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

April 26, 2006

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. 05000338/2006002, 05000339/2006002 AND 07200016/2006001

Dear Mr. Christian:

On March 31, 2006, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your North Anna Power Station, Units 1 and 2, and the North Anna Independent Spent Fuel Storage Installation. The enclosed integrated inspection report documents the inspection results, which were discussed on April 11, 2006 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, one self-revealing finding and one NRC-identified finding of very low safety significance (Green) were identified. The findings were determined to involve a violation of NRC requirements. However, because of the very low safety significance and because they were entered into your corrective action program, the findings are treated as non-cited violations (NCV) consistent with Section VI.A of the NRC Enforcement Policy. In addition, one licensee- identified violation, which was determined to be of very low safety significance, 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).

Sincerely,

/RA/

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

Docket Nos.: 50-338, 50-339, 72-016
License Nos.: NPF-4, NPF-7, SNM-2507

Enclosure: Inspection Reports 05000338/2006002, 05000339/2006002, and 07200016/2006-001

cc w/encl: (See page 3)

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SIGNATURE	JTR	GJW	GWL1	GWL1 for	PKV	PKV for	HJG1
NAME	JReece	GWilson	GLaska	GJohnson	KVanDoorn	BMiller	HGepford
DATE	04/21/2006	04/21/2006	04/24/2006	04/24/2006	04/24/2006	04/24/2006	04/24/2006
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SIGNATURE	RCH for	NJG1	PKV for	RCH			
NAME	RHamilton	JGriffis	RChou	RHaag			
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Letter to David A. Christian from Kerry D. Landis dated April 26, 2006.

SUBJECT: NORTH ANNA POWER STATION - INTEGRATED INSPECTION REPORT 05000338/2006002 AND 05000339/2006002

Distribution w/encl.:
S. Monarque, NRR
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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-338, 50-339, 72-016

License Nos.: NPF-4, NPF-7, SNM-2507

Report Nos.: 05000338/2006002, 05000339/2006002, 07200016/2006001

Licensee: Virginia Electric and Power Company (VEPCO)

Facilities: North Anna Power Station, Units 1 & 2
North Anna Independent Spent Fuel Storage Installation

Location: 1022 Haley Drive
Mineral, Virginia 23117

Dates: January 1, 2006 - March 31, 2006

Inspectors: J. Reece, Senior Resident Inspector
G. Wilson, Resident Inspector
K. Van Doorn, Senior Reactor Inspector, Section 1R08
B. Miller, Reactor Inspector, Section 1R08
R. Chou, Reactor Inspector, Section 1R08
G. Laska, Senior Operations Examiner, Section 1R11
G. Johnson, Operations Engineer, Section 1R11
H. Gepford, Health Physicist, Sections 2OS1, 4OA1, and 4OA5
R. Hamilton, Senior Health Physicist, Sections 2PS2 and 4OA1
J. Griffis, Health Physicist, Section 2OS2
L. Garner, Senior Project Engineer, Section 1R13

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

Enclosure

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SUMMARY OF FINDINGS

IR 05000338/2006-002, IR 05000339/2006-002, IR07200016/2006-001; 01/01/2006 - 03/31/2006; North Anna Power Station Units 1 & 2, and North Anna Independent Spent Fuel Storage Installation. Routine Integrated Resident and Regional Inspector Report. Event Followup.

The report covered a three-month period of inspection by the resident inspectors and announced inspections by a senior operations examiner, an operations engineer, a senior health physicist, two health physicists, a senior reactor inspector, and two reactor inspectors from the region. One self-revealing finding and one NRC-identified finding were identified. The findings were determined to be non-cited violations (NCV). 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 Findings

Cornerstone: Mitigating Systems

Green. An NRC-identified non-cited violation of 10 CFR 50 Appendix B Criterion III was identified for failure to translate design requirements into procedures. Specifically, the licensee failed to properly translate the Technical Specification (TS) "Operable-Operability" definition into procedures which established the time the environmental hazard barriers between the turbine building and either the main control room or the emergency switchgear room were allowed to be inoperable during maintenance. This issue is documented in the licensee's corrective action program as Plant Issues N-2005-1080 and N-2005-2236.

This issue is more than minor because it could become a more significant condition, in that the unit could continue to operate at full power with main control room and emergency switchgear equipment exposed to potentially harsh environmental conditions (e.g. steam from a high energy line break in the turbine building) for a period of time greater than that allowed by TS. However, the time period that the pressure boundary door 2-BLD-STR-S54 was inoperable on March 16, 2005 did not result in a violation of TS 3.0.3 and thus no performance deficiency existed for that specific event. After management review, the issue was assigned a significance of Green because the inoperability period was limited to a maximum of 24 hours by other TS. (Section 1R13)

Green. A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion III was identified for inadequate design control resulting in a flood potential for the Units 1 and 2 safeguards instrument rack rooms. On July 9, 2005, back flush of control room chiller service water strainers 2-HV-S-1A and 1B as directed by engineering transmittal ET N-05-0034, "Operability of 2-HV-P-22C, Service Water Pump for 2-HV-E-4C," was performed in the Unit 2 air conditioning chiller room (ACCR). Following this work activity, the licensee observed water around a floor drain in the adjacent air conditioning fan rooms (ACFR) and initiated Plant Issue N-2005-2565 to evaluate the abnormal

condition. Subsequently, the licensee determined that back-flow preventers were not installed in the floor drains on the ACFRs on both units. The back-flow preventers are necessary to prevent leakage in the ACCR from bypassing the flood wall protecting the ACFR and adjoining safeguards instrument rack room from flooding.

The inspectors determined that the finding had a credible impact on safety based on the potential for flooding to impact the instrument rack room which contains both trains of Solid State Protection System cabinets used for engineered safeguards. The finding, if left uncorrected, would result in a more significant safety concern and is consequently more than minor. A Phase III evaluation was performed for the SDP due to the loss or degradation of equipment specifically designed to mitigate a flooding event and the impact on two trains of a safety system. This evaluation concluded that the performance deficiency was of very low safety significance (Green) based on the existence of high level alarms for the associated sumps and the response time allowed for an operator to isolate the leak (approximately 40 minutes). The inspectors also concluded that this finding had aspects relating to the cross-cutting area of problem identification and resolution. (Section 4OA5)

B. Licensee-Identified Violation

One violation of very low safety significance was identified by the licensee and 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 and Unit 2 began the inspection period at 100 percent power. Units 1 and 2 remained at or near 100 percent power for the entire reporting period with the following exceptions. Unit 1 experienced a forced outage February 13 - 17, 2006, due to tube leaks in the 6B and 4B feedwater heaters. Unit 1 entered a refueling outage on March 12, 2006, which continued throughout the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

The inspectors conducted three equipment alignment partial walkdowns to evaluate the operability of selected redundant trains or backup systems, listed below, with the other train or system inoperable or out of service. The inspectors reviewed the functional system descriptions, Updated Final Safety Analysis Report (UFSAR), system operating procedures, and Technical Specifications (TS) to determine correct system lineups for the current plant conditions. The inspectors performed walkdowns of selected portions of the systems to verify that critical components were properly aligned and to identify any discrepancies which could affect operability of the redundant train or backup system.

- Unit 2 train B Low Head Safety Injection (LHSI) equipment during planned maintenance on the 2-SI-P-1A;
- Units 1 and 2 Switchyard, during planned maintenance on the #1 and #3 busses; and,
- Unit 1 train A LHSI, while 1-SI-P-1B was inoperable for motor operated valve preventative maintenance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted tours of the eleven areas listed below and important to reactor safety to verify the licensee's implementation of fire protection requirements as described in Virginia Power Administrative Procedure (VPAP)-2401, "Fire Protection Program."

