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

ATTACHMENT 2 CONTAINS PROPRIETARY INFORMATION

January 28, 2005

Virginia Electric and Power Company
ATTN.: Mr. David A. Christian
Sr. Vice President and
Chief Nuclear Officer
Innsbrook Technical Center - 2SW
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: NORTH ANNA POWER STATION - NRC INTEGRATED INSPECTION REPORT NOS. 05000338/2004006 AND 05000339/2004006

Dear Mr. Christian:

On December 31, 2004, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your North Anna Power Station, Units 1 and 2. The enclosed integrated inspection report documents the inspection findings, which were discussed on December 21, 2004, with Mr. Jack Davis and other members of your staff.

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

Based upon the results of this inspection, the inspectors identified two NRC-identified findings of very low safety significance (Green). The findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because the violations were entered into your corrective action program, the NRC is treating the findings as non-cited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. Additionally, one licensee-identified violation which was determined to be of very low safety significance (Green) is listed in Section 4OA7 of this report. If you contest any non-cited violation in this report, 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, D.C. 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the North Anna Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if any, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at *http://www.nrc.gov/reading-rm/adams.html* (the Public Electronic Reading Room). However, the NRC is continuing to review the appropriate classification of the Summary of Phase 3 SDP Analysis (Attachment 2) within our records management program, considering changes in our practices following the events of September 11, 2001. Using our interim guidance, the attached analysis has been marked as Proprietary Information or Sensitive Information in accordance with Section 2.390(d) of Title 10 of the Code of Federal Regulations. Please control the document accordingly (i.e., treat the document as if you had determined that it contained trade secrets and commercial or financial information that you considered privileged or confidential). We will inform you if the classification of these documents changes as a result of our ongoing assessment. To the extent possible, any response should not include any personal privacy, proprietary, classified, or safeguards information so that it can be made available to the Public without redaction. The NRC also includes significant enforcement actions on its Web site at www.nrc.gov; select **What We Do, Enforcement**, then **Significant Enforcement Actions**).

Should you have any questions regarding this letter, please contact Kerry Landis, Chief, Division of Reactor Projects, Branch 5, 404-562-4510.

Sincerely,

/RA/

Kerry D. Landis, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket Nos.: 50-338, 50-339
License Nos.: NPF-4, NPF-7

Enclosures: Inspection Reports 05000338/2004006 and 05000339/2004006
w/Attachments: 1. Supplemental Information
2. Phase 3 SDP Anaylsis (Contains Proprietary Information)

cc w/encl.:

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-338, 50-339
License Nos.:	NPF-4, NPF-7
Report Nos.:	05000338/2004006, 05000339/2004006
Licensee:	Virginia Electric and Power Company (VEPCO)
Facilities:	North Anna Power Station, Units 1 & 2
Location:	1022 Haley Drive Mineral, Virginia 23117
Dates:	September 26, 2004 - December 31, 2004
Inspectors:	M. Widmann, Senior Resident Inspector G. Wilson, Resident Inspector B. Desai, Senior Project Engineer L. Garner, Senior Project Engineer (Section 4OA5)
Approved by:	K. Landis, Chief, Reactor Projects Branch 5 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000338/2004-006, IR 05000339/2004-006; 09/26/2004 - 12/31/2004; North Anna Power Station Units 1 & 2; Problem Identification and Resolution, and Other.

The report covered a three month period of inspection by the resident inspectors and two senior project engineers. Two Green non-cited violation (NCV) and one licensee-identified violation were identified. The significance of most findings is indicated by their color (Green, White, Yellow, 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 NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Finding

Cornerstone: Mitigating Systems

Green. The licensee failed to take appropriate corrective actions to preclude the recurrence of a significant condition adverse to quality. Corrective actions taken after the spring outage in 2004 for Unit 2 for inadequate closeout of containment failed to correct the procedure used to ensure all foreign material was removed from containment prior to entry into Mode 4. On October 4, 2004, after the licensee had completed the revised procedure, the inspectors found a large quantity of debris inside the Unit 1 containment.

An inspector-identified non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified. This finding is more than minor because it could be reasonably viewed as a precursor to a significant event. The transport of loose materials to the containment sumps would have caused a restricted flow or blockage and impeded the ability of the containment sumps to provide adequate net positive suction head to the recirculation spray pumps. The finding was determined to have very low safety significance because the amount of material found would not have prevented the containment sumps from performing their intended safety functions, i.e., an actual loss of safety function was not identified. (Section 4OA2.2)

Green. In May 2003, the licensee failed to have procedures in effect which would maintain the reactor coolant level in the level indication of the pressurizer during some fires in the Unit 1 and Unit 2 emergency switchgear and relay rooms (ESGRs). A fire in these areas could result in loss of cooling to the reactor coolant pump (RCP) seals and subsequent seal failure loss of coolant accident. The licensee has established interim measures to address this finding while long term corrective actions are evaluated.

