



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

January 22, 2007

Southern Nuclear Operating Company, Inc.
ATTN: Mr. T. E. Tynan
Vice President - Vogtle
P. O. Box 1295
Birmingham, AL 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION
REPORT 05000424/2006005 AND 05000425/2006005

Dear Mr. Tynan:

On December 31, 2006, 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 results, which were discussed on January 11, 2007, 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 NRC-identified finding of very low safety significance (Green) which was determined to involve a violation of NRC requirements. However, because the violation is of very low safety significance and because it is entered into your corrective action program, the NRC is treating this violation as a non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. 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 United States 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 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

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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, NPF-81

Enclosure: Inspection Report 05000424/2006005
and 05000425/2006005
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to T. E. Tynan from Scott M. Shaeffer date January 22, 2007

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION
REPORT 05000424/2006005 AND 05000425/2006005

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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.: 05000424/2006005 and 05000425/2006005

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Electric Generating Plant, Units 1 and 2

Location: Waynesboro, GA 30830

Dates: October 1, 2006 through December 31, 2006

Inspectors: G. McCoy, Senior (Sr.) Resident Inspector
B. Anderson, Resident Inspector
J. Rivera-Ortiz, Reactor Inspector (Section 1R08)
R. Chou, Reactor Inspector (Section 1R08)
B. Caballero, Operations Engineer (Section 1R11)
A. Nielsen, Health Physicist (Sections 2OS1, 2PS1, and 4OA1)
H. Gepford, Sr. Health Physicist (Sections 2OS2 and 4OA1)
W. Loo, Sr. Health Physicist (Section 2PS2)
B. Miller, Reactor Inspector (Section 4OA5.2)
R. Taylor, Reactor Inspector (Section 4OA5.3)

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

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SUMMARY OF FINDINGS

IR 05000424/2006-005, 05000425/2006-005; 10/01/2006 - 12/31/2006; Vogtle Electric Generating Plant, Units 1 and 2; ALARA Planning and Controls.

The report covered a three-month period of inspection by resident inspectors, health physicists, reactor inspectors, and an operations engineer. One Green NRC-identified non-cited violation was identified. The significance of most findings is indicated by its color (Green, White, Yellow, or Red) using Inspection Manual Chapter (IMC) 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 NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Occupational Radiation Safety

- Green. The inspectors identified a non-cited violation (NCV) of 10 CFR Part 20.1703(a) for the use of respiratory protection equipment that had not been certified as safe by the National Institute for Occupational Safety and Health (NIOSH). The licensee discontinued use of the respiratory protection equipment and the issue was entered into the corrective action program under condition report (CR) number 2006111584.

The finding is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of Equipment and Instrumentation and adversely affects the cornerstone objective of protecting worker health and safety from exposure to radiation. When using non-NIOSH approved respirators to limit intake of radioactive material, the potential exists to put workers in a situation that may be more hazardous than the radiological dangers that the respirator is meant to protect against (e.g. loss of air flow). The finding was determined to be of very low safety significance because it was not an As Low As Reasonably Achievable (ALARA) planning issue, there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised. (Section 2OS2)

B. Licensee-Identified Violations

None.

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REPORT DETAILS

Summary of Plant Status

Unit 1 started the inspection period in a refueling outage. The unit was restarted on October 29 and reached effective full rated thermal power (RTP) on November 2. The unit remained at full RTP for the remainder of the inspection period.

Unit 2 operated at full RTP for 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 CR database to verify that adverse weather related items were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

- North and south fire pump houses
- Unit 2 nuclear service cooling water (NSCW) system

Impending Adverse Weather Condition. The inspectors reviewed procedures 11889-C, Severe Weather Checklist, and 20054-C, Maintenance Support for the Severe Weather Checklist to verify that the licensee was prepared to implement actions when severe thunderstorms were predicted for the Burke County area. The inspectors walked down the outside areas of the plant to identify the presence of loose materials which could affect the operation of plant equipment. The NSCW cooling towers were walked down to determine the condition of the cooling tower screens.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial Walkdowns. The inspectors performed partial walkdowns of the following two systems to verify correct system alignment. The inspectors checked for correct valve

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and electrical power alignments by comparing positions of valves, switches, and breakers to the procedures and drawings listed in the Attachment. Additionally, the inspectors reviewed the CR database to verify that equipment alignment problems were being identified and appropriately resolved.

- Unit 1 auxiliary feedwater system (AFW) after plant startup following a refueling outage
- Unit 1 train A control room emergency filtration system (CREFS) during train B CREFS planned maintenance outage

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors walked down the following six 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 control building level A east penetration areas
- Unit 2 control building level B west penetration areas
- Unit 1 control building level B west penetration areas
- Unit 2 auxiliary component cooling water (ACCW) heat exchanger rooms
- Fuel handling building east penetration areas
- Fuel handling building west penetration areas

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) Activities

a. Inspection Scope

Piping Systems ISI. 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 system boundaries. The inspectors reviewed a sample from the

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following activities performed during the Unit 1 Fall 2006 refueling outage: a) 1989 Edition/No Addenda of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI required nondestructive examinations (NDE), b) augmented examinations of alloy 600 welds, c) examinations to meet TS 5.5.16, "Main Steam (MS) and Feedwater (FW) Piping Inspection Program," d) disposition of NDE recordable indications, and e) welding activities in ASME Class 2 piping as part of repair and replacement activities. The inspectors reviewed NDE procedures, NDE reports, NDE electronic data (as applicable), equipment calibration and certification records, and personnel qualification records for the following NDE activities.

- Ultrasonic (UT) and supplemental eddy current (ECT) examinations of Reactor Pressure Vessel (RPV) inlet nozzle dissimilar metal (DM) welds W35 and W39
- UT examination of RPV intermediate to lower shell circumferential weld W5
- UT examination of RPV intermediate longitudinal seam weld W15
- UT and ECT examination of RPV bottom mounted instrumentation penetration 49
- Visual (VT) examination of core support structure, upper core support plate, and core barrel
- Enhanced VT examination of inner radius area for RPV outlet nozzle N-1
- VT examination of RPV head interior and washers

The inspectors also reviewed procedures, NDE reports, equipment calibration records, and personnel qualification records for the following VT-2 activities (examination for leakage) performed to meet the examination requirements of the Material Reliability Program (MRP-139) for Alloy 600 welds:

- VT-2 examination of RPV Outlet Nozzles to safe end welds for RPV nozzles N1, N4, N5, and N8
- VT-2 examination of RPV Inlet Nozzles to safe end welds for RPV nozzles N2, N3, N6, and N7
- VT-2 examination of Pressurizer safety nozzles to safe end welds (6-inch diameter)
- VT-2 examination of Pressurizer relief nozzle to safe end weld (6-inch diameter)
- VT-2 examination of Pressurizer spray nozzle to safe end weld (4-inch diameter)
- VT-2 examination of Pressurizer surge line to safe end weld (14-inch diameter)

In addition, the inspectors reviewed procedures, NDE reports, equipment and consumables certification records, and personnel qualification records for the following NDE activities performed to ensure the requirements of TS 5.5.16 were met:

- UT examination of weld 11301-002-1-RI (penetration to 28-inch diameter pipe, MS system)
- UT examination of weld 11301-002-2-RI (28-inch diameter pipe to pipe, MS system)
- UT examination of weld 11301-002-8 (29 1/2-inch diameter pipe to valve, MS system)
- UT examination of weld 11301-003-5-RI (29 1/2-inch diameter pipe to valve, MS system)
- UT examination of weld 11305-062-2 (16-inch pipe to 6-inch branch connection, FW system)
- UT examination of weld 11305-062-5 (16-inch valve to pipe, FW system)

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The inspectors reviewed a sample of UT recordable indications to verify that the evaluation and disposition of indications were in accordance with the applicable edition of ASME Section XI, IWB-3000. Specifically, the inspectors reviewed the disposition of indications for the following welds:

- Weld No. 11201-V6-002-W05, Pressurizer lower shell to lower head weld, ASME Class 1 (NOTE: The examination and disposition was performed in March 2005)
- Weld No. W35, RPV Inlet Nozzle DM weld, ASME Class 1 (NOTE: At the time of the NRC inspection, the licensee was evaluating a potential Relief Request submittal for the flaw size results obtained, since the NDE procedure used was qualified in accordance with the Performance Demonstration Initiative for flaw detection, but not for flaw sizing)

The inspectors reviewed a sample of welding activities performed since the beginning of the last refueling outage for ASME Class 2 piping to evaluate compliance with procedures and the ASME Code. Specifically, the inspectors reviewed weld process control sheets, welding procedure specifications, welding procedure qualification records, welder qualification records, Certified Material Test Reports for weld material, ASME Code reconciliation documents, and NDE reports for the following travelers:

- Traveler 03081, installation of valve 1-1205-U4-021 and associated piping, Residual Heat Removal System
- Traveler 03083, installation of valve 1-1205-U4-022 and associated piping, Residual Heat Removal System

Boric Acid Corrosion Control (BACC) Program. 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. The inspectors performed an on-site record review of procedures and condition reports documenting the results of containment walkdown inspections performed during the Unit 1 refueling outage. The inspectors also conducted an independent walk-down of the reactor building to verify that boric acid leaks were properly identified and corrected. The inspectors reviewed the following engineering evaluations to verify that the minimum design code required section thickness had been maintained for the affected components.

- Leak No. 1206-2005-007, Evaluation performed on 1A Containment Spray Pump suction flange
- Leak No. 1204-2005-050, Evaluation performed on valve 1-1204-X4-213, Safety Injection System
- Leak No. 1204-2006-005, Evaluation performed on valve 1-1204-U4-134, Safety Injection System

Steam Generator (SG) Tube Inspection Activities. The inspectors reviewed activities, plans, pre-outage degradation assessment, condition monitoring and operating assessment, and procedures for the inspection and evaluation of the steam generator Inconel Alloy 600TT tubing for all four Unit 1 SGs to verify the activities were being conducted in accordance with Technical Specifications and applicable industry

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standards. The inspectors reviewed data results for tubes for Bobbin and Rotating Probe Inspections of SG 2 - R1C70, R1C88, R2C109, R13C10, R16C31, R35C26, R39C26, and R41C33 and SG 3 - R2C118, R5C118, and R6C112 to verify the adequacy of the licensee's primary, secondary, and resolution analyses. The inspectors reviewed a video tape of the video examination for removal of foreign objects in the SG 2 secondary side. The inspectors reviewed Condition Report 2006111616 which identified some circumferential cracks on the tubes initially examined on SGs 2 and 3 to verify that the licensee recorded the tube cracks and expanded samples to inspect 100% of the tubes in SGs 2 and 3 and 20% for SGs 1 and 4 as required by EPRI examination guidelines. The licensee identified the circumferential cracks also on the expanded 20% of samples in SGs 1 and 4 and eventually expanded the sample to examine 100% of the tubes in both SGs. The licensee plugged all cracked tubes. The inspectors also reviewed data operators and analysts' certifications and qualifications, including medical examinations.

Identification and Resolution of Problems. The inspectors performed a review of ISI related problems, including welding, and BACC program that were identified by the licensee to verify they were entered into the corrective action program. The inspectors reviewed the CRs listed in the Attachment to verify 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 applicable to the plant.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

Quarterly Resident Observation. The inspectors evaluated operator performance on November 20, 2006 during licensed operator simulator training described on simulator exercise guide V-RQ-SE-06702. The simulator scenario covered operator actions resulting from pressurizer power operated relief valve (PORV) leakage and a loss of reactor coolant via a steam generator tube leak. Procedures 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 post-evaluation critique

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Annual review of Licensee Requalification Examination Results. On December 19, 2006 the licensee completed the comprehensive requalification biennial written examinations and annual operating tests, required to be given to all licensed operators pursuant to 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 Effectiveness

a. Inspection Scope

The inspectors reviewed the following two equipment problems 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 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, system health reports, the maintenance rule database, and maintenance work orders (MWOs). Also, the inspectors interviewed system engineers and the maintenance rule coordinator to assess the accuracy of identified performance deficiencies and extent of condition. Documents reviewed are listed in the Attachment.

- CR 2006109869, Failure of Unit 2 NSCW pump #1 during slave relay testing
- CR 2006113996, Inoperability of Unit 1 train A reactor vessel level instrumentation system (RVLIS)

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the following five risk significant and emergent MWOs 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

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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.

- Operations of Unit 1 and Unit 2 while Unit 1 reactor coolant system water level was at midloop
- Unit 1 train A safety injection pump outage
- Unit 1 NSCW pump number 6 out of service for maintenance
- Unit 1 train A emergency diesel generator out of service for head replacement
- Unit 2 normal charging pump mini-flow valve repair

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following six evaluations to verify they met the requirements of Nuclear Management Procedure (NMP)-GM-002, Corrective Action Program, and NMP-002-GL02, Corrective Action Program Details and Expectations Guideline. This scope included a review of the technical adequacy of the evaluations, the adequacy of compensatory measures, and the impact on continued plant operation.

- CR 2006111819, Inadvertent pressurization of the seal return header
- CR 2006111573, Improperly sized housing bolts installed during replacement of 1BB16 transformer (Unit 1 480V switchgear)
- CR 2006112662, Failure of NSCW pump to start during slave relay testing
- CR 2006112902, Incorrect gasket installed in Unit 1 train B safety injection pump lube oil cooler
- CR 2006112568, An air leak was discovered in the Unit 1 train B emergency diesel generator control panel
- CR 2006113450, The measured axial offset is higher than assumed in the Unit 1 reload evaluation

b. Findings

No findings of significance were identified. During the review of CR 2006113450, the resident inspectors raised issues relating to the measured axial offset and the calculation of the transient heat flux hot channel factor ($F_q(z)$) limits as described by the Core Operating Limits Report (COLR). The measured axial offset was outside the range which was assumed in the calculation of the thermal limits in the COLR. This issue is being discussed with technical experts and will remain open until this review is complete and is identified as an unresolved item (URI) 05000424/2006005-01, Measured Axial Offset is higher than assumed in the COLR.

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1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed Minor Design Change (MDC) No. 20618503, NSCW Relay Timing Change, to verify it met the requirements of procedure 50016-C, Minor Design Changes. The inspectors observed the performance of the design change on the Unit 2 number 5 NSCW pump. 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 five 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 was sufficient to meet the TS operability requirements.

- MWO 10609646, Unit 1 TDAFW governor valve bonnet gasket modification
- MWO 10618578, Unit 1 B-train reactor trip breaker replacement
- MWO 10620329, Unit 1 Accumulator #1 level indicator replacement
- MWO 10621583, Unit 1 A train emergency diesel generator cylinder head replacement
- MWO 20520364, Unit 2 train A SI pump breaker replacement

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The inspectors performed the inspection activities described below for the Unit 1 refueling outage that began on September 17, 2006.

- Reviewed the status and configuration of electrical systems to verify that those systems met TS requirements and the licensee's outage risk control plan.

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- Reviewed system alignments to verify that the flow paths, configurations, and alternative means for inventory addition were consistent with the outage risk plan.
- Reviewed the outage risk plan to verify that activities, systems, and/or components which could cause unexpected reactivity changes were identified in the outage risk plan and were controlled.
- Reviewed reactor coolant system (RCS) pressure, level, and temperature instruments to verify that the instruments provided accurate indication and that allowances were made for instrumentation errors.
- Observed decay heat removal parameters to verify that the system was properly functioning and providing cooling to the core.
- Reviewed selected control room operations to verify that the licensee was controlling reactivity in accordance with the technical specifications.
- Observed licensee control of containment penetrations to verify that the requirements of the technical specifications were met.
- Reviewed the licensee's plans for changing plant configurations to verify that technical specifications, license conditions, and other requirements, commitments, and administrative procedure prerequisites were met prior to changing plant configurations.
- Reviewed RCS boundary leakage and the setting of containment integrity.
- Examined the containment prior to reactor startup to verify that debris had not been left which could affect performance of the containment sumps.