The inspectors evaluated, as appropriate, conditions related to: (1) licensee control of transient combustibles and ignition sources; (2) the material condition, operational status, and operational lineup of fire protection systems, equipment, and features; and (3) the fire barriers used to prevent fire damage or fire propagation. Other documents reviewed are listed in the Attachment.

- Normal Switchgear Room Unit 1 (fire zone 5-1 / NSR-1);
- Emergency Switchgear Room Unit 1 (fire zone 6-1a / ESR-1);
- Emergency Switchgear Room Unit 2 (fire zone 6-2a / ESR-2);
- Charging Pump Cubicle 1-1C (fire zone 11 Ca / CPC-1C);
- Emergency Diesel Generator 1H Unit 1 (fire zone 9A-1a / EDG-1H);
- Motor-Driven Auxiliary Feedwater Pump Room Unit 1 (fire zone 14B-1a / MDAFW-1);
- Battery Room 1 - I Unit 1 (fire zone 7A-1 / BR1-I);
- Battery Room 1 - II Unit 1 (fire zone 7B-1 / BR1-II);
- Battery Room 1 - III Unit 1 (fire zone 7C-1 / BR1-III);
- Battery Room 1 - IV Unit 1 (fire zone 7D - 1/ BR1-IV); and
- Containment Unit 1 (fire zone 1-1a / RC-1).

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed inspection records, test results, maintenance work orders, and other documentation to ensure that heat exchanger (Hx) deficiencies that could mask or degrade performance were identified and corrected. The test procedures and records were also reviewed to verify that these were consistent with Generic Letter 89-13 licensee commitments, and Electric Power Research Institute (EPRI) Heat Exchanger Performance Monitoring Guidelines. The risk significant Hx reviewed was the Unit 1 “B” Component Cooling (CC) Heat Exchanger, which was tagged out for inspection and cleaning. The inspectors reviewed CC Hx inspection and cleaning procedures, completed work orders, design specification sheets, and tube plugging margins to verify that test results were consistent with design acceptance criteria, inspection methods and performance of the Hx under the current maintenance frequency were adequate, and to verify minimum flow requirements and Hx design bases were being maintained.

Additionally, the inspectors reviewed Plant Issue N-2006-0257, regarding CC Hx ‘B’ elevated differential pressure, for potential common cause problems and other issues which could affect system performance to confirm that the licensee was entering problems into the corrective action program and initiating appropriate corrective actions.

The inspectors reviewed Hx test condition reports regarding foreign material found during recent and past CC Hx inspections. In addition, the inspectors conducted a walk down of all four CC Hxs and the related service water piping to assess general material condition and to identify any degraded conditions.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) Activities

.1 Piping Systems ISI

a. Inspection Scope

On March 13-17, 2006, the inspectors reviewed the implementation of the licensee's ISI program for monitoring degradation of the reactor coolant system boundary and the risk significant piping system boundaries for Unit 1. The inspectors selected a sample of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI required examinations and a sample of risk-informed ISI Program examinations.

The inspectors conducted an on-site review of nondestructive examination (NDE) activities to evaluate compliance with TS, ASME Section XI and ASME Section V requirements, 1995 Edition through 1996 Addenda, and to verify that indications and defects (if present) were appropriately evaluated and dispositioned in accordance with the requirements of ASME Section XI, IWB-3000 or IWC-3000 acceptance standards. Specifically, the inspectors observed the following examinations:

Ultrasonic Testing

- 31"-RC-2-2501R-Q1, Weld #6, Reactor Coolant Elbow to Pipe on A Steam Generator Crossover Leg;
- 16"-WFPD-23-601C-Q2, Weld #16A, Main Feedwater to B Steam Generator;
- 6"-WFPD-14-901, Weld #SW-44, Main Feed Line to Bypass Feed Line; and,
- 6"-WFPD-15-901, Weld #7, Main Feedwater Bypass Line.

Magnetic Particle

- 6"-WFPD-14-901, Weld #SW-44, Main Feed Line to Bypass Feed Line; and,
- 6"-WFPD-15-901, Weld #7, Main Feedwater Bypass Line.

The inspectors reviewed the following examination records in addition to the records for the above observed examinations:

Ultrasonic Testing

- 12"-SI-14-153A-Q2, Weld #41A, Low Head Safety Injection suction piping;
- 12"-SI-14-153A-Q2, Weld #SW-39, Low Head Safety Injection suction piping;
- 12"-SI-14-153A-Q2, Weld #85B, Low Head Safety Injection suction piping; and,
- 12"-SI-14-153A-Q2, Weld #26, Low Head Safety Injection suction piping.

Liquid Penetrant

- 12"-SI-14-153A-Q2, Weld #41A, Low Head Safety Injection suction piping;
- 12"-SI-14-153A-Q2, Weld #SW-39, Low Head Safety Injection suction piping;
- 12"-SI-14-153A-Q2, Weld #85B, Low Head Safety Injection suction piping; and,
- 12"-SI-14-153A-Q2, Weld #26, Low Head Safety Injection suction piping.

Qualification and certification records for examiners, inspection equipment, and consumables along with the applicable NDE procedures for the above ISI examination activities were reviewed and compared to requirements stated in ASME Section V and Section XI.

Pressure boundary welding activities associated with ASME Class 2 components were reviewed to verify the welding process and examinations were performed in accordance with the ASME Code Sections III, V, IX, and XI requirements. The inspectors reviewed weld data sheets, the welding procedure specification, supporting welding procedure qualification records, welder qualification records, weld rod material certifications, and preservice examination results for the following welds and subsequent weld repairs:

- 10"-SI-214-153A-Q2, Weld #90, Low Head Safety Injection piping and its associated weld repairs; and,
- 10"-RS-9-153A-Q2, Weld #10, Recirculation Spray piping and its associated weld repairs.

The inspectors performed a review of piping system related problems that were identified by the licensee and entered into the corrective action program. The inspectors reviewed these corrective action documents to confirm that the licensee had appropriately described the scope of the problems and had implemented effective corrective actions. Specifically, the inspectors reviewed the licensee's augmented examination activities with respect to through wall leaks found on the LHSI piping during the operating cycle.

b. Findings

No findings of significance were identified.

.2 Boric Acid Corrosion Control ISI

a. Inspection Scope

On March 13-17, 2006, the inspectors reviewed the licensee's Boric Acid Corrosion Control Program (BACCP) to ensure compliance with commitments made in response to NRC Generic Letter 88-05 "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary" and Bulletin 2002-01 "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity."

The inspectors conducted an on-site record review and an independent walk-down of the reactor building to evaluate compliance with licensee BACCP requirements and 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. In particular, the inspectors verified that licensee visual examinations focused on locations where boric acid leaks can cause degradation of safety significant components and that degraded or non-conforming conditions were properly identified in the licensee's corrective action system.

The inspectors reviewed the licensee's program implementation procedures and a sample of plant issue reports (corrective action documents) to ensure that leaks were being identified and addressed at an appropriate threshold. A sample review of engineering evaluations was also completed for boric acid deposits found on reactor coolant system piping and other ASME Code Class components to verify that the minimum design code required section thickness had been maintained for any affected component(s). The inspectors also reviewed the licensee's corrective actions implemented in response to a Green NCV identified during the previous outage on Unit 2. Specifically, the inspectors reviewed corrective actions associated with training on boric acid identification and reporting and actions associated with the implementation of boric acid walkdown procedures.

b. Findings

No findings of significance were identified.