An inspector-identified non-cited violation of 10 CFR 50, Appendix R, Sections III.L.2 and .3 was identified. The finding is more than minor, in that, it affected the objective of the Mitigating Systems Cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events. For a severe fire in the ESGRs, established fire protection procedures would not preclude a RCP seal failure and subsequent loss of the capability to maintain the reactor coolant system level within the pressurizer level indication. A Significance Determination Process Phase 3 analysis determined that the finding was of very low safety significance mainly due to recovery actions in procedures and the low likelihood of fire damage to control and power cables due to their routing. (Section 4OA5)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Unit 1 entered this reporting period in Mode 6 with core re-load in progress. Mode 5 was entered on September 30 with Mode 4 and 3 achieved on October 4 and 5, respectively. Mode 2 was entered on October 6. 100% power was attained on October 10 and remained there until November 1 when power was reduced to approximately 61% to support isophase bus duct cooling maintenance repairs. Power was returned to 100% on November 2. On December 5, power was reduced to approximately 90% to support maintenance work on a turbine generator governor valve. Power was returned to 100% later that same day and remained there for remainder of the period.

Unit 2 was at or near 100% power throughout the reporting period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

Due to the onset of cold weather temperatures, on October 15, 2004, the inspectors reviewed procedures, held discussions with licensee personnel and conducted a walkdown of both Unit's condensate storage tanks (CST) and refueling water storage tanks (RWST) level transmitter areas, motor and steam driven emergency feedwater pump trains, safeguards and quench spray pump houses, the four emergency diesel generator (EDG) rooms and the station blackout diesel. The walkdown was to assess the licensee's implementation of cold weather measures for the protection of risk significant systems susceptible to freezing. The inspectors observed that space heaters in the EDG rooms were energized for the protection of the governor controls, herculite curtains were closed, the CST and RWST level transmitters were adequately insulated and heat tracings circuits were intact.

Documentation reviewed included the following:

- 0-AP-41, Severe Weather Conditions;
- 0-GOP-4.2, Extreme Cold Weather Operations;
- 0-GOP-4.2A, Extreme Cold Weather Operations Daily Checks; and
- Updated Final Safety Analysis Report Section 2.3.1.3.5, Hail and Ice Storms.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns. The inspectors performed the following three partial system walkdowns during this inspection period. The walkdowns were to evaluate the operability of the selected train or system when the redundant train or system was inoperable or out of service. The inspectors checked for correct valve and power alignments by comparing the positions of valves, switches, and electrical power breakers to that of procedures and drawings.

- Unit 2 Motor Driven Auxiliary Feedwater Pump houses A and B trains;
- 2H Emergency Diesel Generator (EDG) during overhaul of the 2J EDG; and,
- Unit 1 Turbine Driven and Motor Driven Pump Houses A and B Trains.

Complete System Walkdown. The inspectors performed a complete equipment alignment review of the Unit 1 component cooling water “A” train system. The inspectors assessed the system for material condition, electrical power availability, functionality of essential support equipment, correct component labeling and that hangers and supports were functional. In addition, the inspectors reviewed outstanding maintenance work requests, design parameters, temporary modifications, and operator workarounds that could impact the system functional capability. System related plant issues were reviewed to verify that the licensee had properly identified and resolved equipment problems that could affect the availability, reliability and operability of the system. The inspectors also reviewed the following documents as part of the inspection:

- TS 3.7.19, “Component Cooling Water System;”
- Drawings 1715-FM-79A sheets 1,2 and 3, and 1715-FM-79B, sheets 1, 2 and 3;
- 1-PT-74.2A, “Component Cooling Water 1-CC-1A Test;”
- 1-OP-51.1A, “Valve Checkoff Component Cooling Water;” and,
- UFSAR Sections 9.2.1 and 9.2.2.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors assessed the implementation of the fire protection program using Virginia Power Administrative Procedure (VPAP) 2401, "Fire Protection Program." The inspectors checked the control of transient combustibles and the material condition of the fire detection and fire suppression systems in the following nine areas:

- Battery Rooms 1-III Unit 1, 2-III Unit 2, 1-IV Unit 1, and 2-IV Unit 2 (fire zones 7c-1/BR1-III, 7C-2/BR2-III, 7D-1/BR1-IV, 7D-2/BR2-IV) ;
- Post-Accident Recombiner Vault (fire zone 38/PARV);
- Main and Station Service Transformers (fire zone Z-8C/XFMRS);
- Case Cooling Tank and Pump House Units 1 and 2 (fire zones Z-41-1/CCT&PH-1, Z-41-2/CCT&PH-2);
- Security Auxiliary Power Supply Building (fire zone Z-39/APSB);
- Alternate AC Building (fire zone Z-52/AAC);
- Unit 1 and 2 Main Steam Valve House (fire zones 17-1a/MSVH-1 and 17-2a/MSVH-2) and Motor Generator Set House, Units 1 and 2 (fire zones Z-27-1/MGSH-1 and Z-27-2/MGSH-2);
- Fuel Oil Pump Room - Motor Control Center Room (fire zone 10C/MCC) and Auxiliary Building, including Z-18 and Z-20, (fire zone 11a/AB); and,
- Turbine Building including Chiller Rooms and Z-21B, Z-21C, Z-22, Z-34, Z-35, Z-36, and Z-46B (fire zone 8a/TB).

