UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

February 3, 2003

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: SURRY NUCLEAR POWER STATION - NRC INTEGRATED INSPECTION REPORT NOS. 50-280/02-04 AND 50-280/02-04

Dear Mr. Christian:

On January 4, 2003, the NRC completed an inspection at your Surry Power Station, Units 1 and 2. The enclosed report documents the inspection findings which were discussed on January 30 and February 3, 2003, with Mr. Blount and Mr. Small, respectively, 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 selective procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the inspectors identified one finding of very low safety significance (green). Three licensee-identified violations of very low safety significance (green) are listed in section 4OA7 of this report. These issues were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they had been entered into your corrective action program, the NRC is treating these issues as non-cited violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these non-cited violations, 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 Surry Nuclear Power Station.

The Unit 1 Safety System Unavailability - Emergency AC Power Performance Indicator (PI) was determined to have crossed into the White regulatory response band in the fourth quarter of 2001 and remained in the White band through the present quarter. The determination was based upon the inclusion of surveillance hours which were previously excluded from the PI. In accordance with the NRC Action Matrix of Inspection Manual Chapter 305, a supplemental inspection would normally be conducted. However, based upon previous inspection activities,

including the results of the supplemental inspection for the same White PI on Unit 2, the NRC plans no supplemental inspection for this White Unit 1 PI.

Since the terrorist attacks on September 11, 2001, the NRC has issued two Orders (dated February 25, 2002, and January 7, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance access authorization. The NRC also issued Temporary Instruction 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the February 25th Order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calendar year (CY) '02, and the remaining inspections are scheduled for completion in CY '03. Additionally, table-top security drills were conducted at several licensees to evaluate the impact of expanded adversary characteristics and the ICMs on licensee protection and mitigative strategies. Information gained and discrepancies identified during the audits and drills were reviewed and dispositioned by the Office of Nuclear Security and Incident Response. For CY '03, the NRC will continue to monitor overall safeguards and security controls, conduct inspections, and resume force-on-force exercises at selected power plants. Should threat conditions change, the NRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial power reactors.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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).

Sincerely,

/RA/

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

Docket Nos.: 50-280, 50-281
License Nos.: DPR-32, DPR-37

Enclosure: NRC Integrated Inspection Report Nos. 50-280/02-04
and 50-281/02-04 w/Attachment: Supplementary Information

cc/w encl: See Page 3

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-280, 50-281
License Nos.: DPR-32, DPR-37

Report No.: 50-280/02-04, 50-281/02-04

Licensee: Virginia Electric and Power Company (VEPCO)

Facility: Surry Power Station, Units 1 & 2

Location: 5850 Hog Island Road
Surry, VA 23883

Dates: September 29, 2002 - January 4, 2003

Inspectors: R. Musser, Senior Resident Inspector
G. McCoy, Resident Inspector
L. Garner, Senior Project Engineer, Branch 5 (Sections 1R04, 1R13, 1R19, 1R22, 4OA2 and 4OA3)
K. Green-Bates, Project Engineer, Branch 5 (Sections 1R04, 1R05, 1R19, and 1R22)
J. Wallo, Physical Security Inspector (Section 4OA5)
Fred Wright, Senior Health Physics Inspector (Sections 2OS1, 2OS3, 4OA1.3 and 4OA7)

Approved by: K. Landis, Chief, Reactor Projects Branch 5
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000280-02-04, IR 05000281-02-04; Virginia Electric and Power Co.; 9/29/02 - 01/04/03; Surry Power Station Units 1 & 2; Nonroutine Plant Evolutions.

The inspection was conducted by resident inspectors, a senior project engineer, a project engineer, a senior health physics inspector and a security inspector. The inspectors identified one green finding which is a noncited violation. The significance of most findings is indicated by their color (green, white, yellow, or red) using 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. Inspector-Identified Finding

Cornerstone: Barrier Integrity

- Green. Operators failed to emergency borate after a reactor trip as required by an emergency operating procedure. Anticipating the performance of a subsequent procedural step, which would secure the boration, the operators decided not to initiate boration as required.

  An inspector-identified non-cited violation of Technical Specification 6.4.A.5 and 6.4.D was identified. This finding is more than minor because of the potential impact on reactor reactivity control. The finding is of very low safety significance because an adequate amount of boration existed in the primary coolant. (Section 1R14)

B. Licensee-Identified Violations

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

Report Details

Summary of Plant Status

Unit 1 operated at full power the entire reporting period. Unit 2 started the period at full power but tripped at on November 23, 2002, during turbine testing. The unit returned online on November 27, 2002, and remained at full power for the remainder of the report period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather

a. Inspection Scope

The inspectors verified that plant design features and procedures protected plant mitigating systems from adverse cold weather effects. Specifically the inspectors reviewed the licensee's preparations for cold weather as described in procedure 0-OSP-ZZ-001 "Cold Weather Preparation," Operations Checklist (OC)-21 "Severe Weather Checklist" and 0-ECM-1303-01 "Freeze Protection Inspection" to verify that the preparations limited the risk of weather related initiating events, ensured accessibility to accident mitigation system equipment, and adequately protected accident mitigation systems from adverse weather effects. Inspectors specifically verified the freeze protection systems for the containment spray system.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

