundwater monitoring with chemistry specialists and corporate staff, including number and placement of monitoring wells and identification of plant systems with the greatest potential for contaminated leakage. The inspectors also reviewed procedural guidance for identifying and assessing onsite spills and leaks of contaminated fluids. In addition, the inspectors reviewed records of historical and recent contaminated spills retained for decommissioning purposes as required by 10 CFR Part 50.75(g).

The licensee has installed a number of onsite groundwater monitoring wells; optimally located to detect contamination based on recent hydrological studies. The sample results from these wells were included in the Annual Radiological Environmental Monitoring Program Report. For the period reviewed, all monitoring well results were

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below reporting limits (20,000 pCi/L for drinking water and 30,000 pCi/L for non-drinking water).

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation

a. Inspection Scope

Waste Processing and Characterization During inspector walk-downs, accessible sections of the liquid and solid radwaste processing systems were assessed for material condition and conformance with system design diagrams. Inspected equipment included floor drain tanks; resin transfer piping; resin and filter packaging components; and abandoned evaporator equipment. The inspectors discussed component function, processing system changes, and radwaste program implementation with licensee staff.

The 2007 Effluent Report and radionuclide characterizations from 2007 - 2008 for each major waste stream were reviewed and discussed with radwaste staff. For primary filters and Dry Active Waste (DAW) the inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined comparison results between licensee waste stream characterizations and outside laboratory data. Waste stream mixing and concentration averaging methodology for spent resin and primary filters were evaluated and discussed with radwaste operators. The inspectors also reviewed the licensee's procedural guidance for monitoring changes in waste stream isotopic mixtures.

Radwaste processing activities and equipment configuration were reviewed for compliance with the licensee's Process Control Program and UFSAR, Chapter 11. Waste stream characterization analyses were reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 61, and guidance provided in the Branch Technical Position on Waste Classification and Waste Form. Reviewed documents are listed in Section 2PS2 of the report Attachment.

Transportation The inspectors directly observed preparation activities for a shipment of contaminated laundry. The inspectors noted package markings and placarding, observed dose rate measurements, and interviewed shipping technicians regarding Department of Transportation (DOT) regulations.

Five shipping records were reviewed for consistency with licensee procedures and compliance with NRC and DOT regulations. The inspectors reviewed emergency response information, DOT shipping package classification, radiation survey results, and evaluated whether licensees' in receiving were authorized to accept the packages. Procedures for opening and closing Type B shipping casks were compared to Certificate of Compliance requirements. In addition, training records for selected individuals currently qualified to facilitate the shipment of radioactive material were reviewed.

Transportation program implementation was reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 71, 49 CFR Parts 172-178; as well as the guidance provided in NUREG-1608, Categorizing and Transporting Low Specific Activity Materials and Surface Contaminated Objects. Training activities were assessed against 49 CFR Part 172 Subpart H. Documents reviewed are listed in the Attachment. The inspectors completed 6 of 6 samples as required by IP 71122.02.

Problem Identification and Resolution Selected CRs in the area of radwaste processing and transportation were reviewed in detail and discussed with licensee personnel. The inspectors assessed the licensee's ability to characterize, prioritize, and resolve the identified issues in accordance with licensee procedure NMP-GM-002. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Licensee CAP documents reviewed are listed in Section 2PS2 of the report Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

40A1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee submittals for the listed PIs during the period from July 1, 2007 through June 30, 2008, 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 procedure 00163-C, NRC Performance Indicator and Monthly Operating Report Preparation and Submittal, and Nuclear Energy Institute document NEI 99-02, Regulatory Assessment Indicator Guideline.

Cornerstone: Mitigating Systems

- Mitigating Systems Performance Index (MSPI), Cooling Water Systems
- MSPI, Emergency AC Power Systems
- Safety System Functional Failures

The inspectors reviewed Unit 1 and Unit 2 operator log entries, the Vogtle Electric Generating Plant Unit 1 and Unit 2 NRC Mitigating System Performance Index Basis Document, the monthly operating reports and monthly PI summary reports to verify that the licensee had accurately submitted the PI data.