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed licensed operator simulator training on October 26, 2004. The scenario, Simulator Examination Guide SXG-67, involved a Reactor Coolant System (RCS) leak with a partial loss of annunciators and a lost of instrument air outside of containment with the Power Operated Release Valve (PORV) sticking open and a loss of coolant accident. The inspectors observed crew performance in terms of communications; ability to take timely and proper actions; prioritizing, interpreting, and verifying alarms; correct use and implementation of procedures, including the alarm response procedures; timely control board operation and manipulation, including high-risk operator actions; and oversight and direction provided by the shift supervisor, including the ability to identify and implement appropriate TS actions. The inspectors observed the post training critique to determine that weaknesses or improvement areas revealed by the training were captured by the instructors and reviewed with the operators.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

For the two equipment issues listed below, the inspectors evaluated the licensee's effectiveness of the corresponding preventive and corrective maintenance. The inspectors performed walkdowns of the accessible portions of the systems, performed in-office reviews of procedures and evaluations, and held discussions with system engineers. The inspectors compared the licensee's actions with the requirements of the Maintenance Rule (10 CFR 50.65) using VPAP 0815, "Maintenance Rule Program," and Engineering Transmittal CEP-97-0018, "North Anna Maintenance Rule Scoping and Performance Criteria Matrix." Additionally, the inspectors attended some of the licensee's scheduled Maintenance Rule Working Group meetings.

- NI-41 bistable replacement noise reduction efforts, low voltage power supply replacement and gathering characteristic (CHAR) trace data per Work Order (WO) 00520854; and,
- 1-GM-F-2 isophase bus duct cooling fan bearing greasing, south fan bearing replacement and switch shaft replacement due to excessive motor vibrations per WO 00521963.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed data output from the licensee's safety monitor associated with the risk profile of Units 1 and 2, attended pre-job briefs, and held discussions with licensee personnel. The following six emergent work items were inspected:

- Unit 1 startup with steam dumps in manual hi-voltage switchyard work in progress (breaker 57502 trouble) 2-BY-BC-2-III battery charger and service water train “B” out of service;
- Unit 1 reserve service station transformer breaker work on 14D2 while maintaining two independent sources of offsite power;
- Unit 2 relay testing on breaker 25H12 for component cooling pump circuit breaker, breaker 2514 Residual Heat Removal Pump 25H13 for emergency 2H stud bus circuit breaker with switchyard work in progress while 2-BY-BC-1-1C-I and 2-SW-P-1-A out of service;
- Unit 1 testing on 1-RC-MOV-1535 (Pressurizer Power Operated Relief Valve Block Valve) with switchyard work in progress, 2-SW-P-4 and 1-SW-P-4 out of service, testing on 2-SW-MOV-215A, testing on 1-CH-P-2B and 1 EDG slow start testing;
- Unit 1 “A” Charging Pump inboard seal repair with 2H EDG slow start testing, control room chiller pump and valve testing and rack work in progress; and,
- Unit 1 power reduction to support turbine generator governor valve, 1-MS-GOV-1B, maintenance work (replacement of the linear voltage differential transformer), reference WO 52362501.

b. Findings

No findings of significance were identified for the emergent work items. However, a licensee-identified violation for failure to manage the risk associated with chiller maintenance is documented in Section 4OA7 of this report.

1R14 Personnel Performance During Non-Routine Evolutions and Events

a. Inspection Scope

The inspectors monitored the response of Unit 1 control room operators during the Unit 1 ramp up to 100% power following an unplanned ramp down to 61% to complete maintenance on 1-GM-F-1 isophase bus duct cooling fan (reference Plant Issue N-2004-4781).

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors conducted reviews and held discussions with the appropriate licensee engineers, managers and operations personnel for the five operability determinations addressed in the plant issues listed below. The inspectors assessed the accuracy of the evaluations, the use and control of compensatory measures, and compliance with TS. The inspectors' review included a verification that the operability determinations were made as specified by Procedure VPAP-1408, "System Operability." The technical adequacy of the determinations was reviewed and compared to Technical Specifications (TS), the Technical Requirements Manual (TRM) and the Updated Final Safety Analysis Report (UFSAR).