For the systems identified below, the inspectors reviewed plant documents to determine correct system lineup, and observed equipment to verify that the system was correctly aligned:

- Number 1 emergency diesel generator (EDG) and the Unit 1 emergency buss 1H while the Number 3 EDG was out of service
- Unit 2 motor driven auxiliary feedwater pumps (2-FW-P-3A and 2-FW-P-3B) while the turbine driven auxiliary feedwater pump (2-FW-P-2) was out of service (Drawing 11548-FM-68A, sheet 3), and
- Number 3 EDG while the number 2 EDG was out of service for maintenance (Drawings 11448-FB-046C, sheets 1, 2, and 3).

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted tours of the following areas to assess the adequacy of the fire protection program implementation. The inspectors checked for the control of transient combustibles and the condition of the fire detection and fire suppression systems (using "SPS Appendix R Report,") in the following areas:

- Machinery Equipment Room #5,
- Unit 1 and Unit 2 Cable Spreading Rooms,
- Unit 1 Emergency Switchgear Room,
- Unit 2 Battery Room 2B,
- Unit 1 Battery Room 1B, and
- Unit 1 and 2 Machinery Equipment Room #3.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed licensed operator performance during simulator training session RQ-02.7-ST-2-H-2.1 to determine whether the operators:

- were familiar with and could successfully implement the procedures associated with recognizing and recovering from failure of the reactor trip breakers to open;
- recognized the high-risk actions in those procedures; and,
- were familiar with related industry operating experiences.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

For the equipment issues described in the plant issues listed below, the inspectors evaluated the licensee's effectiveness of the corresponding preventive and corrective maintenance. For each selected item below, the inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, and reviewed the generic implications of the equipment and/or work practice problem. Inspectors performed walkdown of the accessible portions of the system, performed in-office reviews of procedures and evaluations, and held discussions with system engineers. Inspectors compared the licensee's actions with the requirements of the Maintenance Rule (10 CFR 50.65) using VPAP 0815, "Maintenance

Rule Program," and the Surry Maintenance Rule Scoping and Performance Criteria Matrix.

- Plant Issue S-2002-2584, A emergency service water pump (1-SW-P-1A) operated at the upper limit for cooling water temperature and
- Plant Issue S-2002-3612, Low flow on Unit 1 A turbine building sump pump (2-PL-P-2A)

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluations

a. Inspection Scope

The inspectors evaluated the adequacy, accuracy, and completeness of plant risk assessments performed prior to any changes in plant configuration for maintenance activities or in response to emergent conditions. When applicable, inspectors assessed if the licensee entered the appropriate risk category in accordance with plant procedures. Specifically, the inspectors reviewed:

- Removal from service of Unit 1 B bearing cooling heat exchanger (1-BC-E-1A), switching activity in the switchyard, replacement of control room door (1-BS-DR-14) and valve 1-RH-MOV-1720A inoperable;
- Emergent condition when the Unit 2 A outside recirculation spray pump was determined to be inoperable while the Number 3 EDG was out for maintenance and other scheduled work was in progress;
- Removal from service of Unit 1 A charging pump (1-CH-P-1A), 1B1 uninterruptible power supply (1-EP-USP-1B-1), Unit 2 B containment instrument air compressor (2-IA-C-4B), Unit 1 C service water pump (1-SW-P-1C), switching activity in the 500 KV switchyard, performance of the Unit 2 turbine trip test (2-OSP-TM-004) and valve 1-RH-MOV-1720A inoperable.
- Removal from service of Unit 1 C condensate pump (1-CN-P-1C), Unit 2 A containment instrument air compressor (2-IA-C-4A), Unit 2 A bearing cooling heat exchanger (2-BC-E-1A), Unit 1 AMSAC panel (1-AMS-PNL-01) and Unit 1 A, B, and C turbine building sump pumps (1-PL-P-2A, 1-PL-P-2B, and 1-PL-P-2C) with valve 1-RH-MOV-1720A inoperable.
- Removal from service of Unit 1 B boric acid pump (1-CH-P-2B), Unit 2 B containment instrument air compressor (2-IA-C-4B), Unit 2 B safety injection pump (2-SI-P-1B), and Unit 1 B spray valve (1-RC-PCV-1455B), addition of oil to the A reserve station service transformer (1-EP-RST-A), and valve 1-RH-MOV-1720A inoperable.

b. Findings

No findings of significance were identified.