Cornerstone: Occupational Radiation Safety

- Occupational Exposure Control Effectiveness

The inspectors reviewed PI data collected from January 1, 2007, through September 30, 2008. For the reviewed period, the inspectors assessed CAP records to determine whether HRA, VHRA, or unplanned exposures, resulting in TS or 10 CFR 20 non-

conformances, had occurred during the review period. In addition, the inspectors reviewed selected personnel contamination event data, internal dose assessment results, and ED alarms for cumulative doses and/or dose rates exceeding established set-points. Documents reviewed are listed in the Attachment.

Cornerstone: Public Radiation Safety

- Radiological Control Effluent Release Occurrences

The inspectors reviewed the PI results for the period of January 1, 2007, through September 30, 2008. For the assessment period, the inspectors reviewed cumulative and projected doses to the public, out-of-service effluent radiation monitors and compensatory sampling data. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance 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 Review

a. Inspection Scope

The inspectors performed a detailed review of the work-around lists for Unit 1 and 2 that were in effect on October 28. The inspectors reviewed the licensee's list to determine whether any items would adversely affect the operators' ability to implement abnormal or emergency operating procedures. The inspectors reviewed proposed corrective actions and schedule for each item on the work-around list. The inspectors reviewed the compensatory actions and cumulative effects on plant operation. The inspectors verified each item was being dispositioned in accordance with plant procedure 10025-C, Work Around Program. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified.

.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 July 2008 through December 2008 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. The inspectors compared and contrasted their results with the results contained in the licensee's two latest Integrated Performance Assessments. 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 and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified. The inspectors compared the licensee Integrated Performance Assessments with the results of the inspectors' daily screening and did not identify any discrepancies or potential trends in the data that the licensee had failed to identify.

40A5 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.

b. Findings and Observations

No findings of significance were identified.

.2 (Closed) Unresolved Item 05000424/2008003-02: Steam Generator (SG) Tube Damage as a Result of Tube Pulling Activities

The inspectors evaluated additional information regarding SG tube damage caused by tube pulling activities. Specifically, several tubes adjacent to tube R11C62 in SG Number 4 suffered damage when the licensee vendor attempted to remove a section of tube R11C62 assuming that the tube was completely cut. The vendor's Root Cause

Analysis determined, in part, that the cause of the issue was incorrect setting of cutting tool rotation in conjunction with insufficient detail of the acceptance criteria of for tube cutting in the vendor's procedure.

The vendor initiated corrective actions to revise the tube pulling procedure in order to ensure that correct rotation is verified prior to begin tube cutting activities and to enhance the requirements for confirmation that a tube is severed after a cutting operation. In addition, the licensee initiated corrective actions to track the implementation of the vendor's corrective actions for future onsite SG work and to improve vendor oversight by requiring SG vendors to identify and notify the licensee about all critical hold-points for SG activities.

The damaged tubes were re-inspected with Eddy Current Testing, stabilized, and repaired by plugging before the Unit returned to normal operation. The licensee performed an "Operational Assessment" and determined that the repaired tubes, as well as the rest of the tubes left in service, would maintain their structural integrity until the next inspection opportunity. The inspectors concluded that this issue resulted in no findings of significance based on the results of the Root Cause Analysis and Operational Assessment, planned corrective actions, discussions with the licensee, and the fact that the SG tube damage and repairs occurred while the plant was in a safe condition.

4OA6 Meetings, Including Exit

.1 Exit Meeting

On January 15, 2009, the resident inspectors presented the inspection results to Mr. T. 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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

R. Brown, Training and Emergency Preparedness Manager
C. Buck, Chemistry Manager
W. Copeland, Performance Analysis Supervisor
R. Dedrickson, Plant Manager
K. Dyar, Security Manager
I. Kochery, Health Physics Manager
J. Robinson, Work Control Superintendent
T. Tynan, Site Vice-President
D. Vineyard, Operations Manager
J. Williams, Site Support Manager
T. Youngblood, Site Engineering Manager

NRC personnel:

S. Shaeffer, Chief, Region II Reactor Projects Branch 2

LIST OF ITEMS OPENED AND CLOSED

Opened and Closed

05000424, 425/2008005-01 NCV Unauthorized Entries Into High Radiation Areas
(Section 2OS1)

Closed

05000424/2008003-02 URI Steam Generator Tube Damage as a Result of Tube
Pulling Activities (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