- N-2004-4011, Evaluation of the effects of water and foreign material in the Unit 1 Recirculation Spray (RS) Heat Exchanger on the past operability of the RS System;
- N-2004-4304, Main steam trip valves went closed during 1-PT-32.3.1, "Steam Generator Steam Flow and Feed Flow Channel III Operational Test;"
- N-2004-4455, Nuclear instrumentation system power range high flux rod stop alarm due to Unit 1 NI-41 erratic operation and operator response per 1-AP-4.3;
- N-2004-4729, Control room chiller pump missed surveillance due to miscalculation of vibration data per ASME OMa code; and,
- N-2004-5003, Unit 1 Group 5 Pressurizer Heaters Breaker #1 tripped causing pressurizer heater capacity to decrease to 143 kw.

b. Findings

No findings of significance were identified.

1R16 Operator WorkArounds

a. Inspection Scope

The inspectors reviewed the cumulative effects of the licensee's operator workarounds (OWAs) and procedure 0-GOP-5.3, "Review of Operator Work Around." The inspectors reviewed the data package associated with this procedure which included an evaluation of the cumulative effects of the OWAs on the operator's ability to safely operate the plant and effectively respond to abnormal and emergency plant conditions. The inspectors reviewed and monitored licensee planned and completed corrective actions to address underlying equipment issues causing the OWAs. Additionally, the inspectors discussed the OWAs with operations personnel to determine whether outstanding

OWAs were reviewed in the aggregate on a periodic basis as required by VPAP-1401, "Conduct of Operations."

The inspectors also reviewed following three specific OWAs and discussed the added OWAs with the licensee in the context of the licensee operator being able to perform the OWAs during and following transients:

- OWA-98, entering action to remove control room emergency ventilation system charcoal filters from service frequently due to maintenance;
- OWA-104, positive pressure created in Safeguards Building when supply for 2-HV-HV-4 is aligned to the charcoal filter; and,
- OWA-107, blender flow control valves do not operate on automatic; potential meter settings are not consistent with the actual flow.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

i. Inspection Scope

The inspectors reviewed the completed permanent plant modification DCP 03-139, Turbine Building Basement Floodwall Addition and Access Modification - Unit 1. The inspectors conducted a walkdown of the installation, discussed the desired improvement with systems engineers, and reviewed the 10 CFR 50.59 Safety Review/Regulatory Screening, technical drawings, test plans and the modification package to assess Technical Specifications implications.

j. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following six post-maintenance test (PMT) procedures, WOs, Plant Issues, and activities associated with the repair or replacement of the components to determine that the procedures and test activities were adequate to verify operability and functional capability of the equipment:

- Procedure 0-MCM-0400-14, “Repair of Safety-Related and Non-Safety-Related and Relief Valves,” per WO 51679901 for SW-RV-201A component cooling HX service water header relief valve and Procedure 0-MCM-0400-30, “Removal, Testing, Repair and Installation of IST Safety and Relief Valves,” per WO 51605001;
- Procedure 0-MCM-0400-24, “Repair of Safety-Related and Non-Safety-Related Gate and Globe Valves,” per WO 51915502 for 1-RS-41 “1B Recirculation Spray Heat Exchanger Shell Side Drain Valve;”
- Procedure 0-MCM-0605-01, “Removal and Installation of Seal Water Injection Filter for 01-CH-FL-4A,” per WO 00457869;
- Procedure 0-EPM-2802-01, “Disconnecting and Reconnecting Electrical Equipment,” Procedure 0-EPM-2803-0, “Disassembly and Reinstallation of Ray Chem Splices,” and 0-MCM-0121-26, “Inspection and Repair of Ingersoll-Rand Model 14ALV,” per WO 00502477;
- Procedure 0-MCM-0701-05, “Emergency Diesel Generator Crank Lead and Crank Gear Backlash Check,” per WO 00500227 for 2J EDG engine; and,
- Procedure 0-MCM-0400-30, “Removal, Testing, Repair and Installation of IST Safety & Relief Valve,” and 2-PT-147.1C, “Valve Inservice Inspection of Relief Valves Associated with the EDG,” per WO 00516061.

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 12, 2004, and ended October 8, 2004. The inspectors used inspection procedure 71111.20, “Refueling and Outage Activities,” to complete the inspections.

Prior to and during the outage, the inspectors reviewed the licensee’s outage risk control plan for the Unit 1 RF-17 outage schedule to verify that the licensee had appropriately considered risk, industry experience and previous site specific problems, and to confirm that the licensee had mitigation / response strategies for losses of key safety functions.

In the area of licensee control of outage activities, the inspectors reviewed equipment removed from service to verify that defense-in-depth was maintained 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.

The inspectors reviewed selected components which were removed from service to verify that tags were properly installed and that associated equipment was appropriately configured to support the function of the clearance.

During the outage, the inspectors:

- Reviewed RCS pressure, level, and temperature instruments to verify that those instruments were installed and configured to provide accurate indication; and that instrumentation error was accounted for;

- Reviewed the status and configuration of electrical systems to verify that those systems met TS requirements and the licensee's outage risk control plan. The inspectors also evaluated if switchyard activities were properly controlled and if they were consistent with the licensee's outage risk control plan assumptions;

- Observed spent fuel pool operations to verify that outage work was not impacting the ability of the operations staff to operate the spent fuel pool cooling system during and after full core offload. The inspectors also compared these operations to UFSAR commitments and TS requirements;

- Observed licensee control of containment penetrations to verify that the licensee controlled those penetrations in accordance with the refueling operations TS requirements and could achieve containment closure for required conditions; and,

- The inspectors examined the spaces and cubicles inside the reactor building prior to reactor startup to verify that debris had not been left which could affect performance of the containment sumps.