1R14 Nonroutine Plant Evolutions

a. Inspection Scope

For the non-routine event described below, the inspectors reviewed operator logs, plant computer data, and strip charts to determine what occurred and how the operators responded, and to verify the response was in accordance with plant procedures:

- On November 23, Unit 2 automatically tripped from approximately 85 percent power during the performance of turbine control valve freedom testing. A malfunction in the turbine electro-hydraulic control circuitry caused the turbine governor valves to close, which resulted in a low low steam generator reactor trip signal. The inspectors responded to the plant to assess unit conditions as well as operator response to the transient.

b. Findings

1. Introduction

An inspector-identified green finding, a non-cited violation (NCV), was identified for failure to emergency borate after a reactor trip as required by an emergency operating procedure. Anticipating the performance of a subsequent procedural step, which would secure the boration, the operators decided not to initiate boration as required.

2. Description

On November 23, the inspectors identified that the licensee failed to follow the requirements of EOP 2-ES-0.1 following an automatic reactor trip. Specifically, step 7 of 2-ES-0.1 requires the licensee to verify that all Individual Rod Position Indicators (IRPIs) are displaying readings 10 steps or less, and if not, follow the “response not obtained” column which requires the initiation of an emergency boration if two or more IRPIs are displaying readings greater than 10 steps. During the performance of this step, the licensee identified four IRPIs displaying readings greater than 10 steps (all were between 13 and 16 steps), however, the operating shift decided not to initiate an emergency boration. This decision was based upon subsequent procedural steps within the EOP which directs the stopping of an emergency boration if the number of IRPIs displaying readings greater than 10 steps corresponds to one Equivalent Stuck Rod (EQSR) or less. Attachment 1 of 2-ES-0.1 states that four IRPIs displaying readings between 13 and 16 steps corresponds to one EQSR. The licensee inappropriately interpreted this as permission not to initiate an emergency boration.

EOP 2-ES-0.1 specifically directs the initiation of an emergency boration based on the observed plant conditions. Although the EOP would have subsequently directed the stopping of the emergency boration, the requirements of initiating an emergency boration were not met.

3. Analysis

The deficiency associated with this matter is a failure to follow the requirements of an EOP, which resulted in not performing an emergency boration of the reactor coolant system. The finding was greater than minor because it had potential impact on the control of reactivity and potentially affected the reactor safety barrier integrity cornerstone. The finding was of very low safety significance (green) because an adequate amount of boration existed in the primary coolant.

4. Enforcement

Technical Specification (TS) 6.4.A.5 requires, in part, detailed written procedures for emergency conditions. TS 6.4.D requires that procedures described in TS 6.4.A shall be followed. Contrary to the above, EOP 2-ES-0.1 was not followed. Because this failure to follow procedures is of very low safety significance and has been entered into the licensee's corrective action program (Plant Issue S-2003-0169), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 50-281/02004-01, Failure to follow Emergency Operating Procedure.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors evaluated the technical adequacy of the operability evaluations to ensure that operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The operability evaluations were described in the work order (WO) or plant issues listed below:

- S-2002-3380, Failure of latch on control room door,
- S-2002-3589, Loose thrust disk on Unit 2A charging pump (2-CH-P-1A),
- WO 412697-06, Operability of C emergency service water pump (1-SW-P-1C) following replacement,
- S-2002-3724, Failure of turbine building sump pump mercoid switch.
- S-2002-4024, Failure of the Unit 2 C charging pump outlet valve (2-CH-MOV-2286C) to operate.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed the post maintenance test procedures and activities associated with the repair or replacement of the following components to determine whether the procedures and test activities were adequate to verify operability and functional capability following maintenance of the following equipment:

- WO 00469938-07, EDG 3 Lube Oil System Modification PMT after replacement of damaged piping,
- WO 00469938-01, EDG 3 Installation of Fast Start Lube Oil Modification,
- Return to service performance of 0-OPT-EG-009, EDG 3 Major Maintenance Operability Test, after 18 month EDG 3 maintenance and start sequence relay adjustments,
- Return to service performance of 1-OPT-EG-001, Number 1 EDG Test - Monthly, after EDG 1 generator vibration data acquisition and speed sensor circuit adjustments,
- WO 00474054-02, boric acid transfer pump 2D PMT after replacement of breaker with another type breaker,
- WO 00466990-01, Stroking of Valve 2-FW-MOV-260B following electrical preventive maintenance.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the surveillance tests listed below, the inspectors examined the test procedure and either witnessed the testing and/or reviewed test records to determine whether the scope of testing adequately demonstrated that the affected equipment was functional and operable:

- 2-OPT-FW-006, “Auxiliary Feedwater MOV Test,”
- 1-OPT-EG-005, “Number 1 EDG Fuel Oil System Tests,”
- 2-OPT-FW-003, “Turbine Driven Auxiliary Feedwater Pump 2-FW-P-2,”
- 2-OPT-VS-007 “Auxiliary Ventilation Filter Flow Test,” and
- 2-OPT-SI-005 “Train B, Low Head Safety Injection Pump Test.”