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 technical specifications, and that configuration changes due to emergent work and unexpected conditions were controlled in accordance with the outage risk control plan.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the following five 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. Documents reviewed are listed in the Attachment.

Surveillance Tests

- 14985-1, Diesel Generator Interdependence Test
- 14546-2, Turbine Driven Auxiliary Feedwater Pump Operability Test
- 14666-1, Train A Diesel Generator and ESFAS Test

In-Service Tests

- 14721-1, ECCS Subsystem Flow Balance and Checkvalve Refueling Inservice Test

RCS Leak Detection Systems

- 14905-1, RCS Leakage Calculation (Inventory Balance)

b. Findings

No findings of significance were identified.

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 20, the inspectors observed a simulator-based exercise involving a loss of reactor coolant via a steam generator tube leak.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control To Radiologically Significant Areas

a. Inspection Scope

Access Controls The inspectors evaluated licensee guidance and its implementation for controlling worker access to radiologically significant areas and monitoring jobs in-progress associated with the 1R13 outage. The inspectors directly observed implementation of administrative and physical radiological controls; evaluated radiation

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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, high radiation areas (HRAs), and potential airborne radioactivity areas established within the radiologically controlled area (RCA) of the Unit 1 containment; Unit 1 and Unit 2 auxiliary 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. 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 and their implementation for storage of irradiated material within the spent fuel pool (SFP) were reviewed and discussed in detail. Established radiological controls were evaluated for selected 1R13 tasks including under-vessel Bottom Mounted Instrumentation (BMI) inspection, core barrel lift, steam generator (S/G) eddy current testing, S/G blowdown pipe replacement, reactor vessel head inspection, and radwaste processing and storage. In addition, licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations 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 and worker stay times were evaluated against area radiation survey results for under-vessel BMI inspection, S/G eddy current testing, and core barrel lift.

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 during current 1R13 activities were reviewed and assessed. For HRA tasks involving significant dose rate gradients, e.g. S/G eddy current testing and reactor vessel head inspection, the inspectors evaluated the use and placement of whole body and extremity dosimetry to monitor worker exposure. The inspectors also reviewed and discussed selected whole-body count analyses conducted during 1R13 and a previous Unit 2 outage.

Radiation protection activities were evaluated against the requirements of Updated Final Safety Analysis Report (UFSAR) Section 12; Technical Specifications (TS) Sections 5.4.1 and 5.7; 10 Code of Federal Regulations (CFR) Parts 19 and 20; and approved licensee procedures. Documents reviewed are listed in the Attachment. The inspectors completed 21 samples.

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Problem Identification and Resolution. Licensee Corrective Action Program (CAP) documents associated with access control to radiologically significant areas were reviewed and assessed. 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 NMP-GM-002-001, Corrective Action Program Instructions, Ver. 1.0. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

a. Inspection Scope

ALARA. The inspectors reviewed ALARA program guidance and its implementation for ongoing unit 1 refueling outage tasks as well as closed ALARA packages from refueling outages 2R11 and 1R12 (calendar year 2005). 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 high dose and/or high dose rate jobs including S/G nozzle dam installation, under head volumetric inspection, reactor vessel in-service inspection (ISI), S/G chemical cleaning, and scaffolding construction. 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 for high dose work and evaluated the communication of ALARA goals, RWP requirements, and industry lessons-learned to job crew personnel. The observations included briefings for under-vessel BMI inspection, S/G chemical cleaning, and lower internals reset. The inspectors also attended an ALARA committee meeting that evaluated the request to increase the dose budget for S/G chemical cleaning.

The inspectors made direct field or closed-circuit-video observations of outage job tasks involving S/G maintenance, S/G eddy current testing, staging of equipment, scaffolding, and lower internals reset. For the selected tasks, the inspectors evaluated radworker and HPT job performance, surveys of the work areas, appropriateness of RWP requirements, and adequacy of implemented engineering controls.

Implementation and effectiveness of selected program initiatives with respect to source-term reduction were evaluated. Chemistry program ALARA initiatives, including ultrasonic fuel cleaning, zinc addition, constant elevated pH, and chemical cleanup, and their effect on Unit 1 and Unit 2 containment and auxiliary building dose rate trends were reviewed. The effectiveness of temporary shielding installed on the polar crane cab for

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the reactor head lifts was assessed through review of pre-shielding versus post-shielding dose rate data and actual person-rem saved. The inspectors also reviewed administrative and engineering initiatives implemented to reduce doses.

Plant exposure history for calendar years 2003 through 2005 (three-year rolling average) was reviewed. The inspectors also reviewed selected monthly dose reports and daily RWP dose tracking worksheets. The inspectors reviewed and discussed the contents of the 2005 ALARA Report, which included ALARA details for the two outages completed in 2005. In addition, the inspectors examined dose records of selected 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 the Attachment. The inspectors completed 15 samples.

Problem Identification and Resolution. The inspectors reviewed selected CRs and self-assessments in the area of ALARA planning and exposure control. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with NMP-GM-002, Corrective Action Program Ver. 5. Documents reviewed are listed in the Attachment.

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR Part 20.1703(a) for the use of respiratory protection equipment during 1R13 that had not been tested and certified by NIOSH.

Description. On September 27, 2006, licensee workers used powered air-purifying respirator (PAPR) hoods in a contaminated area during SG nozzle dam installation. The hoods were used to relieve heat stress and to limit the number and severity of facial contaminations, thus limiting intakes of radioactive material. The inspectors noted that the PAPR hoods had not undergone a NIOSH certified testing program to ensure their intrinsic safety. PAPR hoods can fail (fan cut-off) and potentially inhibit breathing with no powered air flow. Inhalation/exhalation issues, along with other potential safety hazards such as hearing damage from the fan motor and flammability of the device, would be evaluated as part of the NIOSH certification process.

Analysis. The inspectors determined that this finding was a performance deficiency because licensees are expected to adhere to the regulations of 10 CFR Part 20 and the deficiency was reasonably within the licensee's ability to foresee and correct. The finding is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of Equipment and Instrumentation and adversely affects the cornerstone objective of protecting worker health and safety from exposure to radiation. When using uncertified respirators to limit intake of radioactive material, the potential

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exists to put workers in a situation that may be more hazardous (e.g. loss of air flow) than the radiological dangers that the respirator is meant to protect against. The finding was assessed using the Occupational Radiation Safety Significance Determination Process (SDP). The finding was determined to be of very low safety significance (Green) because it was not an ALARA planning issue, there was no overexposure or potential for overexposure, and the licensee's ability to assess dose was not compromised. The inspectors noted that no injuries occurred as a direct result of the use of these respirators by licensee workers. The inspectors also noted that the licensee discontinued use of the PAPR hoods as part of their immediate corrective actions.

Enforcement. 10 CFR Part 20.1703(a) states that, "The licensee shall use only respiratory protection equipment that is tested and certified by NIOSH". Contrary to this, on September 27, 2006, the licensee used respiratory protection equipment that had not been tested and certified by NIOSH. Since the PAPR hoods were used in a contaminated area and limited the intake of radioactive material, the requirements of 10 CFR Part 20.1703 are applicable. Because the failure to comply with 10 CFR Part 20.1703(a) was of very low safety significance and has been entered into the licensee's corrective action program as CR 2006111584, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 50-424, 425/2006005-02: Failure to Use Only NIOSH Certified Respiratory Protection Equipment.