.3 Steam Generator Tube ISI

a. Inspection Scope

The inspectors reviewed activities, plans, a pre-outage degradation assessment, and procedures for the inspection and evaluation of the 1B steam generator Inconel Alloy 690TT tubing, to determine if the activities were being conducted in accordance with TS and applicable industry standards. Data gathering, analysis, and evaluation activities were reviewed. The inspectors reviewed data results for tubes R18C16, R16C16,

R16C17, R29C51, R24C58, and R03C58 to verify the adequacy of the licensee's primary, secondary, and resolution analyses. The inspectors observed the licensee perform the video/visual inspection in the lower bowl area of the steam generator to determine if any foreign materials or debris were present. The inspectors observed the licensee's video probe inspection of the upper tube plate area around the periphery, down the tube lane under Row 1 U-bends, and in-bundle down selected tube columns. The inspectors observed the licensee's Quality Control examiner oversee the vendor inspection for foreign objects or debris before the closing of the lower manway in the steam generator. The inspectors also reviewed data operators' and analysts' certifications and qualifications, including medical exams.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

.1 Biennial Review

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the week of January 23, 2006, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of simulator operating tests associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the licensee in implementing requalification requirements identified in 10 CFR 55, "Operators' Licenses." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The inspectors also reviewed and evaluated the licensee's simulation facility for adequacy for use in operator licensing examinations. The inspectors observed two operator crews during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, simulator modification request records and performance test records, the feedback process, licensed operator qualification records, remediation plans, watch standing, and medical records. The records were inspected against the criteria listed in Inspection Procedure 71111.11. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Requalifications Activities Review

a. Inspection Scope

The inspectors observed an annual licensed operator requalification simulator examination on March 7, 2006. The scenerio, Simulator Examination Guide SXG-79, involved a loss of first stage pressure, a loss of the main feedwater pump, a reactor coolant pump seal failure, and a faulted steam generator.

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 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." Other documents reviewed are listed in Attachment.

- Elevated internal resistance readings obtained for the 1J Emergency Diesel Generator indicating potential for damaged cells while performing Work Order (WO) 726061-01; and,
- The maintenance rule criteria for 0-AAC-DG-0M, Station Blackout Generator, was exceeded, Plant Issue N-2006-0357.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors evaluated, as appropriate, for the four plant situations listed below: (1) the effectiveness of the risk assessments performed before maintenance activities were conducted; (2) the management of risk; (3) that, upon identification of an unforseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and (4) that maintenance risk assessments and emergent work problems were adequately identified and resolved. The inspectors verified that the licensee was complying with the requirements of 10 CFR 50.65 (a)(4) and the data output from the licensee's safety monitor associated with the risk profile of Units 1 and 2. Other documents reviewed are listed in Attachment.

- Unit 1 downpower with 1-CC-E-1B, 0-AAC-DG-0M, 1-PT-230.3, 1-PT-33.7 series, rack work and "C" Reserve Station Service Transformer (RSST) on overhead lines on January 25, 2006;
- 1-HV-E-4B, 1-IA-C-1, 1-PT-14.2, 1-PT-213.2B.1, 1-PT-213.35B, rack work, switchyard work and "C" RSST on overhead lines on February 16, 2006;
- Emergent work on the Alternate AC Diesel Generator with planned work on instrument racks, switchyard, and "C" RSST energized on overhead lines on March 3, 2006; and,
- Emergent work on 2-CC-TV-204B with planned work on instrument racks, switchyard, 1-PT-83.12H and "C" RSST energized on overhead lines on March 14, 2006.

In addition, the inspectors completed an in-office review of WO 00494074-06, repair of control room pressure barrier door 2-BLD-STR-S54-11.

b. Findings

Introduction: A Green, NRC-identified non-cited violation (NCV), involving the Mitigating Systems Cornerstone, was identified for failure to translate design requirements into procedures as required by 10 CFR 50 Appendix B Criterion III. Specifically, the licensee failed to properly translate the TS Operable-Operability definition into procedures which established the time the environmental hazard barriers between the turbine building and either the main control room or the emergency switchgear room were allowed to be inoperable during maintenance.

Description: On March 16, 2005, the inspectors observed that the licensee considered themselves in a 24-hour limiting condition for operation while performing WO 00494074-06 on control room pressure barrier door 2-BLD-STR-S54-11. Since the door functions as a pressure barrier and also separates the harsh environment designated turbine building area from the mild environment of the control building, this was inconsistent with the guidance the NRC had issued in Regulatory Issue Summary (RIS) 2001-009, Control of Hazard Barriers. The licensee initiated Plant Issue 2005-1080 to address the concern and Plant Issue 2005-2236 to address subsequent ones identified during the

resolution of the former plant issue. The licensee determined that due to a misapplication of the TS Operable-Operability definition regarding environmental hazard barriers, they had failed to consider that the supported systems and components should be considered inoperable when environmental hazard barriers become inoperable. This problem also extended to certain hazard barriers, including flood barriers, at North Anna and at its sister plant, the Surry Power Station.

Correct application of the definition on March 16, 2005 would have resulted in entry into TS 3.0.3, which requires either the TS to be exited or a unit to be in Mode 3 within 8 hours. Door 2-BLD-STR-S54-11 was inoperable for 4 hours and 52 minutes. Thus, no TS time limits were exceeded.

Until a long term resolution is developed and implemented, the licensee has established compensatory measures including appropriately specifying entry into TS 3.0.3 when required and building temporary hazard barriers for planned evolutions.

Analysis: Not establishing TS required limiting conditions for operations into procedures is a performance deficiency. This issue is more than minor because it could become a more significant condition, in that the unit could continue to operate at full power with main control room and emergency switchgear equipment exposed to potentially harsh environmental conditions (e.g. steam from a high energy line break in the turbine building) for a period of time greater than that allowed by TS. However, the time period that the pressure boundary door 2-BLD-STR-S54-11 was inoperable on March 16, 2005 did not result in a violation of TS 3.0.3 and thus no performance deficiency existed for that specific event. After management review, the issue was assigned a significance of Green because the inoperability period was limited to a maximum of 24 hours by other TS. Hazard barriers are associated with protecting equipment which mitigate accidents and thus are associated with the Mitigating Systems Cornerstone.

Enforcement: 10 CFR 50 Appendix B Criterion, Design Basis, requires that design bases be translated into instructions. Contrary to this, on March 16, 2005, design basis, i.e., TS definition of Operable-Operability, was not translated into instructions such that unit operation above Mode 3 would be limited to 8 hours when environment hazard barriers were inoperable. Because this finding is of very low safety significance (Green) and is in the licensee's corrective action program as Plant Issues N-2005-1080 and N-2005-2236, it is being treated as an NCV, consistent with Section VI.A of the NRC's Enforcement Policy: NCV 05000338, 339/2006002-01, Failure to translate TS operable-operability definition regarding hazard barriers into instructions as required by 10 CFR 50 Appendix B Criterion III.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed five operability evaluations affecting risk-significant mitigating systems, listed below, to assess, as appropriate: (1) the technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other

existing degraded conditions were considered as compensating measures; (4) whether the compensatory measures, if involved, were in place, would work as intended, and were appropriately controlled; (5) where continued operability was considered unjustified, the impact on TS Limiting Conditions for Operation and the risk significance in accordance with the SDP. The inspectors' review included a verification that the operability determinations were made as specified by Procedure VPAP-1408, "System Operability."