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed an emergency response training drill conducted on October 23, 2002, to assess the licensee’s performance in emergency classification, notification, and protective action recommendation development.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control To Radiologically Significant Areas (71121.01)

.1 Access Controls

a. Inspection Scope

During the period of November 18-22, 2002, licensee program activities for monitoring workers and controlling their access to radiologically significant areas and tasks were evaluated. The inspectors evaluated the adequacy of procedural guidance, directly observed implementation of administrative and physical controls, and assessed resultant worker exposures to radiation and radioactive material.

The inspectors observed the planning, preparation, and performance of a contaminated letdown filter replacement. The letdown filter removal pre-job briefing was attended and the adequacy of the radiological controls and conditions communicated between the participants were evaluated. Radiation worker and radiation protection technician performance with respect to radiation protection requirements, radiation monitoring and access control were observed and evaluated. Radiological barriers, engineering controls, radiological postings, and surveys were appraised. The inspectors reviewed several additional Radiation Work Permits (RWPs) for previously performed work for the adequacy of radiological work controls. In addition, the inspectors interviewed workers regarding RWP details and their respective dosimeter alarm setpoints.

The controls and procedures for High Dose Rate (HDR) areas, i.e., greater than 15 rem/hr, and technical specification High Radiation Areas (HRAs), Locked High Radiation Areas (LHRAs), and Very High Radiation Areas (VHRAs) were discussed with the Radiation Protection Managers's staff. The inspectors toured selected LHRA areas and evaluated the established postings and controls. The key controls for these areas were also reviewed against licensee procedure requirements and the keys were inventoried.

The inspectors observed radiological significant work areas within radiation areas and high radiation areas as well as the spent fuel storage pool area. The licensee's physical and program controls for highly activated or contaminated materials (non-fuel) stored within the spent fuel pool were also reviewed with licensee representatives. The inspectors conducted independent radiological surveys of selected plant areas and compared the results to the licensee's surveys. Radiological postings and barricade requirements were evaluated for the observed areas.

The inspectors reviewed the extent of airborne radiological hazards and associated controls. Airborne radiological areas and resulting internal exposures since the last

inspection were reviewed with the licensee's technical staff. During observation of selected tasks, the use of engineering controls to minimize airborne radioactivity was evaluated.

Radiation Protection (RP) program activities and their implementation were evaluated against 10 CFR 19.12; 10 CFR Part 20; the Updated Final Safety Analysis Report (UFSAR) details in Section (§) 12, Radiation Protection; Technical Specification, Section 6.4; and approved licensee procedures. Licensee documents, records, and data reviewed within this inspection area are listed in Section 2OS1 of the report Attachment.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

Issues identified through RP departmental self-assessments and Corrective Action Program (CAP) documents associated with radiological controls, personnel monitoring, and exposure assessments were reviewed and discussed with cognizant licensee representatives. The inspectors assessed the licensee's ability to resolve the issues identified in this RP program area. Specific assessments and Plant Issue documents reviewed and evaluated in detail for this inspection area are identified in Section 2OS1 of the report Attachment.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Portable Survey Instrumentation and Self Contained Breathing Apparatus (SCBA)

a. Inspection Scope

The inspectors observed health physics technician proficiency with portable radiation instrumentation including selection, use, and conduct of source checks during job observations. Maintenance of SCBA equipment utilized for radiological protection was also reviewed with licensee personnel responsible for the program.

Licensee activities associated with personnel radiation monitoring instrumentation and SCBA maintenance were reviewed against 10 CFR Part 20.1501 and licensee procedural requirements, respectively. Documents reviewed associated with this program area are listed in the report Attachment.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

Audits, surveillances, and corrective program documents associated with radiation monitoring equipment, portable instrumentation, and protective equipment programs were reviewed. actions for licensee identified issues concerning the portable instrumentation and protective equipment programs were evaluated. Licensee corrective action program documents associated with radiation monitoring program activities were reviewed. The inspectors assessed the licensee's ability to resolve the issues identified in this RP program area. Specific assessments and Plant Issue documents reviewed and evaluated in detail for this inspection area are identified in Section 2OS3 of the report Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Review

.1 "Scrams with Loss of Normal Heat Removal" Performance Indicator

a. Inspection Scope

The inspectors performed a periodic review of the "Scrams with Loss of Normal Heat Removal" performance indicator for Units 1 and 2. Specifically, the inspectors reviewed this performance indicator from the third quarter of 2001 through the third quarter of 2002. Documents reviewed included applicable monthly operating reports, licensee event reports, and operator logs.

b. Findings

No findings of significance were identified.

.2 "Safety System Unavailability" Performance Indicator

a. Inspection Scope

The inspectors performed a periodic review of the "Safety System Unavailability" performance indicator for the high head safety injection system and the heat removal (auxiliary feedwater) system. This review covered both Units 1 and 2. Specifically, the inspectors reviewed this performance indicator from the fourth quarter of 2001 through the third quarter of 2002. Documents reviewed included a search of applicable plant issues, licensee event reports, and operator logs.

b. Findings

No findings of significance were identified.