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 supervisors, including number and placement of monitoring wells and identification of plant systems with the most potential for contaminated leakage. The inspectors reviewed and evaluated Off-site Dose Calculation Manual (ODCM) and procedural guidance for identifying and assessing onsite spills and leaks of contaminated fluids. In addition, the inspectors reviewed the licensee's 10 CFR Part 50.75(g) file and compared the contents with known contaminated spill locations. The inspectors also reviewed selected parts of the 2005 Annual Effluent Report dealing with abnormal releases. The inspectors completed three of the required samples.

b. Findings

No findings of significance were identified.

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2PS2 Radioactive Material Processing and Transportation

a. Inspection Scope

Waste Processing and Characterization. The inspectors evaluated the operability and installed configuration of selected liquid and solid radwaste processing systems and equipment. Inspection activities included document review, interviews with plant personnel, and direct inspection of processing equipment and piping in the auxiliary building, Radwaste Processing Facility (RPF), and the Alternate Radwaste Building (ARB).

The inspectors directly observed material condition and installed configurations for selected RPF and auxiliary building equipment and piping. The system engineer was interviewed regarding Process Control Program (PCP) equipment function and operability. Discussions were held with cognizant radwaste operators to assess their knowledge of resin sluicing and dewatering operations. The material condition of ARB radwaste processing equipment abandoned in place was observed and discussed during tours.

For selected radwaste material sent to licensed processing or burial facilities the inspectors reviewed and discussed waste stream sampling activities; licensee gamma spectroscopy data; and offsite vendor sample sizes and associated detection capabilities for 10 CFR Part 61.55 analyses. The licensee's sampling method for waste stream analyses and the use of scaling factors for hard-to-detect nuclides were assessed. Waste characterizations for dry active waste (DAW) and selected drums containing spent filters and trash were reviewed in detail. The most recent audit of the offsite Part 61.55 vendor's quality program was reviewed and evaluated. In addition, DAW waste stream radionuclide data were reviewed for consistency in radionuclide composition.

Program implementation was evaluated against 10 CFR Part 61.55; licensee PCP requirements; the Branch Technical Position on Radioactive Waste Classification; UFSAR Section 11.4, and the approved procedures listed in Section 2PS2 of the report Attachment.

Transportation. The inspectors directly observed preparation activities for shipments of pressurizer code safety valves and contaminated laundry. The inspectors noted package markings and placarding and interviewed shipping technicians regarding Department of Transportation (DOT) regulations. The inspectors observed dose rate surveys of the shipping packages and compared the results to DOT limits. For the laundry shipment, the inspectors observed the licensee discuss the shipping paperwork, including emergency response information, with the driver. The inspectors then called the emergency phone number to determine whether individuals were aware of the laundry shipment and could provide the appropriate emergency response guidance.

The inspectors assessed selected shipping-related procedures and practices for compliance with applicable regulatory requirements. In addition, records and surveys for selected shipments made during calendar years 2005 and 2006 were reviewed.

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Transportation program guidance and implementation were reviewed against requirements detailed in 10 CFR Part 71, 49 CFR Parts 170-189, and applicable licensee procedures. Documents reviewed are listed in Section 2PS2 of the report Attachment. The inspectors completed six samples.

Problem Identification and Resolution. Licensee CRs and self-assessments associated with PCP and transportation activities were reviewed and evaluated. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with NMP-GM-002, Corrective Action Program, Version 5.0. Documents reviewed are listed in the Attachment.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee submittals for the PIs indicated below for the period from October 2005 through September 2006. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 4, were used to verify the basis in reporting for each data element.

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness

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.

Public Radiation Safety Cornerstone

- Radiological Environmental Technical Specifications (RETS)/ODCM Radiological Effluent Occurrences

The inspectors reviewed selected radiological liquid and gaseous effluent release data, any abnormal release results reported in the 2005 Annual Effluent Report, procedural guidance for reporting PI information, and selected CRs listed in the Attachment.

b. Findings

No findings of significance were identified.

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4OA2 Identification and Resolution of Problems

.1 Daily Screening of Corrective Action Items

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 Annual Sample Review

a. Inspection Scope

The inspectors reviewed licensee actions to identify, evaluate, and resolve vibration related issues that had occurred since September 2004. The inspectors performed a detailed review in order to (1) identify long-standing vibration issues that did not have long term corrective actions, (2) assess the use of corporate vibration expertise and the use of external assistance during the review of vibration related issues, and (3) identify trends that could indicate the existence of a more significant safety issue caused by vibration. The inspectors performed a review of seventy-four CRs to verify that the full extent of the issues was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated these vibration related CRs against the licensee's corrective action program as delineated in licensee procedure NMP-GM-002, Corrective Action Program, and 10 CFR 50, appendix B. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a trend review to determine if trends were identified outside the corrective action program that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector corrective action program item screening discussed above, licensee trending efforts, and licensee human performance results. The review also considered the results of the daily screening, licensee trending efforts, and licensee human performance improvement efforts. The inspectors' review nominally considered the six month period of July through December 2006, although some examples expanded beyond those dates when the scope of the trend warranted.

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The review included the following areas/documents:

- CR trend reports for February through April 2006
- NRC performance indicators and departmental performance measures
- system health reports
- quality assurance audit /surveillance reports
- self assessment reports
- maintenance rule program reports including a(1) list

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 of significance were identified. In general, the inspectors found that the licensee's trending of issues has been effective in identifying and preventing problems from becoming more significant.

4OA3 Event Followup

(Closed) Licensee Event Reports (LERs) 05000425/2004004-00 and -01: Automatic Reactor Trip followed by Safety Injection

The inspectors reviewed the LER, CR 2004151063, and Event Report 2-2004-02 to verify the cause of the November 20, 2004, Unit 2 reactor trip was identified and that corrective actions were reasonable. The automatic reactor trip was caused by an operator mispositioning a switch during testing of the solid state protection system. The subsequent safety injection was caused by the failure of the loop 2 reactor coolant system average temperature instrument. The operator error which caused the reactor trip was previously cited as a non-cited violation 05000424/2004006-01 "Failure to Correctly Implement Surveillance Procedure." The inspectors observed plant parameters for mitigating systems and fission product barriers, evaluated performance of systems and operators, and confirmed proper classification and reporting of the event. No findings of significance were identified.

4OA5 Other Activities

.1 (Closed) NRC Temporary Instruction (TI) 2515/169, Mitigating Systems Performance Index (MSPI) Verification

a. Inspection Scope

During this inspection period, the inspectors completed a review of the licensee's implementation of the Mitigating Systems Performance Index (MSPI) guidance for reporting unavailability and unreliability of monitored safety systems in accordance with Temporary Instruction 2515/169.

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The inspectors examined the surveillances that the licensee determined would not render the train unavailable for greater than 15 minutes or during which the system could be promptly restored through operator action and therefore, are not included in unavailability calculations. As part of this review, the recovery actions were verified to be uncomplicated and documented in written procedures.

On a sample basis, the inspectors reviewed operating logs, work history information, maintenance rule information, corrective action program documents, and surveillance procedures to determine the actual time periods the MSPI systems were not available due to planned and unplanned activities. The results were then compared to the baseline planned, actual planned and actual unplanned unavailability determined by the licensee to ensure the data's accuracy and completeness. Likewise, these documents were reviewed to ensure MSPI component unreliability data determined by the licensee identified and properly characterized the failures of monitored components. The unavailability and unreliability data were then compared with performance indicator data submitted to the NRC to ensure it accurately reflected the performance history of these systems.

b. Findings and Observations

No findings of significance were identified. The licensee accurately documented the baseline planned unavailability hours, the actual unavailability hours and the actual unreliability information for the MSPI systems. No significant errors which resulted in a change to the indicated index color were identified. No significant discrepancies were identified in the MSPI basis document which resulted in: (1) a change to the system boundary, (2) an addition of a monitored component, or (3) a change in the reported index color.