- Plant Issue N-2006-0504, during the performance of procedure 0-PT-77.14B for in-place testing of the Emergency Core Cooling System Pump Room Exhaust Air Clean-up System (PREACS) Train "B" filter, the as found leakage for Unit 2 Safeguards Exhaust bypass dampers were out of spec high with Unit 2 Safeguards Exhaust aligned to the Charcoal Filters;
- Plant Issue N-2006-0520, during the disassembly/inspection of 1-EG-278 check valve, it was discovered that the in-body seating area of the valve was too wide and a proper blue check could not be obtained so the valve was declared operable but degraded;
- Plant Issue N-2006-1175, containment breach via open containment penetration coolers inside containment and open component cooling drain valves outside containment;
- Plant Issue N-2006-1387, water found in safety-related conduits for 1-FW-P-3A-MOTOR, 1-SI-P-1A-MOTOR, and 1-RS-P-2A-Motor; and,
- Plant Issue N-2006-1701, for breaker 01-EE-BKR-K/J1-2, the as-found instantaneous overload setpoints were outside acceptance criteria of Procedure 0-EPM-0302-2.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed six post maintenance test procedures and/or test activities, as appropriate, for selected risk-significant mitigating systems to assess whether: (1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; (7) test equipment was removed following testing; and (8) equipment was returned to the status required to perform its safety function. The inspectors verified that these activities were performed in accordance with licensee procedure VPAP-2003, "Post Maintenance Testing Program."

- Procedure 0-MCM-0803-01, “Periodic Disassembly, Inspection, and Repair of the Control Room Chiller Condenser (1/2-HV-E-4A, B) and the Front Office Chiller Condenser (1-HV-3A, B, and C),” Revision 18, per WO 526179-01 for 2-HV-E-4B;
- Procedure 0-MCM-0103-04, “Disassembly, Inspection and Repair of Westinghouse/Nuttall Type SU High Speed Gear Drives (Charging Pump Speed Increase),” Revision 13, and Procedure 0-MCM-0103-01, “Repair of the Charging and High Head Safety Injection Pump,” Revision 37, per WO 443561;
- Furmanite leak seal injection of the leaking hinge pin of 2-FW-134, per WO 727585-04;
- Procedure 0-MPM-0102-02, “Motor Driven Auxiliary Feed Pumps Preventive Maintenance,” Revision 1, per WO 720465 for the 1-FW-P-3B lube oil cooler cleaning;
- Procedure 1-PT-30.4.2, “NIS Source Range channel 11 (N-32) Calibration,” Revision 5, and 1-ICP-NI-32, “MS Source Range Channel 11 (N-32) Calibration,” Revision 0, per WO 730503; and,
- Procedure 82J “1J Emergency Diesel Generator Slow Start Test,” Revision 35, per WOs 734272, 734273, and 726222.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outages

.1 Unit 1 Unscheduled Outage

a. Inspection Scope

Unit 1 began an unscheduled outage on February 13, 2006, due to tube leaks in the 6B and 4B feedwater heaters. The unit cooled down to Mode 4 (approximately 330 degrees F reactor coolant system (RCS) temperature) in order to secure main condenser vacuum for repairs to 6B feedwater heater. During the forced outage, the inspectors evaluated the licensee’s outage activities to verify that appropriate risk consideration was given in developing schedules and that the licensee adhered to administrative risk reduction methodologies. The inspectors also monitored the licensee’s risk management of off-normal plant conditions and ensured mitigation strategies were developed for any loss of key safety functions. The unit was synchronized to the grid on February 17, 2006, and 98% power was obtained on February 21, 2006. The licensee subsequently performed a coast down in preparation for a refueling outage.

b. Findings

No findings of significance were identified.

.2 Unit 1 Refueling Outage

a. Inspection Scope

The inspectors performed the inspection activities described below for the Unit 1 refueling outage that began on March 12, 2006 and ended April 10, 2006. The inspectors used inspection procedure 71111.20, "Refueling and Outage Activities," to observe portions of the shutdown, cooldown, refueling, maintenance activities, and startup activities to verify that the licensee maintained defense-in-depth commensurate with the outage risk plan and applicable TS.

The inspectors monitored licensee controls over the outage activities listed below. Documents reviewed during the inspection are listed in the Attachment.

- Licensee configuration management, including daily outage reports, to evaluate defense-in-depth commensurate with the outage safety plan and compliance with the applicable TS when taking equipment out of service;
- Installation and configuration of reactor coolant instruments to provide accurate indication and an accounting for instrument error;
- Controls over the status and configuration of electrical systems and switchyard to ensure that TS and outage safety plan requirements were met;
- Licensee implementation of clearance activities to ensure equipment was appropriately configured to safely support the work or testing;
- Decay heat removal processes to verify proper operation and that steam generators, when relied upon, were a viable means of backup cooling;
- Controls to ensure that outage work was not impacting the ability to operate the spent fuel pool cooling system during and after-core offload;
- Reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- Reactivity controls to verify compliance with TS and that activities which could affect reactivity were reviewed for proper control within the outage risk plan;
- Refueling activities for compliance with TS, to verify proper tracking of fuel assemblies from the spent fuel pool to the core, and to verify foreign material exclusion was maintained; and,
- While the unit did not enter reduced inventory or mid-loop conditions, procedures were reviewed for commitments to Generic Letter 88-17 to verify that these commitments were in place, and distractions from unexpected conditions or emergent work did not affect operator ability to maintain the required reactor vessel level.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the six surveillance tests listed below, the inspectors examined the test procedure, witnessed 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 TS were met.

In-Service Tests:

- 2-PT-57.1A, "Emergency Core Cooling Subsystem Low Head Safety Injection Pump (2-SI-P-1A)," Revision 48
- 1-PT-64.4A.2, "Casing Cooling Pump (1-RS-P-3A) Biennial Test First Comprehensive Pump Test," Revision 0

Other Surveillance Tests:

- 2-PT-82.2, "2J Diesel Generator Test, Simulated Loss of Offsite Power," Revision 56
- 2-PT-71.3Q, "Unit 2 Motor Driven Auxiliary Feedwater (2-FW-P-3B) Pump and Valve Test," Revision 29
- 2-PT-33.7, "Reactor Trip System Operational Test for Reactor Coolant Pump (RCP) Bus 2A Undervoltage Test," Revision 9
- 2-PT-82H, "2H Emergency Diesel Generator Slow Start Test," Revision 39

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

On February 21, 2006, the inspectors reviewed and observed the performance of an Emergency Planning Drill that involved a simulation of an earthquake, major break Loss of Coolant Accident (LOCA), and equipment malfunctions, resulting in a site area emergency and subsequent general emergency. The inspectors assessed emergency procedure usage, emergency plan classification, notifications, and the licensee's identification and entrance of any drill problems into their corrective action program. This inspection evaluated the adequacy of the licensee's conduct of the drill and critique performance. Drill issues were captured by the licensee in their corrective action program and were reviewed by the inspectors.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Controls To Radiologically Significant Areas

a. Inspection Scope

Access Controls. The inspectors reviewed and evaluated licensee guidance and its implementation for controlling and monitoring worker access to radiologically significant areas and tasks associated with the 2006 Unit 1 Refueling Outage (RFO). The inspectors evaluated changes to, and adequacy of, procedural guidance; directly observed implementation of established administrative and physical radiological controls; appraised radiation worker and technician knowledge of, and proficiency in implementing, radiation protection activities; and assessed radiation worker exposures to radiation and radioactive material.