.3 Occupational Radiation Safety and Public Radiation Safety

a. Inspection Scope

The inspectors reviewed the Occupational Radiation Safety and Public Radiation Safety PIs for accuracy. To verify data submitted for the PIs, the inspectors interviewed various individuals for indications of PI related occurrences and reviewed licensee data including radiation protection log records and the effluent release program records for the period of November 2001 through November 2002. The licensee's disposition of the reviewed issues was evaluated against the guidance in Nuclear Energy Institute (NEI) 99-02 Regulatory Assessment Performance Indicator Guideline, Revision 2. Documents reviewed are identified in Section 4OA1 of the report Attachment.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

Selected Issue Followup Inspection - Control Room Chiller Breakers

a. Inspection Scope

The inspectors evaluated the corrective actions for the chilled water system deficiencies associated with sizing of the feeder breakers for the control room A and B chillers. The issues were documented in Licensee Event Report (LER) 50-280, 50-281/2001-002-00 and Plant Issue S-2001-2626 and its associated documentation. The chilled water system provides cooling for the main control room (MCR) and emergency switchgear and relay rooms. The inspectors assessed the licensee's actions in the following areas:

- Complete and accurate identification of the problem in a timely manner commensurate with its significance;
- Evaluation and disposition of performance issues associated with maintenance effectiveness, including maintenance practices, work controls, and risk assessment;
- Evaluation and disposition of operability / reportability issues;
- Consideration of extent of condition, generic implications, common cause, and previous occurrences;
- Classification and prioritization of the resolution of the problem commensurate with its safety significance;
- Identification of root and contributing causes of the problem;
- Identification of corrective actions which are appropriately focused to correct the problem;
- Completion of corrective actions in a timely manner commensurate with the safety significance of the issue.

Documentation utilized in this inspection included:

- Engineering Transmittal (ET) No. CEE-01-0015, "Evaluation of MER-3 and MER-5 Power Feeds for Single chiller Testing,"
- ET No. CEE-01-0031, "Requirement For Single Chiller Operation of the A or B Chillers Applicable During Two-Unit Cold Shutdown Conditions,"
- 0-ST-VS-002, "Single Chiller Loop Water Alignment and MCR Chiller Performance Test,"
- Design Control Package (DCP)-01-070, "Replacement of the Control Room Chiller 480 V Molded Case Circuit Breakers," and
- Licensed Operator Requalification Program Training Synopsis, RQ-02.7-TS-5.

b. Findings

The inspectors determined that the licensee implemented appropriate compensatory measures to address the issue. The root cause for this event was determined and has been adequately addressed. A number of issues arose during engineering evaluations of the condition. These included feeder cable sizing, single chiller capability to meet system design functions, and Technical Specification compliance with the C chiller out of service. The licensee has performed testing or initiated or planned appropriate actions to address the long term issues with feeder cable sizing and single chiller capability. The licensee issued Plant Issue S-2002-2874 to address why they failed to identify that, with the chillers degraded, the plant was in a 7 day Technical Specification limiting condition for operations whenever the C chiller was out of service. Record reviews indicate that the Technical Specification action statement was not violated.

4OA3 Event Followup

.1 Unit 1 White "Safety System Unavailability - Emergency AC Power" PI

As documented in NRC Integrated Inspection Report Nos. 50-280/02-03 and 50-281/02-03, the NRC determined that the licensee was not properly counting the time the emergency diesel generators were out of service for surveillance testing in the "Safety System Unavailability - Emergency AC Power" PI. When these hours were added into the PI, the Unit 1 PI entered the White regulatory response band in the fourth quarter of 2001 and continues in the White band through the fourth quarter of 2002. The NRC Action Matrix of Inspection Manual Chapter 305, specifies that a supplemental inspection would normally be conducted in accordance with inspection procedure 95001. However, a significant portion of the time contributing to the Unit 1 White PI resulted from the same cause as the Unit 2 White PI, i.e., problems with the Number 3 EDG which is shared between the units. The Unit 2 PI corrective actions for the Number 3 EDG were inspected and documented in NRC Supplemental Inspection Report Nos. 50-280/02-08 and 281/02-08. In addition, the residents, as part of the normal inspection program, inspected some of the lesser contributors to the Unit 1 PI when they occurred. Based upon these inspection activities, the NRC does not plan to conduct a supplemental inspection for this White Unit 1 PI.

.2 (Closed) LER 50-281/2001-001-00: Extended Snubber Results In Technical Specifications Violation. This LER documents that a snubber on the B pressurizer

safety valve discharge pipe would be loaded beyond its faulted load under some accident conditions. The licensee performed an analysis and determined that this condition would not have resulted in structural failure of the piping. The inspectors considered the licensee's completed and proposed corrected actions as adequate to address this issue and its root cause. A licensee-identified violation of Technical Specifications in discussed in Section 4OA7.3.