The inspectors also reviewed the following activities related to Unit 1 RF-17 for conformance to applicable procedural and TS requirements:

- monitoring of shutdown activities;
- decay heat system operations;
- inventory control and measures to provide alternative means for inventory addition, including periods of reduced inventory conditions;
- reactivity controls including locked valve dilution controls;
- fuel handling operations (inspection, insertion, and tracking of fuel assemblies through core reload); and,
- reactor heatup, startup and power ascension activities.

The inspectors reviewed various problems that arose during the outage to verify that the licensee was identifying problems related to refueling outage activities at an appropriate threshold and entering them in the corrective action program. The plant issues that were specifically reviewed by the inspectors are listed below. The plant issues identified below were initiated during the refueling outage and were considered significant.

- N-2004-4083, debris found on inner core plate at location B-7, Unit 1;
- N-2004-4128, Snubber 1B Steam Generator Narrow Range Level transmitter;
- N-2004-4142, Unit 1 B charging pump delta pressure out of spec low;
- N-2004-4156, incorrect antifreeze added to 2J EDG;
- N-2004-4170, binding snubber support 1-RC-HSS-2363;
- N-2004-4248, valve indicates mid-position when closed;
- N-2004-4269, 1-CH-HCV-1137 hydraulic controlled valve would not open to place excess letdown in service;
- N-2004-4294, Reactor Coolant Pump breaker #24 B inadvertently bumped open while installing breaker lockout device;
- N-2004-4318, inadequate containment closeout Unit 2;
- N-2004-4343, “C” safety valve line high temp alarm; and,
- N-2004-4366, steam dumps opened spuriously during startup Steam Generator, swell occurred of 10%.

b. Findings

An NRC-identified violation is documented in Section 4OA2.2 of this report regarding inadequate corrective actions for the containment closeout procedure.

1R22 Surveillance Testing

a. Inspection Scope

For the six surveillance tests listed below, the inspectors examined the test procedure and observed testing, and reviewed test records and data packages, to determine whether the scope of testing adequately demonstrated that the affected equipment was functional and operable, and that the surveillance requirements of the technical specifications were met:

- 1-PT-212.10, “Valve Inservice Inspection (1-RC-PCV-1456),” stroke test of pressurizer PORV;
- 1-PT-215.1, “Valve In Service RWST Isolation Valve Leakage Test,” and 1-PT-57.5B, “Leak Rate Test of 1-SI-P-1B and Associated Piping and Inservice Inspection of 1-SI-21;”
- 1-PT-64, “RCS Pressure Isolation Valves - Leakage Test,” (containment isolation valves);
- 2-PT-14.2, “Charging Pump 2-CH-P-1B,” operating periodic test;

- 2-PT-213.31, "Main Steam to Auxiliary Fee Water Check Valve In Service Inspection;" and,
- 1-PT-57.1B, "Emergency Core Cooling Subsystem - Low Head Safety Injection Pump (1-51-P-1B)," operating periodic test.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed a temporary plant modification involving a temporary jumper installed on Anticipated Transient Without Scram Mitigation System (AMSAC) test switch 43-PLC-C-2RPSNOS. The jumper was installed to provide input signal to 2-FW-LT-2494 of the AMSAC circuitry. The inspectors reviewed the temporary modification to verify that the modification did not affect system operability or availability as described by the TS and UFSAR and was in accordance with VPAP-1403, "Temporary Modifications." In addition, the inspectors verified that the installation of the temporary modification was in accordance with the work package, that adequate control was in place, procedures and drawings were updated, and the post-installation tests verified the operability of the AMSAC circuitry.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

On November 2, 2004, the inspectors reviewed and observed the performance of an Emergency Planning Drill that involved a simulated fire in the Charcoal Filter Room followed by a loss of both condensate pumps, a loss of auxiliary feed water pumps and a security event involving an operator with a weapon running through the Auxiliary Building (EPP-C-2, Emergency Plan Implementing Procedures 1.06, 2.01 and 2.02). The inspectors assessed emergency procedure usage, emergency plan classification, notifications and the licensee's identification and entrance of any drill problems into their critique performance. Drill issues were captured by the licensee in their corrective action system and were reviewed by the inspectors.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors performed a periodic review of the Unit 1 and 2 performance indicator data reported to the NRC for the following mitigating systems:

- Emergency AC Power System Unavailability; and,
- Residual Heat Removal System Unavailability.