11901-1, Heat Tracing System Alignment
11901-2, Heat Tracing System Alignment
1877-1, Cold Weather Checklist
1877-2, Cold Weather Checklist

System Health Reports

Heat Tracing System (1817)

Section 1R04: Equipment Alignment

Procedures

11610-2, Auxiliary Feedwater System Alignment
11146-1, Diesel Generator Fuel Oil Transfer System Alignment
11145-1, Diesel Generator Alignment
11150-1, Nuclear Service Cooling Water System Alignment

Drawings

2X4DB161-1, 2, 3, Auxiliary Feedwater System
 1X4DB170-2, P&I Diagram Diesel Generator System Train B
 1X4DB133-2, P&I Diagram Nuclear Service Cooling Water System
 1X4DB134, P&I Diagram Nuclear Service Cooling Water System
 1X4DB135-1, P&I Diagram Nuclear Service Cooling Water System
 1X4DB135-2, P&I Diagram Nuclear Service Cooling Water System

System Health Reports

Auxiliary Feedwater System 1302A, Third Quarter 2008

Section 1R05: Fire ProtectionProcedures

Procedure 92865-2, Zone 165 – Diesel Generator Tanks and Pumphouse Fire Fighting Preplan
 Procedure 92866-2, Zone 166 – Diesel Generator Tanks and Pumphouse Fire Fighting Preplan
 Procedure 92839-1, Zone 139 – Fuel Handling Building – Level 1 Fire Fighting Preplan
 Procedure 92731-1, Zone 31 – Auxiliary Building – Level B Fire Fighting Preplan
 Procedure 92732-1, Zone 32 – Auxiliary Building – Level B Fire Fighting Preplan
 Procedure 92730-2, Zone 30 – Auxiliary Building – Level B Fire Fighting Preplan
 Procedure 92733-2, Zone 33 – Auxiliary Building – Level B Fire Fighting Preplan

Section 1R08: In-service Inspection ActivitiesProcedures

Procedure NMP-ES-024-208, Version 1.0, Visual Exam of Reactor Vessel Head Penetrations & Base Material (Remote & Direct)
 Procedure NMP-ES-024-506, Version 1, Manual UT Exam of Non-PDI, Full Penetration Welds.
 Procedure Number 00435-C, Revision 5.3, Boric Acid Corrosion Control Program.
 Procedure Number 83201-C rev 7.1, Boric Acid Corrosion Assessment.
 Westinghouse Procedure Number MRS 2.4.2 GPC-37, Steam Generator Eddy Current Data Analysis Techniques for Vogtle Units 1&2, Rev 14
 Westinghouse Procedure MRS-TRC-1910, Use of Appendix H Qualified Techniques at Vogtle Unit 2 13th Refueling, Rev 0

Calculations

Vogtle Unit 2 Determination of RPV head Effective Degradation years, June 24, 2008.
 CAV-NF-1561, EFPY Operation of Vogtle with Projection to the EOC Burnup for the Current Operating Cycle on Unit 2, June 4, 2008.
 Calculation Note DDM-96-009, Documentation of Appendix H Compliance and Equivalency, Rev 0

Corrective Action Documents

2008104461, 2008102122, 2007106211, 2007110612, 2008108419, 2008110436, 2008110460

Other

Boric Acid Corrosion Assessments: 1204-2007-004, 1204-2008-04, 1204-2008-011, 1204-2008-013.
 VGEP Unit 2, Boric Acid Leak Summary report, September 21, 2008.
 Work Orders 2070719501, 2070668801, 2070628701, 2070668701, 2053288601, 2053288501,