4OA5 Other

Temporary Instruction (TI) 2515/148, Appendix A, Pre-inspection Audit for Interim Compensatory Measures (ICMs) at Nuclear Power Plants

The inspectors conducted an audit of the licensee's actions in response to a February 25, 2002 Order, which required the licensee to implement certain interim security compensatory measures. The audit consisted of a broad-scope review of the licensee's actions in response to the Order in the areas of operations, security, emergency preparedness, and information technology as well as additional elements prescribed by the TI. The inspectors selectively reviewed relevant documentation and procedures; directly observed equipment, personnel, and activities in progress; and discussed licensee actions with personnel responsible for development and implementation of the ICM actions.

The licensee's activities were reviewed against the requirements of the February 25, 2002 Order; the provisions of TI 2515/148, Appendix A; the licensee's response to the Order; and the provisions of the NRC-endorsed NEI Implementation Guidance, dated July 24, 2002.

No findings of significance were identified. A more in-depth review of the licensee's implementation of the February 25, 2002 Order, utilizing Appendix B and C of TI 2515/148 was conducted January 6 - 10, 2003, and will be documented in Inspection Report No. 50-280/02-06 and 50-281/02-06.

4OA6 Meetings, including exit

Exit Meeting Summary

The inspectors presented the inspection results to Mr. Blount and other members of the licensee's staff on January 30, 2003, and on February 3, 2003, with Mr. M. Small. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

The following findings of very low significance (green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

.1 Contrary to 10 CFR 20.1501, TS 6.4.B, and licensee Procedure VPAP-2101, Revision 21, Section 6.8.7.f, on November 4, 2002, a licensee worker exiting the Independent

Spent Fuel Storage Installation (ISFSI) failed to perform a personal radiation survey as directed by Radiation Work Permit 02-2-1010, and subsequently, the worker departed the site with radioactive byproduct material in the form of a 120,000 disintegrations per minute (dpm) discrete radioactive particle following monitoring at the Security Exit Portal, PM-7. In addition, on November 6, 2002, tools used in the ISFSI by the contaminated worker were found with low levels of byproduct material ranging from 600 - 8,000 dpm. The tools were stored in a vehicle located outside the RCA, but within the owner controlled area. This finding was determined to be green, in that, it involved the failure to control radioactive material within the RCA, however, the potential exposure to a member of the public was less than 5 mrem and the licensee had not had greater than 5 occurrences in the previous 8 quarters. This issue was placed in the licensee's corrective action program as Plant Issue S-2002-3502-E1.

.2 Contrary to 10 CFR 20.1801 and 10 CFR 1501, the licensee failed to perform adequate surveys to ensure that licensed materials which were stored in controlled or unrestricted areas were secured from unauthorized removal or access. Specifically, (1) on September 10, 2002, a protective clothing hood, with fixed radioactive contamination (600-1000 dpm), was found in the NSS Electrical Prefab Shop, outside the protected area (PA); and (2) on February 23, 2001, the licensee released a turbine control valve from the site to a vendor with detectable, fixed radioactive contamination of 60-80 cpm above background. Each of the occurrences were determined to be green, in that, they each involved the failure to control radioactive material within the RCA, but the potential exposure to a member of the public was less than 5 mrem and the licensee had not had greater than 5 occurrences in the previous 8 quarters. These issues are in the licensee corrective action program as Plant Issue S-2002-2913-R1 and S-2001-0609-E1 respectively.

.3 TS 3.20 requires all snubbers which protect the reactor coolant system be operable or returned to operable status in 72 hours or the unit shall be in hot shutdown within the following 36 hours. A snubber on the pressurizer safety valve discharge pipe was determined to be inoperable for longer than the allowable time in TSs without placing Unit 2 in hot shutdown. The snubber was inoperable in 1985 when it was modified until it was repaired in February 2001. This event is documented in the licensee's corrective action program as Plant Issue S-2001-0375. This finding is of very low safety significance because the associated piping was determined to be operable.

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

NRC

K. Landis, Chief, Branch 5, Division of Reactor Projects, Region II

Licensee

M. Adams, Manager, Engineering
R. Allen, Manager, Outage and Planning
R. Blount, Site Vice President
B. Foster, Director, Nuclear Station Safety and Licensing
D. Llewellyn, Manager, Training
R. MacManus, Manager, Nuclear Oversight
M. Small, Supervisor, Licensing
B. Stanley, Manager, Maintenance
T. Sowers, Director, Nuclear Station Operations and Maintenance
T. Steed, Manager, Radiological Protection
J. Swientoniewski, Manager, Operations

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Open and Closed		
50-281/02004-01	NCV	Failure to follow Emergency Operating Procedure (Section 1R14)
50-280, 281/02004-02	NCV	Failure to follow procedures as stated in RWP concerning personal radiation surveys (Section 4OA7)
50-280, 281/02004-03	NCV	Failure to perform adequate surveys to ensure licensed materials in controlled or unrestricted areas were secure from unauthorized removal or access (Section 4OA7)
Closed		
50-281/2001-001-00	LER	Extended Snubber Results In Technical Specifications Violation (Section 4OA7)