The inspectors reviewed data from the licensee's corrective action program, maintenance rule records, operating logs and maintenance work orders for the period covering the fourth quarter 2003 through the third quarter 2004. Discussions with licensee personnel were held by the inspectors regarding the data reviewed. The data was compared with that displayed on the NRC's public web site. The performance indicator method of assessment was compared with the guidelines contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline."

b. Findings

No findings of significance were identified. The performance indicators remained in the licensee response band (Green).

4OA2 Identification and Resolution of Problems

.1 Daily Reviews

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 reviewing daily Plant Issues summary reports and attending daily Plant Issue Review Team meetings.

.2 Unit 1 Containment Closeout - Annual Sample Review

a. Inspection Scope

The inspectors performed a walkdown and observed containment cleanliness activities conducted by the licensee to ensure compliance with TRM Technical Requirement 3.5.2, “Emergency Core Cooling Systems (ECCS) - Containment Sump Debris Inspection.”

b. Findings

Introduction. A Green NRC-Identified Non-Cited Violation (NCV) was identified for failure to take appropriate corrective actions to preclude the recurrence of a significant condition adverse to quality as required by 10 CFR 50 Appendix B Criterion XVI. Corrective actions taken after the spring outage in 2004 for Unit 2 for inadequate closeout of containment failed to correct the procedure used to ensure all foreign material was removed from containment prior to entry into Mode 4.

Description. NRC Inspection Report 05000339/2004003 documented an NRC-Identified finding on May 27, 2004, involving inadequate closeout of containment. Several conditions adverse to quality were identified with respect to the amount of debris found in containment and documented in Plant Issue N-2004-2108. The corrective action associated with this issue was to correct/improve surveillance test 1/2-OP-1B, “Containment Checklist,” which is used to verify that foreign debris in containment are removed. However, the licensee failed to adequately revise the procedure as a large amount of debris was identified by the NRC during the Unit 1 containment closeout walkdown during this inspection period.

On October 4, 2004 during the walkdown of Unit 1 containment the inspectors identified that not all loose debris (rags, trash, tools, clothing, procedures) were removed prior to vacuum being drawn in Mode 4. The licensee conducted surveillance test 1/2-OP-1B, “Containment Checklist,” prior to the inspectors’ entry. The licensee completed their checklist and had not identified the existence of additional loose debris that was required to be removed prior to the heatup activities. TRM technical surveillance requirement 3.5.2.1 has the licensee conduct a visual inspection of containment to verify that no loose debris is present which could be transported to the recirculation spray sump and cause restriction to the pumps suctions during loss of coolant accident conditions. On October 4, the inspectors identified rubber gloves, plastic faceshields, multi-page procedures, rags, tools, insulation, paint chips, duct tape, tie wraps, and other miscellaneous materials. Loose materials were removed and follow-up inspections were conducted to ensure containment cleanliness and that the sumps were clear of potential blockage.

The licensee generated Plant Issue N-2004-4318 to address the operability of the sumps given the quantity of material removed from the containment following the inspector's walkdown. Engineering personnel performed an operability assessment and transport analysis to determine if the debris would have impacted sump operation. Engineering concluded that the containment sumps remained capable of performing their intended design function.

Analysis. In accordance with Inspection Manual Chapter 612 Appendix B, the issue is more that minor, in that, it could be reasonably viewed as a precursor to a significant event in the Mitigating Systems Cornerstone. The procedure was not adequately revised to ensure that loose debris was removed prior to containment closeout. As a result, the transport of loose materials to the containment sump would have caused a restricted flow or blockage and impeded the ability of the containment sumps to provide adequate net positive suction head to the recirculation spray pumps.

In accordance with the IMC Chapter 609 Appendix A SDP Phase 1 screening worksheet, the finding was determined to be of very low safety significance because the amount of material found would not have prevented the containment sumps from performing their intended safety functions, i.e., an actual loss of safety function was not identified.

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action", in part, requires that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. Contrary to the above, the licensee failed to preclude repetition of significant conditions adverse to quality, in that the surveillance procedure and process the licensee revised and implemented in October 2004 for the Unit 1 containment inspection resulted in a large amount of foreign debris being identified similar to that found in the Unit 2 closeout inspection in May 2004. Because the failure to adequately revise the checklist procedure and preclude foreign material remaining in containment in Mode 4 was of very low safety significance and that the licensee documented this condition in their corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000339/2004006-01, Failure to Adequately Address Vulnerabilities in the Containment Checklist Procedures Resulting in Foreign Material Being Left in Unit 1 Containment.