The inspectors directly observed controls established for radiation workers and Health Physics Technician (HPT) staff in potential airborne radioactivity area, radiation area, high radiation area (HRA), locked high radiation area (LHRA), and very high radiation area (VHRA) locations. Controls and their implementation for LHRA, LHRA > 15 rem/hr, and VHRA keys, and for storage of irradiated material within the spent fuel pool were reviewed and discussed in detail. Established radiological controls were evaluated for selected RFO tasks including transfer canal blind flange removal, upper internals set, head set, refueling operations, valve maintenance, radioactive waste (radwaste) processing and storage, and radioactive material/waste shipping activities. In addition, licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations were reviewed and discussed.

For selected tasks, the inspectors reviewed Radiation Work Permit (RWP) details and attended pre-job briefings to assess communication of radiological control requirements to workers. Occupational worker adherence to selected RWPs and HPT proficiency in providing job coverage were evaluated through direct observations, remote observations, and interviews with licensee staff. Electronic dosimeter (ED) alarm set-points and worker stay times were evaluated against applicable radiation survey results. Worker exposure as measured by ED and by licensee evaluations of internal doses during current refueling outage activities were reviewed and assessed independently. For HRA tasks involving significant dose gradients, e.g., radiological surveys of the steam generator (S/G) bowl and reactor cavity entry, the inspectors evaluated the use and placement of whole body and extremity dosimetry to monitor worker exposure.

Postings and physical controls established within the radiologically controlled area (RCA) for access to the Unit 1 reactor containment building (RCB), the Unit 1 and Unit 2 reactor auxiliary building (RAB) locations, radioactive material storage locations, decontamination building, and Independent Spent Fuel Storage Installation (ISFSI) were evaluated during facility tours. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys and results for the transfer canal, Unit 1 "B" S/G bowl, reactor cavity, Unit 1 primary filter, posted LHRAs within the Unit 1 RCB, and select dose significant areas in the RAB. Results were compared to current licensee surveys and assessed against established postings and radiation controls. Licensee controls were observed for selected Unit 1 and Unit 2 RAB LHRA and VHRA locations.

The inspectors evaluated implementation and effectiveness of licensee controls for both airborne and external radiation exposure. The inspectors reviewed and discussed selected whole body count analyses conducted between September 2005 and March 2006 to evaluate implementation and effectiveness of personnel monitoring. The inspectors directly observed processes used for externally contaminated individuals, including those with potential uptakes of radioactive material. The inspectors reviewed administrative and physical controls including air sampling, barrier integrity, engineering controls, and postings for tasks having the potential for individual worker internal exposures to exceed 30 millirem committed effective dose equivalent.

Radiation protection activities were evaluated against UFSAR, TS, and 10 CFR Parts 19 and 20 requirements. Specific assessment criteria included UFSAR Section 12, Radiation Protection, TS Section 5.4.1, Procedures, and Section 5.7, High Radiation Area. Detailed procedural guidance and records reviewed for this inspection area are listed in Sections 2OS1 and 4OA5 of the Attachment.

Problem Identification and Resolution. An audit, a self-assessment, and licensee Corrective Action Program (CAP) documents associated with access controls to radiologically significant areas were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with VPAP-1501, "Deviations," Revision 17 and VPAP-1601, "Corrective Action," Revision 21. Licensee CAP documents associated with access control issues, personnel radiation monitoring, and personnel exposure events which were reviewed and evaluated in detail during inspection of this program area are identified in Sections 2OS1, 4OA1, and 4OA5 of the Attachment.

The inspectors completed the 21 specified line-item samples detailed in Inspection Procedure 71121.01.

b. Findings

No findings of significance were identified.

2OS2 As Low As Reasonably Achievable (ALARA) Planning and Controls

a. Inspection Scope

Implementation of the licensee's ALARA program during the 2006 Unit 1 RFO was observed and evaluated by the inspectors. The inspectors reviewed ALARA planning, dose estimates, and prescribed ALARA controls for outage work tasks expected to incur the maximum collective exposures. Reviewed activities included containment scaffolding, head disassembly, manual valve maintenance, air operated valve maintenance, and routine HP coverage. Incorporation of planning, established work controls, expected dose rates, and dose expenditure into the ALARA pre-job briefings and RWPs for those activities were also reviewed. Work in progress reviews were inspected for three RWPs in which the actual dose was approaching the estimated dose for the job. Selected elements of the licensee's source term reduction and control program were examined to evaluate the effectiveness of the program in supporting implementation of the ALARA program goals. Shutdown chemistry program implementation and the resultant effect on RCB and RAB dose rate trending data were reviewed and discussed with cognizant licensee representatives. Small areas with abnormally high dose rates forming in the steam generator channel heads were discussed with HP and Chemistry Supervision.

Trends in individual and collective personnel exposures at the facility were reviewed. The inspectors examined the dose records of all declared pregnant workers during 2005 and first quarter of 2006 to evaluate total or current gestation doses. Applicable procedures were reviewed to assess licensee controls for declared pregnant workers. Trends in the plant's three-year rolling average collective exposure history, outage, non-outage, and total annual doses for selected years were reviewed and discussed with licensee representatives.

The licensee's ALARA program implementation and practices were evaluated for consistency with UFSAR Chapter 12, Radiation Protection; 10 CFR Part 20 requirements; Regulatory Guide 8.29, Instruction Concerning Risks from Occupational Radiation Exposure, February 1996; and licensee procedures. Documents reviewed during the inspection of this program area are listed in Section 2OS2 of the Attachment.

Problem Identification and Resolution. The inspectors reviewed the CAP documents listed in Section 2OS2 of the report Attachment that were related to the licensee's ALARA program. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with VPAP-1501, "Deviations," Revision 17 and VPAP-1601, "Corrective Action," Revision 21.

The inspectors completed 22 of the specified line-item samples detailed in Inspection Procedure 71121.02.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS2 Radioactive Material Processing and Transportation

a. Inspection Scope

Waste Processing and Characterization. During system walk-downs, the inspectors observed selected liquid and solid radwaste processing system components for material condition and system configuration agreement with the UFSAR and Process Control Program (PCP). Inspected equipment included the high level and low level waste drain tanks, waste evaporator tank, evaporator test tanks, spent resin hold-up and dewatering tanks, and associated piping, valves, and pumps. The inspectors discussed component function, processing system changes, and radwaste program implementation with licensee staff.

The 2004 Effluent Report and radionuclide characterizations for each major waste stream were reviewed and discussed with the radwaste staff. For Unit 2 Dry Active Waste and liquid waste treatment resin, the inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined comparison results between licensee waste stream characterizations and outside laboratory data. The licensee's waste stream mixing and concentration averaging methodology was evaluated and discussed with radwaste personnel. The inspectors also discussed the licensee's guidance for monitoring changes in waste stream isotopic mixtures with knowledgeable personnel.

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

Transportation. The inspectors directly observed preparation activities for the shipment of pressurizer safety relief valves. The inspectors noted appropriateness of package markings and placarding and interviewed shipping technicians regarding Department of Transportation (DOT) regulations. The inspectors observed radiation surveys of the transport vehicle prior to shipment.

Six shipping records were reviewed for consistency with licensee procedures and compliance with NRC and DOT regulations. The inspectors reviewed emergency response information, DOT shipping package classification, radiation survey results, and evaluated whether receiving licensees were authorized to accept radioactive materials. Licensee procedures for opening and closing Type B shipping casks were compared to recommended vendor protocols and Certificate of Compliance requirements. In addition, training records for selected individuals currently qualified to prepare radioactive material shipments were reviewed.