.2 (Closed) NRC Temporary Instruction 2515/150, Rev. 2, Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles (NRC Order EA-03-009) (Unit 1)

a. Inspection Scope

The inspectors reviewed the licensee's activities associated with the non-destructive examination (NDE) of the reactor pressure vessel head (RPVH) penetration nozzles and the visual examination to identify potential boric acid leaks from pressure-retaining components above the RPVH in response to NRC Bulletins 2001-01, 2002-01, 2002-02, and the first revision of NRC Order EA-03-009.

The inspectors' review of the NDE of RPVH penetration nozzles included independent observation and evaluation of ultrasonic (UT) and eddy current (ET) examinations (for both data acquisition and analysis), review of NDE procedures, personnel qualifications and training, and NDE equipment certifications. The inspectors also held interviews with contractor representatives (Wesdyne) and other licensee personnel involved with the RPVH examination. The activities were reviewed to verify licensee compliance with the NRC Order and to gather information to help the NRC staff identify possible further regulatory positions and generic communications.

The inspectors reviewed a sample of the results from the volumetric UT and surface ET examinations of RPVH penetration nozzles. Specifically, the inspectors reviewed or observed the following:

- Observed in-process UT/ET data acquisition scanning of RPVH penetration nozzles 8, 13, 26 and 27 (one nozzle with thermal sleeve, three with open housings)
- Reviewed the UT/ET electronic data with the Level III analyst for RPVH nozzles 7, 8, 12, 28, 54, 62, 63, 75, and the calibration block (this included nozzles both with and without thermal sleeves), and also for the vent line penetration
- Reviewed the results of the UT examination performed to assess for leakage into the annulus (interference fit zone) between the RPVH penetration nozzle and the RPVH low-alloy steel for all penetration numbers listed in the previous bullet
- Reviewed the procedures and results for the visual exam performed to identify potential boric acid leaks from pressure-retaining components above the RPVH
- Reviewed the RPVH susceptibility ranking and calculation of effective degradation years (EDY), including the basis for the RPVH temperature used in the calculation

b. Findings and Observations

In accordance with the requirements of TI 2515/150, the inspectors evaluated and answered the following questions:

1) Were the examinations performed by qualified and knowledgeable personnel?

Yes. All personnel involved with the RPVH inspections were appropriately qualified in accordance with the ASME Code, and most far exceeded the minimum requirements for experience and training hours. The contractor (Wesdyne) personnel responsible for equipment manipulation, data acquisition, and data analysis were comprised of a multi-national group of people who frequently perform these types of inspections worldwide.

2) Were the examinations performed in accordance with demonstrated procedures?

Yes. The Vogtle Unit 1 RPVH has 61 control rod drive mechanism (CRDM) nozzles with thermal sleeves, 17 penetration with open housings (including 4 instrument column nozzles), and 1 vent nozzle, for a total of 79 nozzles. All nozzles, excluding the vent, were subject to both UT and ET remote automated examination. There were two different types of probes used to perform the exams. One type (the "Trinity" probe) was used for sleeved penetrations, and the other type (the 7010 probe) was used for the open housing penetrations. Both types of probes have UT transducers and ET coils so that the exams can be performed in coincidence, however the UT and ET exams were addressed under separate procedures. Procedures WDI-UT-010 and WDI-UT-013 were used for UT data acquisition and analysis, respectively. Similarly, procedures WDI-ET-003 and WDI-ET-004 were used for ET. These procedures were implemented

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for both types of probes, except that there was a separate procedure used for the ET acquisition using the Trinity probe (WDI-ET-008).

The inspectors verified that the above procedures were implemented during the RPVH examinations. Further, the inspectors verified that these procedures were used during Wesdyne's demonstration for EPRI's Materials Reliability Program (MRP) to show flaw detection capability in RPVH penetrations. The results of this demonstration, as reported in MRP-89, were reviewed. It should be noted that the procedures have undergone revisions since initial demonstration to the MRP, however technical justifications for any change to an essential variable have been documented.

The RPVH vent line penetration received only ET examination via manual acquisition. The exam was performed in two steps, one for the tube inner diameter and one for the surface of the J-groove weld. These activities were performed in accordance with Wesdyne procedures WDI-STD-114 and WDI-STD-101.

3) Was the examination able to identify, disposition, and resolve deficiencies?

Yes. All indications of cracks or interference fit zone leakage are required to be reported for further examination and disposition. Based on observation of the examination process, the inspectors considered deficiencies would be appropriately identified, dispositioned, and resolved. UT indications associated with the geometry of the examined volume were identified in several penetration tubes. ET indications associated with minor surface scratches due to centering pad wear were also identified in several tubes. No indications exhibited crack-like characteristics and were appropriately dispositioned in accordance with procedures.

4) Was the examination capable of identifying the primary water stress corrosion cracking (PWSCC) and/or RPVH corrosion phenomena described in the NRC Order?

Yes. The NDE techniques employed for the examination of RPVH nozzles had been previously demonstrated under the EPRI MRP/Inspection Demonstration Program as capable of detecting PWSCC type manufactured cracks as well as cracks from actual samples from another site. Based on the demonstration, observation of in-process examinations, and review of NDE data, the inspectors determined that the licensee was capable of identifying PWSCC and/or corrosion as required by the NRC Order.

5) What was the physical condition of the RPVH (e.g. debris, insulation, dirt, boron from other sources, physical layout, viewing obstructions)?

A 100% bare metal visual (BMV) examination was not performed this refueling outage. However, the licensee did perform a qualified VT-2 examination of penetration 76 and the surrounding head area as an additional followup to leakage experienced by the penetration 76 conoseal earlier in the cycle (see further discussion in item 12 below). Review of the inspection video revealed no insulation, dirt, or other general debris that caused viewing obstructions in the area of interest. Some small, loose particles of boron were identified and effectively cleaned as evidenced by the post-cleaning inspection video.

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6) Could small boron deposits, as described in NRC Bulletin 2001-01, be identified and characterized?

The BMV examination required by the NRC Order was not performed this refueling outage. A BMV examination was performed during the Fall 2003 refueling outage and the NRC inspection activities for this visual examination were documented in NRC Integrated Inspection Report 2003-005. However, the limited scope inspection that was performed this outage (as discussed in item 5 above) was determined by the inspectors to be capable of identifying and characterizing small boron deposits as described in NRC Bulletin 2001-01.

7) What material deficiencies (i.e., cracks, corrosion, etc.) were identified that required repair?

There were no identified examples of RPVH penetration cracks, leakage, material deficiencies, or other flaws that required repair. As discussed previously, there were some UT indications at J-groove welds that were dispositioned as metallurgical/geometric indications (not service related). These indications were likely due to weld repairs performed during initial RPVH fabrication. It should also be noted that this volumetric examination served as a baseline inspection since this was the first volumetric exam of the Vogtle Unit 1 RPVH.

8) What, if any, impediments to effective examinations, for each of the applied methods, were identified (e.g., centering rings, insulation, thermal sleeves, instrumentation, nozzle distortion)?

The penetration nozzles with thermal sleeves and centering pads did not impede effective examination. Concerning examination coverage, the NRC Order requires that each tube's volume is inspected from a minimum of 2 inches above the highest point of the J-groove weld to 2 inches below the lowest point of the J-groove weld (1 inch with proper stress analysis). Due to the physical dimensions of many penetration tubes, the lower coverage could not always be achieved. Therefore, the licensee requested and subsequently received an NRC authorized Relaxation of Requirements based on a crack growth evaluation. Letter NL-06-1986, dated August 30, 2006, documents this granted relaxation and the NRC staff's safety evaluation (ADAMS Accession Number ML062360585). The inspectors determined that the minimum examination coverages required by the Relaxation were met.

9) What was the basis for the temperature used in the susceptibility ranking calculation?