.3 Semi-Annual Trend Review

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," the inspectors performed a review of the licensee's corrective action program through the plant issues reports to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review considered the results of daily inspector plant issue item screening discussed in section 4OA2.1 above, licensee trending efforts, and licensee human performance results. The inspector's review nominally considered the six month period of July through December 2004. The review also covered areas not documented in plant issues reports such as: departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and maintenance rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's latest quarterly trend reports. Corrective actions associated with a sample of the issues identified in the licensees trend report were reviewed for adequacy.

b. Assessment and Observations

No findings of significance were identified. The inspectors evaluated the licensee trending methodology and observed that the licensee had performed reviews. The inspectors noted that the licensee has recently reorganized their approach to trending and have assigned specific resources to exclusively identify negative trends and report those findings through the corrective action system. In addition to the new effort, the licensee routinely reviewed cause codes, involved organizations, key words, and system links to identify potential trends in their plant issue report data. The inspectors compared the licensee process results with the results of the inspectors' daily screening and did not identify any discrepancies or potential trends in the plant issue report data that the licensee had failed to identify. The licensee's October 26, 2004, self-evaluation roll-up presentation identified several issues of potential significance. These issues were maintenance rework, equipment reliability, and equipment tagging errors. The trend in maintenance rework was identified based on plant issues reports through out the review period that documented the need to rework equipment after maintenance had previously been performed. Noteworthy examples of rework items involved eight (8) service water isolation valves with unacceptable leak-by; feedwater pump vibration issues; packing leaks on various fluid system valves that required readjustment; pressure boundary doors not sealing properly; and chillers, HVAC units and dampers not functioning reliably after maintenance. Equipment reliability is challenged for the emergency diesel generators based on performance indicator data, fire protection system due to required maintenance and out of service time to replace rusting pipes, various HVAC systems corrective maintenance issues on dampers and blender makeup capability due to inaccuracies identified during normal operational activities. In the area of equipment tag-outs, the licensee has continued their efforts to reduce the human performance errors. One specific error caused the direct current control power being inadvertently removed from breaker 15D1, protective supply breaker for the reserve station transformer, which rendered vulnerable the safety-related emergency bus to a loss of offsite power event. The inspectors reviewed the licensee's corrective actions associated with these issues using the guidance contained in IP 71152 as well as other baseline inspection procedures. The inspectors determined that the licensee's planned and implemented corrective actions appear to reasonable and appropriate.

In addition to the trends identified by the licensee, the inspectors specific review of maintenance requests and plant issue reports identified a trend of poor preparations for the actual onset of cold weather. The licensee was not properly prepared to complete the necessary preventative maintenance (PMs). Heat tracing circuits operational tests and other cold weather PMs were not scheduled for completion until mid-November and a number of issues were encountered putting the various circuits in-service after the cold weather had been encountered. These poor preparations resulted in reliability and performance problems to maintain the equipment operable during the cold periods experienced at the site. Discussions with maintenance management indicated that actions have been initiated to address this concern.

4OA3 Event Followup 71153

a. Inspection Scope

The inspectors reviewed and performed follow-up activities associate with the spurious actuation of the carbon dioxide suppression system on October 8, 2004, in Unit 1 turbine building around the areas of the main turbine, low pressure turbine, and exciter. This event was reported in accordance with 10 CFR 50.72(a)(1)(i), Unusual Event, due to the onsite discharge of toxic gas. The inspectors discussed the plant response to the event with the control room operators and plant management. The licensee documented the event as Plant Issue N-2004-4430.

b. Findings

No findings of significance were identified.

4OA5 Other

(Closed) Unresolved item 05000339/2003006-01: Fire Response Procedure 2-FCA-2 Not Adequate To Assure Safe Shutdown Of Unit 2.

This item included two issues. One issue involved fire scenarios in Emergency Switchgear and Relay Room (ESGR) No. 2 which results in interruption of seal injection to the Reactor Coolant System Pumps (RCPs). Upon restoration of seal flow, seal damage is possible with a subsequent seal loss-of-coolant accident (LOCA). The second issue involved fire scenarios in ESGR No. 2 which cause spurious actuation of the Cable Vault and Tunnel (CV&T) CO_2 fire protection system. Operator actions required in the CV&T area to mitigate these fire scenarios could be significantly delayed if CO_2 is unnecessarily discharged into the CV&T.

<u>RCP Seal Failure LOCA</u>

<u>Introduction</u>: A Green NRC-identified NCV of 10 CFR 50, Appendix R, Section III.L was identified for failure to have procedures in effect to maintain the reactor coolant level in the level indication of the pressurizer. For some fires in the ESGR, a RCP seal failure LOCA would result in the reactor coolant level being outside the pressurizer indication level. This effects the Mitigating Systems Cornerstone.

<u>Description</u>: The RCP seals are cooled by the thermal barrier heat exchanges and by seal injection from the charging pump system. The plant's design is such that the Component Cooling Water (CCW) system components and control circuits are not protected from fire damage. Therefore, the thermal barrier heat exchangers may not be available due to the CCW system being unavailable, e.g., a fire causes the thermal barrier return isolation valve to close. For certain fires in ESGR No. 2, fire protection procedure 2-FCA-2 step 7 directs operators to isolate seal injection to the RCP seals. By the time procedures re-establish seal flow to the RCP seals, thermal shocking of the seals have some probability of damaging the RCP seals to the point that a seal failure LOCA would occur. A LOCA would result in the reactor coolant system level being outside the indication level of the pressurizer as required. The issue was entered in the licensee's corrective action system as Plant Issue N-2003-2005. The licensee has established interim measures to address this issue while long term corrective actions are being considered. This issue was discovered by the NRC triennial fire protection team in May 2003. Review of configurations and procedures for Unit 1 revealed that a similar condition also existed on Unit 1. Hence the finding is applicable to both Units 1 and 2.