Attachment

Discussed

50-280, 50-281/2001-02-00	LER	Control Room Chillers Breakers Improper Trip Rating Resulted In Potential For Breaker Trip
2515/148	TI	Appendix A, Pre-inspection Audit for Interim Compensatory Measures (ICMs) at Nuclear Power Plants (Section 4OA5.3)

LIST OF DOCUMENTS REVIEWED

2OS1 Access Control To Radiologically Significant Areas (71121.01)

Procedures

- VPAP-2101, Radiation Protection Program, Rev. 21
- C-HP-1032.010, Radiological Survey Records, Rev. 1
- C-HP-1032.020, Radiological Survey Criteria and Scheduling, Rev. 2
- C-HP-1032.030, Radiation Surveys, Rev. 2
- C-HP-1032.040, Contamination Surveys, Rev. 3
- C-HP-1032.060, Radiological Posting and Access Control, Rev. 1
- C-HP-1032.061, High Radiation Area Key Control, Rev. 2
- C-HP-1061.020, Personnel Contamination Monitoring and Decontamination, Rev. 4
- C-HP-1061.110, Radiological Control Areas, Rev. 3
- C-HP-1061.120, Hot Particle Control, Rev. 2
- C-HP-1081.010, Radiation Work Permits: Preparing and Approving, Rev. 2
- C-HP-1081.020, Radiation Work Permits: RWP Briefing and Controlling Work, Rev. 2
- C-HP-1081.030, Radiation Work Permit: Extending, Revising and Terminating, Rev. 1
- C-HP-1081.040, Radiation Work Permits: Providing HP Coverage During Work, Rev. 1
- HP-1071.020,Controlling Contaminated Material, Rev. 2
- 0MCM-0605-08, AMF CUNO Models CG-13U4, CG-4DB4, CG-8DB4, and CG-13DB4 Liquid Filter Cartridge Cage Assembly Replacement, Rev. 1

Radiation Work Permits (RWPs)

- RWP 02-01-0001, Inspections
- RWP 02-02-1008, Radioactive Material Handling
- RWP 02-02-1011, Primary Filter Replacements Auxiliary Building and Fuel Building
- RWP 02-02-1014, Radiography Excluding Containment at Power
- RWP 02-02-1010, Fuel Handlers: Spent Fuel Dry Storage Cask: Load, Transport, and Store

Records and Data

- Personnel Site Exposure Report 2002, 11/21/02
- Radiological Survey, Construction Site Weld Shop, 11/06/02
- Radiological Survey, Tools Used at ISFSI Pad, 11/06/02
- Radiological Survey, Tools Taken from Field Operations Van, 11/19/02

- Radiological Survey, 02-60 Personnel Contamination, Jacket, 11/05/02
- Radiological Survey, 02-60 Personnel Contamination, Individuals Auto, 11/06/02
- Radiological Survey, 02-60 Personnel Contamination, Residence, 11/06/02
- Radiological Survey, 02-60 Personnel Contamination, Skid Pan Outside Welders Shop, 11/05/02
- Radiological Survey, 02-60 Personnel Contamination, Machine Shop and Weld Shop, 11/05/02
- Radiological Survey, 02-60 Personnel Contamination, Security Main Access - Overview, 11/05/02
- Radiological Survey, 02-60 Personnel Contamination, Machine Shop and Weld Shop Overview, 11/05/02
- Radiological Survey, 02-60 Personnel Contamination, Survey of Field Operations Van, 11/19/02
- Radiological Survey, 02-60 Personnel Contamination, ISFSI Dry Cask Storage Pad Number 2 Pad, 11/04/02
- Radiological Survey, 02-60 Personnel Contamination, Spent Fuel Cask-Identification Number 2-8, 11/05/02
- Radiological Survey, 02-60 Personnel Contamination, Spent Fuel Cask-Identification Number 2-8, 11/04/02
- RCA Unrestricted Material Release Survey Record, 11/06/02
- Category 2 Root Cause Evaluation S-2002-3502-E1 Preliminary Team Report, 11/21/02
- Category 2 Root Cause Evaluation S-2002-3502-E1, Investigation Plan, 11/20/02
- Evaluation of Dose to the Public Resulting from Contaminated Equipment Stored in the Dominion VAN, 11/20/02
- Evaluation of Dose to the Public Resulting From A 120,000 DPM Discrete Particle, 11/20/02
- Gamma Isotopic Analysis, UL 200 Intake Port Swab, 11/20/02, (Tl-204)
- Gamma Isotopic Analysis, UL 200 Exhaust Ports, 11/20/02, (NPI)
- Gamma Isotopic Analysis, U1/U2 Ball Valves 11/19/02, (Co-60 & Cs-137)
- Gamma Isotopic Analysis, Gloves From ISFSI, 11/19/02, (Co-60)
- Gamma Isotopic Analysis, Gauges, 11/19/02, (Co-60)
- Gamma Isotopic Analysis, HY Torque Head, 11/19/02, (Co-60)
- Gamma Isotopic Analysis, Particle, 11/05/02, (Co-60)
- Personnel Contamination Report, 02-60, 11/05/02, Calculated Skin Dose 0.079 rem,
- PI-S-2002-3478 Particle Detected at Security Exit, A Chronology of events and actions taken associated with Personnel Contamination Event 02-059 (11/04/02), 11/12/02