NRC Order EA-03-009 required that licensees calculate the effective degradation years (EDY) of the reactor pressure vessel head (RPVH) to determine its susceptibility category, which subsequently determines the scope and frequency of required RPVH examinations. The operating temperature of the RPVH is an input to this calculation. Therefore, an incorrect temperature input could result in placing the RPVH in an incorrect susceptibility category. The licensee used the cold leg temperature (with an added 3°F conservatism) as the RPVH temperature. This input value is 560°F. The

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licensee stated that there was an analysis performed by Westinghouse that concluded, based on thermal hydraulics, that the RPVH temperature is the same as the cold leg temperature. The licensee is searching for this analysis to validate the use of 560°F as the temperature input to the calculation.

It should also be noted that RPVH temperature was a factor in the crack growth analysis that was used as a justification in the licensee's Relaxation Request for the inspection coverage requirements of the penetration tubes below the J-groove weld. If an incorrect temperature was used in the crack growth analysis, then the inspection coverage requirements could be impacted.

The inspectors will review licensee-supplied information when it is received to verify the bases of the RPVH temperature used in the susceptibility calculation. This issue is identified as a URI 05000424/2006005-03, Basis for Reactor Pressure Vessel Head Temperature used in Susceptibility Category Calculation.

10) During non-visual examinations, was the disposition of indications consistent with the NRC flaw evaluation guidance?

There were no indications considered to be flaws found during the RPVH examination.

11) Did procedures exist to identify potential boric acid leaks from pressure-retaining components above the RPVH?

Yes. Procedure 84008-C, RCS Alloy 600 Material Inspection Program, exists to meet several requirements of the NRC Order, including the inspection to identify potential boric acid leaks from pressure-retaining components above the RPVH. The inspectors determined that the procedure implementation met the requirements of the NRC Order. The inspectors also reviewed the inspection results for this outage and found that no indications of boric acid leakage from pressure-retaining components above the RPVH were identified.

12) Did the licensee perform appropriate follow-on examinations for indications of boric acid leaks from pressure-retaining components above the RPVH?

Yes. As stated in item 11, no indications of leakage were found during this outage. However, there was a forced outage in April 2006, during which a leaking conoseal above penetration 76 was replaced. The inspectors reviewed the licensee actions taken with regard to the boric acid that had leaked onto the RPVH, which included cleaning and bare metal visual inspection of the affected area, and determined that the requirements of the NRC Order were met.

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.3 (Discussed) Temporary Instruction (TI) 2515/166, Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02) - Unit 1

a. Inspection Scope

The inspectors verified Unit 1 implementation of the licensee's commitments documented in their September 1, 2005, response to Generic Letter 2004-02, Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactor for Unit 1. The commitments included the permanent modification of the sump screen assembly and modification of safety injection (SI) branch line and throttle valves. The inspectors reviewed the sump screen assembly installation procedure, screen assembly modification 10 CFR 50.59 evaluation, missile evaluation, structural (debris) loading calculation, and the vortex analysis. The inspectors also reviewed the foreign materials exclusion controls for the screen assembly installation. The inspectors conducted a visual walkdown to verify the installed screen assembly configuration was consistent with drawings and the tested configuration.

b. Findings and Observations

No findings of significance were identified. Unit 1 sump screen installation along with program and procedure changes were completed at the time of this inspection and implemented in accordance with the licensee's GL 2004-02 response. However, the modification of the Unit 1 safety injection (SI) branch line and throttle valves has yet to be complete. This TI will remain open pending completion and NRC review of the licensee's GL 2004-02 commitments for both station units. Currently, the Unit 2 emergency sump modifications were scheduled for the Spring of 2007. The Unit 1 modification of SI branch line and throttle valves was scheduled for completion in the Spring of 2008.

4OA6 Meetings, Including Exit

On January, 11, 2007, the resident inspectors presented the inspection results to you and other members of your staff, who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

R. Brown, Training and Emergency Preparedness Manager
C. Buck, Chemistry Manager
J. Cash, Operations Support
J. Churchwell, Senior Engineer
P. Conley, Programs Supervisor
W. Copeland, Performance Analysis Supervisor
J. Davis, ISI Engineer
R. Dedrickson, Plant Manager
K. Dyar, Security Manager
J. Ealick, Quality Assurance Supervisor
J. Godbee, Modifications Engineer
I. Kochery, Health Physics Manager
J. Robinson, Operations Manager
M. Sharma, Nuclear Specialist
T. Smith, Eddy Current Examiner Level III
S. Swanson, Engineering Support Manager
T. Tynan, Vice-President - Vogtle
T. Webb, BACC Program
J. Williams, Site Support Manager

NRC personnel:

R. Pedersen, Health Physicist, Nuclear Reactor Regulation
S. Shaeffer, Chief, Reactor Project Branch 2, Region II

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000424/2006005-01	URI	Measured Axial Offset is Higher Than Assumed in the COLR (Section 1R15)
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05000424/2006005-03	URI	Basis for Reactor Pressure Vessel Head Temperature used in Susceptibility Category Calculation (Section 4OA5.2)
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Opened and Closed

50-424, 425/2006005-02	NCV	Failure to use only NIOSH certified respiratory protection equipment (Section 2OS2)
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Closed

2515/169	TI	Mitigating Systems Performance Index Verification (Section 4OA5.1)
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2515/150 (Unit 1)	TI	Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles (NRC Order EA-03-009) (Section 4OA5.2)
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05000425/2004004-00	LER	Automatic Reactor Trip followed by Safety Injection (Section 4OA3)
05000425/2004004-01	LER	Automatic Reactor Trip followed by Safety Injection (Section 4OA3)

Discussed

2515/166	TI	Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02) - Unit 1 (Section 4OA5.2)
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LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

11901-1/2 Heat Tracing System Alignment
11877-1/2 Cold Weather Checklist

Work Orders

2054280901, 2060250001, A051580501, C060053901, C060738701

Section 1R04: Equipment Alignment

Procedures

11610-1, Auxiliary Feedwater Alignment
11301-1, CBCR Normal HVAC and Emergency Filtration System Alignment
13301-C, CBCR Normal HVAC and Emergency Filtration System

Drawings

1X4DB161-1, P&I Diagram, Auxiliary Feedwater
1X4DB161-2, P&I Diagram, Auxiliary Feedwater
1X4DB161-3, P&I Diagram, Auxiliary Feedwater

Section 1R05: Fire Protection

Procedures

92760-2, Zone 60 - Control Building Level B Fire Fighting Preplan
92761-2, Zone 61 - Control Building Level B Fire Fighting Preplan
92764-2, Zone 64 - Control Building Level B Fire Fighting Preplan
92787-2, Zone 87 - Control Building Level A Fire Fighting Preplan
92788-2, Zone 88 - Control Building Level A Fire Fighting Preplan
92858-2, Zone 158 - Control Building Level A Fire Fighting Preplan
92762-1, Zone 62 - Control Building Level B Fire Fighting Preplan
92763-1, Zone 63 - Control Building Level B Fire Fighting Preplan
92782-1, Zone 82 - Control Building Level B Fire Fighting Preplan
92749-2, Zone 49 - Auxiliary Building Level 1, Train A ACCW HX Room Fire Fighting Preplan

92752-2, Zone 52 - Auxiliary Building Level 1, Train B ACCW HX Room Fire Fighting Preplan
92715-1, Zone 15 - Fuel Handling Building Pipe Penetration Room Fire Fighting Preplan
92727-1, Zone 27 - Fuel Handling Building Level B Fire Fighting Preplan
92729-1, Zone 29 - Fuel Handling Building Levels B, A and 1 Electrical Chase - Train B Fire Fighting Preplan
92832-1, Zone 132 - Fuel Handling Building Level A Fire Fighting Preplan
92715-2, Zone 15 - Fuel Handling Building Pipe Penetration Room Fire Fighting Preplan
92727-2, Zone 27 - Fuel Handling Building Level B, Access Tunnel Corridor Fire Fighting Preplan
92729-2, Zone 29 - Fuel Handling Building Electrical Chase, Train B Fire Fighting Preplan
92832-2, Zone 132 - Fuel Handling Building Level A, SFPHX and Pipe Pen Fire Fighting Preplan