<u>Analysis</u>: A SDP Phase 3 analysis determined that the issue was of very low safety significance (Green) as the result of recovery actions specified in procedures and the low likelihood of fire damage to control and power cables due to their routing in the ESGR. Proprietary Attachment 2 is the SDP Phase 3 which provides the detailed analysis, assumptions and risk results.

Enforcement: The Unit 1 and Unit 2 operating licenses require all provisions of the approved fire protection program as described in the UFSAR be implemented and maintained. The UFSAR commits the licensee to 10 CFR 50, Appendix R Sections III.L.2 and .3, which requires procedures be implemented to maintain the capability of the reactor coolant makeup function to maintain the reactor coolant level within the pressurizer level indication. Contrary to the above, in May 2003, procedures where not implemented to maintain reactor coolant level within the pressurizer level indication for certain fires in the ESGR. This finding is more than minor, in that, it affected the objective of the Mitigating Systems Cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events. For a severe fire in the ESGR, established fire protection procedures would not preclude a RCP seal failure and subsequent loss of the capability to maintain the reactor coolant system level within the pressurizer level indication. A SDP Phase 3 analysis determined that the finding was of very low safety significance mainly due to recovery actions in procedures and the low likelihood of fire damage to control and power cables due to their routing. Because the failure to implement procedures which would maintain reactor coolant system level within pressurizer level indication during certain fires is of very low safety significance and that the licensee documented this condition in their corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000338, 339/2004006-02: Fire Response Procedures Not Adequate to Maintain Reactor Coolant Level Within the Level Indication of the Pressurizer.

Operator Actions in the CV&T

Upon further review, the inspectors considered the likelihood of a spurious actuation of the CO_2 fire protection system into the CV&T was so minimal that the risk associated with the postulated scenarios was negligible, i.e., no performance deficiency or violation of regulatory requirements occurred. The conclusion was based upon the small likelihood of a hot short due to the involved cables being single two-conductor cables which were routed away from other power supply cables, and the cabling being routed through substantial steel constructed conduits and junction boxes and the control panel devices being housed in NEMA type 4 enclosures.

4OA6 Meetings, Including Exits

Exit Meeting Summary

On December 21, 2004, the resident inspectors presented the final inspection results to Mr. Jack Davis and other members of his staff who acknowledged the findings.

The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee-Identified Violations

The following finding of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements, which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

10 CFR 50.65 "Requirements for monitoring the effectiveness of maintenance at nuclear power plants" section (a)(4) requires, in part, that "Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and mange the risk that may result from the proposed maintenance activities." Contrary to the above, on October 18, 2004 the licensee failed to assess the increase in risk associated with the maintenance activity involving opening of the Unit 2 chiller room rolling jet impingement/missile protection steel door inside the turbine building. This deficiency was entered into the licensee's corrective action program as Plant Issue N–2004-4588. This event is of very low safety significance because the safety significance of the maintenance risk assessment deficiency was very low in that the difference between the actual plant risk and subsequent reevaluation of the risk was small enough such that significant risk management actions would not have been required.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

J. Crossman, Assistant Manager, Nuclear Operations
J. Davis, Site Vice President
R. Evans, Manager, Radiological Protection
R. Foster, Supply Chain Manager
S. Hughes, Manager, Nuclear Operations
D. Jernigan, Director, Nuclear Operations & Maintenance
P. Kemp, Supervisor, Nuclear Safety & Licensing
J. Kirkpatrick, Manager, Maintenance
L. Lane, Director, Nuclear Safety and Licensing
J. Leberstien, Licensing Technical Advisor
T. Maddy, Manager, Nuclear Protection Services
F. Mladen, Manager, Nuclear Site Services
B. Morrison, Assistant Engineering Manager
H. Royal, Manager, Nuclear Training
M. Sartain, Manager, Nuclear Engineering

LIST OF ITEMS OPENED AND CLOSED

Opened and Closed

05000339/2004006-01	NCV	Failure to Adequately Address Vulnerabilities in the Containment Checklist Procedures Resulting in Foreign Material Being Left in Unit 1 Containment (Section 4OA2.2)
05000338, 339/2004006-02	NCV	Fire Response Procedures Not Adequate to Maintain Reactor Coolant Level Within the Level Indication of the Pressurizer (Section 4OA5)

Closed

05000339/2003006-01	URI	Fire Response Procedure 2-FCA-2 Not Adequate To Assure Safe Shutdown Of Unit 2 (Section 4OA5)