UT Calibration/Examination Record for Report Number S08V2U055 and S08V2U056.
 Certified Test Report for Ultrigel II Couplant Batch: 06225.
 RT Film for welds associated with Work Order Number 2070570001.
 Radiography (RT) examination film of welds associated with Q.I.S. Work Order No. 08-70-0658
 (ASME Section III and V NDE).
 Training and qualification records for 4 LMT Test operators and data analysts.
 CN-RIDA-07-40, Westinghouse Thermal Sleeve Wear Criteria Analysis, Rev O.
 NL-05-0990, Vogtle Unit 2 Response to NRC Request for Additional Information Regarding
 relaxation from First Revision of NRC Order EA-03-009, July 1, 2005.
 NL-05-1672, Vogtle Unit 1 & 2 Relaxation of Requirements Associated with the First revised
 Order EA-03-009, Feb 20, 2004.
 NL-07-1260, Vogtle Unit 2 Results of RPV Inspections Required by First Revised Order EA-03-
 009, June 21, 2007.
 Reactor Vessel Exam Summary Record, Year 2007 for Vogtle Unit 2.
 Vogtle Unit 2 Performance Demonstration Initiative Program Procedure: PDI-UT-2, Revision C,
 Addenda 3, Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds.
 Southern Nuclear Study Guide for General Employee Training Topics, January 2008.
 NMP-ES-004-GL01, Steam Generator Program Strategic Plan, April 2008.
 Vogtle Steam Generator Program Secondary Side Plan, April 2008
 SG-CDME-08-31, Steam Generator Degradation Assessment for Vogtle Unit 2 September 2008
 Outage (2R13)
 Operating License Amendment No. 133 to Facility Operating License NPF-81, Accession No
 ML082530044, September 16, 2008
 Personnel Qualification Records for various ECT personnel
 Certificates of Conformance for various ECT probes
 Certificate of Calibration for OMNI-200 ECT testers 221038 and 221041
 EPRI ETSS # 20510.1, Rev 6
 EPRI ETSS # 20511.1, Rev 8
 EPRI ETSS # 21409.1, Rev 5
 EPRI ETSS # 21410.1, Rev6
 Westinghouse ANTS GBE-A-108, Rev 1
 Westinghouse ANTS GBE-B-108, Rev 0
 Westinghouse ANTS GBE-C-108, Rev 0
 Westinghouse ANTS GBE-D-108, Rev 0
 Westinghouse ANTS GBE-E-108, Rev 0
 Westinghouse ACTS, GBE-06-108, Rev 0
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2007 Annual Radioactive Effluent Release Report

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RCS Filter Waste Stream Analysis, 2008

Shipments 06-007, 07-017, 07-019, 07-022, 08-008

CAP Documents

VQA-2006-042, QA Audit of Chemistry and Radioactive Waste, 12/6/06

CR 2008110945, 2008107446, 2007105876, 2007105502

Section 1R20: Refueling and Other Outage ActivitiesProcedures

12005-C, Reactor Shutdown to Hot Standby (Mode 2 to Mode 3)

12006-C, Unit Cooldown to Cold Shutdown

12007-C, Refueling Operations

12001-C, Unit Heatup to Hot Shutdown

12002-C, Unit Heatup to Normal Operating Temperature

12003-C, Reactor Startup (Mode 3 to Mode 2)

14900-C, Containment Exit Inspection

Section 4OA1: Performance Indicator VerificationProcedures

Procedure No. 00163-C, NRC Performance Indicator and Monthly Operating Report Preparation and Submittal, Rev. 13.2

Procedure No. 34331-C, Management of DRMS Status and Parameters, Rev. 24.1

Procedure No. 34333-C, Gaseous Effluent Monitor Setup For Releases, Rev. 7

Records and Data Reviewed

Access Control Alarms Report, August 2007 – September 2008

Personnel Contamination Event/Records January 1, 2008, through September 31, 2008

Gaseous waste permit 70250.020.048.G, Unit 1, Continuous Gaseous Effluent Permit

Gaseous waste permit 70256.025.098.G, Unit 1, Batch Gaseous Effluent Permit

Gaseous Permit No. G-20081006-298-C, Unit 1, Plant Vent Continuous Release

Gaseous Permit No. G-20081006-297-B, Unit 2 Containment Batch Release

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CAP Documents

CR 2006111265, CR 2007112260, CR 2008109286

Section 40A2: Identification and Resolution of Problems

Procedures/Calculations/Engineering Documents

10025-C, Work Around Program, Revision 3

Unit 1 Operator Burdens and Workarounds List

Unit 2 Operator Burdens and Workarounds List

Condition Reports: 2008100397, 2008101130, 2008101535, 2008101550, 2008101570, 2008101792, 2008101829, 2008101855, 2008101914, 2008101946, 2008102012, 2008102019, 2008102031, 2008102047, 2008102059, 2008102078, 2008102128, 2008102161, 2008102189, 2008103582, 2008105478, 2008105657

Action Items: 2008201942 and 2008203528