Section 1R08: Inservice Inspection Activities

Procedures

PDI-ISI-254, Rev. 7, "Remote Inservice Inspection of Reactor Vessel Shell Welds," and PDI Performance Demonstration Qualification Sheet (PDQS)-407
PDI-ISI-N2, Rev. 0, "Remote Inservice Examination of Reactor Vessel Nozzle to Shell Welds," and PDI PDQS-434
PDI-ISI-254-SE, Rev. 2, "Remote Inservice Examination of Reactor Vessel Nozzle to Safe End, Nozzle to Pipe, and Safe End to Pipe Welds," and PDI PDQS-471
WDI-STD-088, Rev. 3, "Underwater Remote Visual Examination of Reactor Vessel Internals"
WDI-STD-133, Rev. 4, "Paragon Eddy Current Procedure for the Inspection of Reactor Vessel Bottom Mounted Instrumentation Tube Penetrations"
WDI-STD-134, Rev. 4, "Paragon Ultrasonic Procedures for the Inspection of RPVH Bottom Mounted Instrumentation Tube Penetration"
WDI-STD-141, Rev. 4, "Bottom Mounted Instrumentation UT Analysis Guidelines for Use with Paragon"
WDI-STD-142, Rev. 2, "Paragon Eddy Current Analysis Guidelines for Inspection of Reactor Vessel Bottom Mounted Instrumentation Tube Penetration"
WDP-9.2, Rev. 8, "Qualification and Certification of Personnel in Nondestructive Examinations"
NMP-ES-024-502, Rev. 2, "PDI Generic Procedure for the Ultrasonic Examination of Ferritic Pipe Welds"
NMP-ES-024-201, Rev. 1, "Visual Examination (VT-1)"
NMP-ES-024-202, Rev.1, "Visual Examination (VT-2)"
NMP-ES-024-203, Rev.1, "Visual Examination (VT-3)"
NMP-ES-019, Rev. 2, "Boric Acid Corrosion Control Program"
Procedure 00435-C, Rev. 4, "Boric Acid Corrosion Control Program"
NMP-ES-019-001, Rev. 1, "Boric Acid Corrosion Control Program Implementation"
NMP-ES-019-002, Rev. 1, "Boric Acid Corrosion Control Program Health Reports and Notebooks"
Procedure 83202-C, Rev. 8.2, "Leakage Assessment Program"
Procedure 83201-C, Rev. 7, "Corrosion Assessment"
Procedure 14864-1, Rev. 1, "Containment General Leak Inspection"
Welding Procedure Specification GTSM-88-O-1, Rev. 4, and supporting Procedure Qualification Records 515, 516, and 517

CMTR for welding material, Lot No. DT7521
Vogtle Procedure No. 00801-C, Rev. 23, Control of Onsite Contractors
Westinghouse Steam Generator Eddy Current Inspection Multi Frequency Eddy Current Parameters
Westinghouse Procedure No. SSS 2.4.2 GPC-1, Rev. 10, Remote Examination and Removal of Foreign Objects from Steam Generator Secondary Site - Vogtle
Westinghouse Site Approved Inspection Techniques
Westinghouse Procedure No. MRS 2.4.2 GPC-37, Rev. 12, Steam Generator Eddy Current Data Analysis Techniques for Vogtle Units 1 & 2
Westinghouse Procedure No. MRS-TRC-1777, Rev. 0, Vogtle Site-Specific Performance Demonstration (SSPD) Program
Westinghouse Procedure No. MRS 2.4.2 GPC-3, Rev. 11, Vogtle Eddy Current Inspection Preservice and Inservice Heat Exchange Tubing
Westinghouse Procedure No. SGS-03-026, Rev. 2, Vogtle Data Cop Guidelines
Westinghouse Procedure No. MRS-TRC-1760, Rev. 0, Use of Appendix H Qualified Techniques at Vogtle Unit 1 13th Refueling, September 2006

Corrective Action Documents

CRs: 2006103605, 2005110628, 2005103087, 2005102845, 2006111159, 2005108181, 2006111054, 2006105162, 2005109538, 2006110056 - 58, 2006110061, 2006110163, 2006110165, 2006110167, 2006110169, 2006110201, 2006110203, 2006110205, 2006110207, 2006110214 - 16, 2006110274 - 76, 2006111074 - 81, 2006111083 - 96, 2006111098 - 101, 2006111103, 2006111105, 2006110329, 2006110606, 2006110701

Other Records

WO 14910-101, VEGP Visual Leakage Examination Report for Class 1 Pressure Retaining Bolting Exams
Liquid Penetrant Testing Reports No. 00694, 00696, 00718, and 00972
Weld Procedure Control Sheets No: 030514 and 030485
REA No. 99-VAA633, "Provide Replacement for Dresser Industries Safety Related Valves (2 inch and Under)"
Linearity Record Sheets for Areva UT Acquisition Chasis SAP# 101184 and 101185
Calibration Certificates for Paragon ECT Equipment
MDC-03 VIM078, "RHR Heat Exchanger Outlet Letdown Valve (11205U4021,-22) Replacement"
AX4DR021, "ANSI/ASME Code Reconciliation for Replacement Material, Parts, and Components," Rev. 7
Eddy Current Data and Analyses
Condition Report 2006111616, Circumferential Cracks on tubes Identified in Steam Generators 2 and 3
A Description and Comparison for Indications Identified Between Vogtle 2R10 & 1R13
EPRI Steam Generator Integrity Assessment Guidelines, Rev. 1
EPRI PWR Steam Generator Examination Guidelines, Rev. 6
NEI 97-06, Rev. 2, Steam Generator Program Guidelines
A Video Tape for Foreign Subjects Examination and Removal for Steam Generator Unit 2 Secondary Side
Personnel Certification and Qualification for Eddy Current data Acquisition and Analysis

Section 1R11: Licensed Operator Requalification

10000-C, Conduct of Operations
18000-C, Pressurizer Spray, Safety, or Relief Valve Malfunction
18009-C, Steam Generator Tube Leak
91001-C, Emergency Classifications
91305-C, Protective Action Guidelines

Section 1R12: Maintenance Effectiveness

CRs 2006109869, 2006113996, 2006112264

Section 1R20: Refueling and Outage Activities

93663-C, Verification of Core Loading Pattern
93300-C, Conduct of Refueling Operations
12005-C, Reactor Shutdown to Hot Standby (Mode 2 to Mode 3)
12006-C, Unit Cooldown to Cold Shutdown
12007-C, Refueling Operations (Entry into Mode 6)
12008-C, Midloop Operations
14900-C, Containment Exit Inspection

Section 20S1: Access Control To Radiologically Significant Areas

Procedures, Guidance Documents, and Manuals

00303-C, Containment Entry, Rev. 25
00930-C, Radiation and Contamination Control, Rev. 23.1
43005-C, Establishing and Posting Radiation Controlled Areas and High Radiation Area Access Control, Rev. 33
43007-C, Issuance Use and Control of Radiation Work Permits, Rev. 25
43014-C, Special Radiological Controls, Rev. 34
43018-C, Radiological Controls for Diving Operations, Rev. 1
NMP-HP-001, Radiation Protection Standard Practices, Ver. 2.0
NMP-GM-002-001, Corrective Action Program Instructions, Ver. 1.0