Transportation program implementation was reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 71, 49 CFR Parts 172-178, and the guidance provided in NUREG-1608. Training activities were assessed against 49 CFR Part 172 Subpart H. Documents reviewed during the inspection are listed in Section 2PS2 of the Attachment.

Problem Identification and Resolution. Two audits and licensee CAP documents were reviewed and assessed. The inspectors evaluated the licensee's ability to characterize, prioritize, and resolve the identified issues in accordance with procedures VPAP-1501, "Deviations," Revision 17 and VPAP-1601, "Corrective Action," Revision 21. Documents reviewed for problem identification and resolution are listed in Section 2PS2 of the Attachment.

The inspectors completed the six specified line-item samples detailed in Inspection Procedure 71122.02.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

Cornerstones: Initiating Events and Barrier Integrity

The inspectors sampled licensee submittals for the three Performance Indicators listed below for U1 and U2. 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 first quarter 2005 through the fourth quarter 2005. 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 Indicator Guideline," Revision 3, and the Performance Indicator Frequently Asked Questions (FAQ) list.

- Unplanned Scrams;
- Scrams with Loss of Normal Hear Removal; and,
- Reactor Coolant System Activity.

Cornerstone: Public Radiation Safety

The inspectors reviewed the Radiological Control Effluent Release Occurrences Performance Indicator results for the period of January 2005 through December 2005. For the assessment period, the inspectors reviewed cumulative and projected doses to the public. The inspectors also reviewed licensee procedural guidance for collecting

and documenting Performance Indicator data. Documents reviewed are listed in Section 4OA1 of the Attachment.

Cornerstone: Occupational Radiation Safety

The inspectors reviewed the Occupational Exposure Control Effectiveness Performance Indicator results from July 2005 through March 2006. For the assessment period, the inspectors reviewed documented electronic dosimeter alarms and CAP documents related to controls for exposure significant areas. The inspectors also reviewed licensee procedural guidance for collecting and documenting Performance Indicator data. Report Section 2OS1 contains additional details regarding the inspection of controls for exposure significant areas. Documents reviewed are listed in Sections 2OS1 and 4OA1 of the Attachment.

During plant tours the inspectors also periodically assessed the Occupational Exposure Control Effectiveness and the RETS/ODCM Radiological Effluent Occurrence Performance Indicators by determining if high radiation areas (>1R/hr) were properly secured and looking for unmonitored radiation release pathways.

b. Findings

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

4OA2 Identification and Resolution of Problems

.1 Daily Review

As required by Inspection Procedure 71152, “Identification and Resolution of Problems,” and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee’s corrective action program. This review was accomplished by reviewing daily Plant Issues summary reports and periodically attending daily Plant Issue Review Team meetings.

.2 Annual Sample Review

a. Inspection Scope

The inspectors reviewed the licensee’s assessments and corrective actions for Plant Issue N-2005-3462, “2H emergency diesel generator developed a coolant leak on the control side between the #1 and #3 cylinders, during performance of 2-PT-82H. EDG was manually unloaded and shutdown prior to completion of PT.” The Plant Issue was reviewed to ensure that the full extent of the issue was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors also evaluated the Plant Issue against the requirements of

the licensee's corrective action program as specified in VPAP-1601, "Corrective Action Program," VPAP-1501, "Deviations," and 10 CFR 50, Appendix B.

b. Findings and Observations

There were no findings of significance identified. On September 6, 2005, the licensee initiated Plant Issue N-2005-3462 in response to coolant leaks on the Unit 2H Emergency Diesel Generator (EDG) identified during the monthly surveillance test. The licensee subsequently completed a functional evaluation and declared a Generic Letter 91-18 condition (operable but degraded) for the component. The inspectors verified the licensee's functional evaluation which considered that the leakrate of the emergency diesel generator was within the tank's makeup capability and makeup could be completed without any extraordinary efforts. The inspectors reviewed the history of coolant leaks for the EDGs which included Plant Issue N-2005-0101 and work order 526277-01, for coolant leaks on the Unit 1H EDG, which was completed on January 9, 2005. During that time, the licensee identified that the water by-pass fitting gaskets that were manufactured by Cogemica should be replaced with the new model 3000 gaskets that were manufactured by Garlock. The licensee subsequently scheduled the replacement of the Unit 1 EDGs' gaskets during the 2005 diesel inspections and Unit 2 EDGs' gaskets during the 2006 diesel inspections. During the fall of 2005, the licensee's 2H and 2J EDGs incurred failures of their water by-pass fitting gaskets (Plant Issue N-2005-3462/3633), which resulted in more coolant leaks. The licensee appropriately determined to review their previous corrective actions and concluded that their corrective actions were untimely; the inspectors agreed with their conclusion. The replacement of the by-pass gaskets on the Unit 2 EDGs was subsequently rescheduled to September 2005 to correct the failed gaskets. The inspectors used IMC 0612 to review the licensee's actions and determined that because the failure of the water by-pass fitting gaskets did not render the EDGs inoperable, the license's untimely corrective action for a condition adverse to quality would be considered a minor violation of 10 CFR 50, Appendix B Criterion XVI.

4OA5 Other Activities

.1 Independent Spent Fuel Storage Installation (ISFSI) Radiological Controls

a. Inspection Scope

The inspectors conducted independent gamma and neutron surveys of the ISFSI facility and compared the results to previous surveys. The inspectors also observed and evaluated implementation of radiological controls, including RWPs and postings, and discussed the controls with an HPT and HP supervisory staff. Radiological controls for loading the ISFSI casks were also reviewed and discussed. The inspectors reviewed environmental thermoluminescent dosimeter records and discussed the use of the dosimeters and resultant neutron/gamma data with cognizant HP supervisory staff. Radiological control activities for ISFSI areas were evaluated against 10 CFR Part 20, 10 CFR Part 72, and applicable licensee procedures. Documents reviewed are listed in Section 4OA5 of the Attachment

b. Findings

No findings of significance were identified.

.2 (Closed) Unresolved Item (URI) 05000338, 339/2005004-02: Inadequate Design Control Results in Safeguards Instrument Rack Room Flood Problem

Introduction. A Green self-revealing non-cited violation was identified for inadequate design control. Specifically, back-flow preventers were not installed in floor drains that resulted in a flood potential for the Units 1 and 2 Safeguards Instrument Rack Rooms. This finding was initially characterized as contrary to the requirements of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Subsequent review resulted in a finding which was contrary to the requirements of Criterion III, Design Control.

Discussion. On July 9, 2005, back flush of control room chiller service water strainers 2-HV-S-1A and 1B as directed by engineering transmittal, ET N-05-0034, "Operability of 2-HV-P-22C, Service Water Pump for 2-HV-E-4C," was performed in the Unit 2 air conditioning chiller room (ACCR). Following this work activity, the licensee observed water around a floor drain in the adjacent air conditioning fan rooms (ACFR), and initiated Plant Issue N-2005-2565 to evaluate the abnormal condition. Subsequently, the licensee determined that back-flow preventers were not installed in the floor drains on the ACFRs on both units. This design requirement is necessary to ensure the functionality of the flood walls between the ACCR and adjacent ACFR on Units 1 and 2. Therefore, the licensee initiated a flood watch, declared the flood walls inoperable, and entered a Yellow six-day maintenance rule risk condition based on the unavailability of the flood walls to perform their function. The ACFRs on both units are adjacent and open to the safeguards instrument rack rooms, which contain the solid state protection system (SSPS) and process instrumentation and are at a two feet lower elevation. Each instrument rack room has a sump with two pumps rated at 40 gpm each. On Unit 2, the sump pumps' discharge line is hard-piped directly to the ACCR sump. However, on Unit 1 the sump pumps' discharge line is routed to a drain funnel interconnected to the floor drain system of the adjacent ACFR. The licensee determined that this funnel did not have a back-flow preventer installed and initiated Plant Issue N-2005-2597. Calculation ME-0782 was performed by the licensee to evaluate the consequences of a service water line break in either the Unit 1 or 2 ACCR. The calculation concluded that the peak flow rate from the Units 1 and 2 ACCR to the adjacent ACFR via the floor drain piping was 182.9 gpm and 169.4 gpm respectively, which exceeds the capacity of the sump pumps.