Self-Assessments and Corrective Action Documents

- Nuclear Oversight Audit 02-07: Radiological Protection and Process Control Program, 07/01/02 through 09/03/02
- S-2002-0176-R1, Personnel attempting to exit PDA improperly, 01/17/02
- S-2002-0648, RCA designated sling with purple ID tag identified in the rigging loft adjacent to the garage on the construction site, 03/06/02
- Category 3 Root Cause Evaluation Response S-2002-0998-E1, Personnel contamination event outside of the RCA, 03/29/02
- S-2002-1356-R1, Hi levels of contamination encountered alone the RX Head travel path, 04/12/02

- S-2002-1647, 24" offset pipe wrench in the Service Building Tool Room was found to have low levels of fixed contamination, 04/30/02
- S-2002-1888-E1, Employee failed to obtain a “DAD” prior to entering a radiological controlled area boundary, 05/23/02
- S-2002-1991-E1, Worker’s left hand was contaminated (40,000 dpm) while performing 1-OPT-CT-306, 06/03/02
- S-2002-2124-R1, Contamination event occurred in a “clean” area, 06/14/02
- Category 3 Root Cause Evaluation Response S-2002-2149-E1, A PCE on the sole of the Aux Building operators shoe, 06/18/02
- Category 3 Root Cause Evaluation Response S-2002-2530-E1,A worker received 15 millirem of unplanned exposure, 07/25/02
- Category 3 Root Cause Evaluation Response S-2002-2612-E1, Administrative and mathematical discrepancies were noted between the Inventory Record and the Supporting Documentation, 08/06/02
- Trend Evaluation Response - S-2002-2638-E1, The primary Leak/Catch Container for 1 CH-474 in an unsatisfactory condition, 08/08/02
- Category 2 Root Cause Evaluation Response S-2002-2913-E1, A protective clothing hood was found on a coat rack in the NSS Electrical Prefab shop outside of the protected area, 09/11/02
- S-2002-3478, Individual alarmed Security Building PM-7 at Protected Area exit, 11/05/02
- Category 3 Root Cause Evaluation Response S-2002-3479-E1, Two NSS craft personnel exited the RCA from a non-designated exit point, 11/05/02
- Category 2 Root Cause Evaluation Response S-2002-3502-E1, Fire extinguisher with an affixed radioactive material label was found attached to the Yard RCA Yale forklift. 11/06/02
- Trend Evaluation S-2002-3518-E1, Individuals did not process through HP monitoring equipments as specified on RWP 02-02-1010, 11/07/02
- Trend Evaluation S-2002-3569-E1, Individual entered the protected area without obtaining TLD from the kiosk,11/13/02
- Plant Issue S-2002-3660, Purple Tools found in Spent Fuel Cask Transport Vehicle, 11/21/02
- Plant Issue - Workers in the RCA were not knowledgeable of DAD dose and dose rate alarms specified by their RWP,11/20/02

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

Procedures, Guidance Documents

- C-HP-1042.450, Self Contained Breathing Apparatus Maintenance, Rev. 6
- C-HP-1042.510, Atmosphere-Supplying Respiratory Equipment Performance Verification, Rev. 4

Records

- Breathing Air Certification Report, 06/12/02

Surveillance and Plant Issues

- Radiological Instrumentation Program Surveillance and Evaluation, August 31, 1999 through August 28, 2002
- S-2002-2620-E1, SAC-4 failed its daily source check. 08/07/02
- S-2002-0363, Problems identified in Instrument Calibration Facility during a review of HP-1033.020, 02/12/02
- S-2002-0544, The Shepherd Model 89 Irradiator in HP Instrument Shop is currently in a non-stable condition due to an apparent electrical short in the operating tower, 02/26/02
- S-2002-2203, Shepherd 89 Calibrator (SN-8183) which is used for source checking HP portable instrumentation in the RCA Clean Change area has a broken mechanical door latch, 06/22/02
- S-2002-2636, A review of radiation surveys, performed for radioactive waste shipments. Found that performance checks of the survey instruments were not being documented as required by Health Physics procedure HP-1033.010,07/25/02
- Category 3 Root Cause Evaluation Response S-2002-3119-E1, RCA Laundry sink drain was found to be 46 mrem/hr contact and 4 mrem/hr at 30 cm,10/02/02
- S-2002-3327, Personnel Radiation Exposure Management System (PREMS) instrument issue module does not mimic Health Physics procedure HP-10033.010, 10/24/02

4OA1 Performance Indicator Verification (71151)

Records

- HPAP-2802, NRC Performance Indicator Program, Rev. 1
- Plant Issue Data Base for radiological control, radiological effluent, and environmental monitoring issues during the period of November 2001 through 2002.