Records and Data

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RWP No. 06-1312, Eddy Current Testing, S/Gs 1 & 4, Rev. 0
RWP No. 06-1601, Maintenance on Valves, Motors, and Transmitters in Unit 1 Aux Building, Rev. 1
RWP No. 06-1313, Setup/Removal of S/G Chemical Cleaning Equipment, Rev. 0
RWP No. 06-1505, Under Vessel BMI Inspection, Rev. 0
Air Sample Nos. 06-0407 and 06-0435, Unit 1 Equipment Hatch, 9/18/06 and 9/20/06
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Air Sample No. 06-0454, Unit 1 Residual Heat Removal Sump Decon, 9/21/06
Radiological Survey No. 83147, Personnel Contamination Report, 12/30/05
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Radiological Survey No. 89506, Underneath Reactor Head on Headstand, 9/28/06
Radiological Survey Nos. 89519 and 89522, S/G 4, Cold Leg and Hot Leg Bowls, 9/28/06
Radiological Survey No. 89443, S/G 2 Hot Leg Alpha Survey, 9/27/06
Radiological Survey No. 89688, Unit 1 S/G Blowdown Pipe Penetration Pit, 10/2/06
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INGESTION.WLB, Whole Body Counter Radionuclide Library
Request for Engineering Review No. C053309601, install permanent locking device on ladder into Unit 2 biowall (VHRA at-power), 10/13/05

CAP Documents

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Procedures, Guidance Documents, and Annual Reports

Vogtle Electric Generating Plant, ALARA Report - 2005
Strategic Plan for Radiation Exposure Reduction, 2004-2008, Rev. 0
NMP-GM-002, Corrective Action Program, Ver. 5
00910-C, VEGP ALARA Program, Rev. 15
00920-C, Radiation Exposure Limits and Administrative Guidelines, Rev. 16
00930-C, Radiation and Contamination Control, Rev. 23.1
41001-C, ALARA Job Review, Rev. 24
41006-C, Temporary Shielding, Rev. 21

Records and Data

Engineering Work Order (WO) 1060990001, Temporary shielding on top of insulation for Unit 1 intermediate legs of loops 2 and 3, 5/26/06
WO 1061471501, Temporary shielding for polar crane, 8/9/06
Design Change Package 1060884501, Permanent shielding around Unit 1 nitrogen delay coils and shield frames at letdown flow orifices, reactor coolant drain tank pumps, and reactor cavity drain valve, 5/19/06
Exposure Reports for Declared Pregnant Females, September 2004 - September 2006
ALARA Dose Reports (by RWP and/or work group), September and October 2006
ALARA Committee Meeting Minutes, 9/30/06
ALARA Estimates for S/G Chemical Cleaning (12/6/05, 9/14/06)
Jump Tickets with Dose Assessments for Unit 1 S/G Nozzle Dam Installation, 9/28/06

ALARA Briefing Packages, including Work-In Progress and Post-Job Reviews

RWP 05-1006, Installation and Removal of Insulation in Unit 1 Containment
RWP 05-1604, Coatings, Painting, and Associated Work in Unit 1 Containment
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RWP 05-2604, Coatings, Paintings, and Associated Work in Unit 2 Containment
RWP 06-1004, Installation and Removal of Scaffolding in Unit 1 Containment
RWP 06-1301, Install and Remove Nozzle Dams on Unit 1 S/Gs #2 and #3

RWP 06-1302, Eddy Current Testing on Unit 1 S/Gs #2 and #3
RWP 06-1311, Install and Remove Nozzle Dams on Unit 1 S/Gs #1 and #4
RWP 06-1313, Set-up and Remove S/G Chemical Cleaning Equipment on Unit 1 S/Gs
RWP 06-1510, Reactor Vessel Closure Head NDE (Under Head Volumetric Exam)
RWP 06-1511, ISI for Reactor Vessel

CAP Documents

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Dose Reduction Self Assessment Report, Log NOH-02503, 11/17/03
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Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Procedures, Guidance Documents, and Manuals

49002-C, Management of Unusual or Significant Chemical and/or Radiological Spills, Rev. 4
36011-C, Rad Effluent Off Normal Conditions, Rev. 10

Records and Data

10 CFR Part 50.75(g) File
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Section 2PS2: Radioactive Material Processing and Transportation

Procedures, Instructions, Guidance Documents

46100-C, 10 CFR 61 Waste Classification Sampling Program, Rev. 5
46003-C, Receipt of Radioactive Materials, Rev. 18
46004-C, Shipment of Radioactive Material, Rev. 17.1
46005-C, Performing Surveys for Shipment of Radioactive Containers, Rev. 3
46104-C, Shipment of Radwaste to a Licensed Waste Processor, Rev. 8
46105-C, Radwaste Disposal and Notification Requirements, Rev. 10
46106-C, Waste Classification Resin Shipments, Rev. 6
46108-C, Waste Classification Filter Shipments, Rev. 7
46110-C, Shipment of Radioactive Waste, Rev. 9
46112-C, Spent Filter Processing, Rev. 5
Vogtle Electric Generating Plant, Process Control Program, Rev. 8

Records and Data

10 CFR 61 Waste Classification Sampling Program Data Sheets, Dated 12/17/04, 03/26/05, 06/24/05, 09/30/05, 12/06/05, 03/27/06, and 06/27/06
Plant Vogtle Radiological Information Survey # 89090, Dated 09/21/06
Shipment No. 05-02-005, Shipment of resin sample, 02/17/05
Shipment No. 05-05-002, Shipment of a reactor coolant pump motor, 05/13/05
Shipment No. 05-10-008, Shipment of sludge lance equipment, 10/08/05
Shipment No. 06-01-006, Shipment of irradiated cladding, 01/27/06
Shipment No. 06-05-003, Shipment of reactor vessel nozzle plugs, 05/09/06

Shipment No. 06-09-002, Shipment of pressurizer code safety valves, 09/20/06
Shipment No. 06-CL-005, Shipping package for contaminated laundry, 10/4/06

CAP Documents

CRs: 2005106697, 2006101601

Section 4OA1: Performance Indicator Verification

Procedures

00163-C, NRC Performance Indicator and Monthly Operating Report Preparation and Submittal, Rev. 11

Records and Data

Access Control Alarms, Cumulative Dose and Dose Rate Data; September 1, 2005 through September 1, 2006
Occupational PI data, March 2006
Gaseous Release Permit 60031.026.007.G, 2/15/06
Gaseous Release Permit 60200.021.040.G, 10/4/06
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Liquid release Permit 60135.003.019.L, 10/3/06
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Section 4OA2: Identification and Resolution of Problems

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Section 4OA5: Other

TI-169, Mitigating Systems Performance Index (MSPI) Verification

Vogtle Mitigating System Performance Index (MSPI) Basis Document
Selected Control Room Logs, January 2004 through September 2006
System Health Report for the following Unit 1 and Unit 2 systems for January 2004 through September 2006:
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Emergency Diesel Generator
Nuclear Service Cooling Water
Auxiliary Feedwater
Safety Injection
Residual Heat Removal

TI 150

Procedures

WDI-SSP-1065, "Reactor Vessel Head Penetration Inspection Tool Operation for Vogtle Unit 1 (GAE) - DERI, Revision 1
WDI-STD-101, "RVHI Vent Tube J-Weld Eddy Current Examination," Revision 6
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WDI-ET-003, "IntraSpect Eddy Current Imaging Procedure for Inspection of Reactor Vessel Head Penetrations," Revision 10
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WDI-UT-010, "IntraSpect Ultrasonic Procedure for Inspection of Reactor Vessel Head Penetrations, Time of Flight Ultrasonic, Longitudinal Wave & Shear Wave," Revision 13
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ES-MISN-V-738, "Visual Examination of Reactor Vessel Head Penetrations and Base Material (Remote and Direct)," Version 2.0
84008-C, "RCS Alloy 600 Material Inspection Program," Revision 3.1

Records/Reports/Engineering Documents

Personnel Certification Records for all Wesdyne personnel involved with examinations
Equipment Certification Records for the following NDE Equipment:
UT/ET "Trinity" Blade Probes: 3085 and 3150
UT/ET 7010 Probe 103005, transducers: 10903, 10920, 10917, 10919, and S-4271
Calibration Standard: SAP 103213
Visual Leakage Examination Report 0462, result of Work Order 1053300301
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Corrosion Assessment No. 1201-2006-001, dated 4/26/06
DOEJ-SM-1060386401-001, Effective Degradation Years Determination for 1R13 and 2R12
Quality Control Inspection Report 30613, result of Work Order 1060675201
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