The inspectors reviewed the licensee's corrective action database and determined that on October 15, 2004, Plant Issue N-2004-4554 was initiated due to water discharge from a capped floor drain outside of the ACCR. An 'other' evaluation was assigned to engineering to review this condition for impact on the flood protection assumed for the ACCR and connecting areas as applicable. This evaluation did not identify and correct the absence of back-flow preventers in the adjacent ACFR floor drains. The inspectors also identified the following related Plant Issues that did not result in the identification and correction of this problem:

- N-1999-3405, which documented operational experience from Three Mile Island regarding check valves missing from floor drains and the impact on flood protection; and,
- N-1990-0020, “IN 83-44-S1: Potential damage to redundant safety equipment as a result of backflow through the equipment and floor drain system.”

The inspectors concluded that the failure to install the back-flow preventers is contrary to the requirements of 10 CFR 50, Appendix B, Criterion III, which requires in part that measures shall be established to assure the design basis for those structures, systems and components (SSCs) to which this appendix applies are correctly translated into specifications, drawings, and procedures.

Analysis. The inspectors determined that the finding had a credible impact on safety based on the potential for flooding to impact both trains of SSPS cabinets used for engineered safeguards. The inspectors referenced IMC 0612 and determined that if left uncorrected this finding would result in a more significant safety concern and is consequently more than minor. Based on a review of IMC 0609 for the SDP, the inspectors determined the finding would require a Phase III evaluation due to the loss or degradation of equipment specifically designed to mitigate a flooding event and the impact on two trains of a safety system. This evaluation concluded that the performance deficiency was of very low safety significance (Green) based on the existence of high level alarms for the associated sumps and the response time allowed for an operator to isolate the leak (approximately 40 minutes). The inspectors also concluded that this finding has aspects relating to the cross-cutting area of problem identification and resolution in that the licensee had multiple opportunities to identify the condition in their corrective action program (i.e. plant issues N-1990-0020, N-1999-3405, and N-2004-4554).

Enforcement. 10 CFR 50, Appendix B, Criterion III, Design Control, requires in part that measures shall be established to assure the design basis for those SSCs to which this appendix applies are correctly translated into specifications, drawings, and procedures. Contrary to the above, the licensee failed to ensure that back-flow preventers were installed in the Unit 1 and 2 ACFRs to ensure the functionality of the flood walls and safety-related instrumentation in the SSPS rack rooms. This violation is characterized as a Green NCV and is identified as NCV 05000338, 339/2006002-02, Inadequate Design Control Results in Safeguards Instrument Rack Room Flood Problem. This finding is in the licensee's corrective action program as Plant Issue N-2005-2565. URI 05000338, 339/2005004-02, Inadequate Corrective Action Results in Safeguards Instrument Rack Room Flood Problem, is closed.

4OA6 Meetings, including Exit

.1 Exit Meeting Summary

An exit meeting was conducted on January 27, 2006 to discuss the findings of the biennial Licensed Operator Requalification Program inspection. The inspectors confirmed that proprietary information was reviewed but is not contained in this report. Two interim exit meetings were conducted on March 17 and March 24, 2006 with the site vice-president and ISI/Engineering managers. Additionally, an exit was conducted on March 30, 2006 to discuss the findings of the Radiation Protection Baseline Inspection.

On April 11, 2006, the Senior Resident Inspector and the Chief of Reactor Projects Branch 5 presented the inspection results for the routine integrated quarterly report to Mr. Jack Davis and other members of the staff. The licensee acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

.2 Annual Assessment Meeting Summary

On April 18, 2006, the NRC Chief of Reactor Projects Branch 5 met with Virginia Electric and Power Company to discuss the NRC's Reactor Oversight Process (ROP) and the North Anna Power Station annual assessment of safety performance for the period of January 1, 2005 - December 31, 2005. The major topics addressed were the NRC's assessment program and the results of the North Anna Power Station assessment. Attendees included North Anna Power Station site management and members of site staff.

This meeting was open to the public. The presentation material used for the discussion is available from the NRC's document system (ADAMS) as accession number ML061140047. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

4OA7 Licensee-Identified Violation

The following finding of very low safety significance 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.

TS 5.4.1 requires that written procedures shall be established, implemented, and maintained covering the activities in the applicable procedures recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978, of which part 9.a. requires procedures for performing maintenance. Contrary to the above, on January 6, 2006, the licensee failed to establish adequate procedure steps in maintenance procedures 0-MCM-0103-01, "Repair of the Charging and High Head Safety Injection Pump," and 0-MCM-0103-04, "Disassembly, Inspection and Repair of Westinghouse/Nuttall Type SU High Speed Gear Drives (Charging Pump Speed

Increaser)." This resulted in tight clearances between the bearing/shaft clearances and a failure to drain and clean the oil side of the lube oil cooler.

Debris, later found in the lube oil cooler, in conjunction with the tight clearances subsequently led to a forced shutdown of 2-CH-P-1A (A Charging Pump, Unit 2) from high vibration due to impending bearing failure. The inspectors reviewed IMCs 0612 and 0609 and determined that the finding was of very low safety significance given the availability of the other charging pumps. The licensee has this finding documented in their corrective action program as Plant Issue N-2006-0154.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

W. Anthes, Assistant Manager, Maintenance
G. Bischof, Director, Nuclear Safety and Licensing
J. Breeden, Supervisor, Radioactive Analysis and Material Control
W. Corbin, Director, Nuclear Engineering
J. Crossman, Assistant Manager, Nuclear Operations
J. Davis, Site Vice President
E. Dryer, Health Physicist
J. Eastwood, Corporate ISI Coordinator
R. Evans, Manager, Radiological Protection
R. Foster, Supply Chain Manager
E. Holloway, ISI
S. Hughes, Manager, Nuclear Operations
P. Kemp, Supervisor, Nuclear Safety & Licensing
J. Kirkpatrick, Manager, Maintenance
S. Kotowski, Engineering Supervisor
A. Kozak, Simulator Support Operations
L. Lane, Director, Operations and Maintenance
M. Lane, Supervisor Health Physics Operations
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B. Morrison, Assistant Engineering Manager
J. Rayman, Emergency Planning Supervisor
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G. Salomone, Licensing
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J. Scott, Supervisor, Nuclear Training (operations)
W. Shura, Nuclear Training Supervisor
R. Wesley, Supervisor Shift Operations
M. Whalen, Licensing
R. Williams, Component Engineer

NRC personnel

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

Attachment

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Closed

05000338, 339/2005004-02	URI	Inadequate Corrective Action Results in Safeguards Instrument Rack Room Flood Problem (Section 4OA5)

Opened and Closed

05000338, 339/2006002-01	NCV	Failure to translate TS operable-operability definition regarding hazard barriers into instructions as required by 10 CFR 50 Appendix B Criterion III (Section 1R13)
05000338, 339/2006002-02	NCV	Inadequate Design Control Results in Safeguards Instrument Rack Room Flood Problem (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R05: Fire Protection

Plant Issues

- N-2006-1588, NRC identified problem with oil and solvent staged in containment beyond the specified amount identified on the transient combustible permit

Section 1R08: Inservice Inspection (ISI) Activities

Documents for Nondestructive Examination

- NDE-UT-812, Ultrasonic Examination of Austenitic Piping Welds in Accordance with ASME Section XI, Appendix VIII, Revision 0
- NDE-UT-811, Ultrasonic Examination of Ferritic Piping Welds in Accordance with ASME Section XI, Appendix VIII, Revision 0
- NDE-UT-705, Manual Ultrasonic Examination of Reactor Coolant Piping Welds, Revision 3
- NDE-MT-701, Magnetic Particle Examination, Revision 4
- NASES-6.23, Boric Acid Corrosion Control Program (BACCP), Revision 2
- DNAP-1004, Boric Acid Corrosion Control Program (BACCP), Revision 3
- 1-PT-48.5, Leakage Inspection Above Reactor Vessel Head, Revision 1
- 1-PT-48.4, Bare Metal Inspection of Vessel BMI Nozzles, Revision 1
- 1-PT-48.3, Visual Inspection Borated Systems in Containment, Revision 1
  1-PT-48.1, Visual Inspection of ASME XI Class 2 Pressure Boundary Components Inside Reactor Containment, Revision 2
- 1-PT-48, Visual Inspection of Reactor Coolant Pressure Boundary Components, Revision 13
- 1-PT-46.21, RCS Pressure Boundary Components Affected by Boric Acid Accumulation, Revision 15
- Boric Acid Corrosion Control Program Health Report, 2005-Q4
- Areva Document No. 54-ISI-400, Multi-Frequency Eddy Current Examination of Tubing, Revision 14
- Areva Document No. 1275114, Eddy Current Data Management Guidelines, Revision 07
- Station Administrative Procedure VPAP-1302, Foreign Material Exclusion Program, Revision 21
- Maintenance Vendor Procedure 03-6033813A, Field Procedure for Removal and Installation of Primary Steam Generator Manway Insert for Dominion Generators, Revision 2
- Areva Document Identifier 51-9014652, North Anna Unit 1 1R18 - EPRI Appendix H Eddy Current Technique Review
- Work Order 733421-01 to 07, “B” S/G Steam Dome Inspection
- Confined Space Evaluation and Entry Permit - Hot and Cold Legs
- Foreign Material Control Log
- Eddy Current Analyses Calibration No. 11 for tubes R18C16, R16C16, and R16C17; 47 for tube R29C51; and 48 for tubes R24C58 and R03C58

- Data Aquisition and Analysis Personnel Qualification for Level II Data Operators, Level II A and Level III A Analysts

Plant Issues

- N-2005-5615, Initiate evaluation of the effectiveness of the boric acid corrosion control program
- N-2006-1030, Listing of boric acid leaks identified during 1-PT-46.21 walkdown
- N-2006-1082, Boron crystals on Unit 1 reactor head thermocouples
- N-2006-1090, Valves discovered with boric acid during 1-PT-48 walkdown
- N-2006-1204, High number of boric acid leaks identified
- N-2005-5399, Boric acid leakage through canopy seal weld on SI sampling valve
- N-2006-1357, Deviation in the standard for the signal amplitude between standards ADVB-013-96 and ADVB-016-96

Section 1R11: Licensed Operator Requalification - Biennial Review

Documents

- Functional Implementation Guideline (FIG) -07 Implementing LORP Instructional /Evaluation Components, Revision 5
- FIG - 07, Program Administration and Documentation, Revision 11
- FIG - 09, Administering the LORP Examination Banks (test items and task performance evaluations), Revision 16
- DNAP-0509, Dominion Nuclear Procedure Adherence and Usage Revision 4
- TRCP-3002, Simulator Modification Record Process (SMR), Revision 9
- TRCP-3006, Simulator Configuration Management, Revision 6
- TRCP 3007, Simulator Performance Testing, Revision 1
- Executive Summary-Simulator Performance Test Procedure, January 2006
- NAS-RC-01 System Test Procedure, Revision 0
- Memo Dated January 13, Simulator Review Board Minutes
- Various Simulator Modification Requests (SMR)
- Scenario SXG #44, Revision 3
- Scenario SXG #31, Revision 4
- JPM - N534 Align the Service Water System to the Containment Air Recirculation Fans on the backboards watchstation. (10/12/05)
- JPM - R514 Restore Residual Heat Removal Flow (1-AP-11) (10/12/05)
- JPM - N1473/14045 Rack in a 4160 Volt Breaker (10/12/05)
- JPM - N10 Isolate Reactor Coolant Pump Seals Locally (10/12/05)
- JPM - N1585 Align the turbine-driven auxiliary feedwater pump to feed the steam generators by way of the hand control valve header (10/12/05)
- Badge Access Transaction Reports for Reactivation of Licenses (3)
- Licensed Operator Medical Records (20)
- Feedback Summaries

Section 1R12: Maintenance Effectiveness

Plant Issues

- N-2005-1050, identification by engineering that the process used in the manufacture of EXIDE type 3CC-7 batteries may result in premature degradation of the battery
- N-2005-1165,internal resistance reading obtained on the 1J EDG battery indicate the cell may be degraded
- N-2006-0357, maintenance rule criteria exceeded for SBO diesel generator
- N-2006-0387, internal resistance readings obtained for the 1JEDG batteries were higher than those obtained previously

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Plant Issues

- N-2006-1174, NRC identified problem with a failure to assess risk for 2-CC-TV-204B; subsequent calculations resulted in a Green risk condition.

Section 1R20: Refueling and Other Outages

Documents

- Procedure 1-GOP-13.0, “Alternate Core Cooling Method Assessment”
- Dominion Memorandum dated 3/6/06, 2006 Outage Plan Safety Review North Anna Unit 1
- VPAP-2805, “Shutdown Risk Program”
- 1-PT-93, Reactor Vessel Water Level Determination
- 1-OP-5.4, “Draining the Reactor Coolant System”

NRC identified Plant Issues from Containment Closeout Inspection

- N-2006-2076, snubber 1-RC-HSS-838 was bound in place by a support on one side and insulation on the other side
- N-2006-2077, dry boric acid around packing gland for 1-RC-HCV-1556A
- N-2006-2079, insulation issues were identified on several components: 1-BD-1, 1-HC-343, 1-CH-366, 1-RC-199, 1-CH-365, 1-CC-716, 1-CC-944, 1-CC-45, sample system line in mechanical penetration area, 1-RH-E-1B, ‘A’ SG blowdown line on RHR flat
- N-2006-2080, boric acid identified on packing gland for 1-CH-TV-1204A
- N-2006-2081, BACC flag found on 1-IA-38
- N-2006-2083, miscellaneous material and debris was identified and removed from containment including: several large screwdrivers, pieces of tape & tie-wraps, 5 large washers, piece of cloth, loose insulation, cup of paint chips
- N-2006-2084, metal filings and dirt was identified on the 4160V electrical lead insulators in the containment penetration area for 1-RC-P-1B, 1-RC-P-1C, and 1-RC-P-1A
- N-2006-2085, 2 openings in the screen installed to prevent paint on containment air recirc fan duct from reaching sump was identified near 1-HV-F-1A
- N-2006-2087, the inspector informed the licensee that the UFSAR required encapsulation of all insulation, yet licensee’s procedure, NAI-029, “Specification for Installation of Thermal Insulation,” allows for insulation in SG cubicles to be left unjacketed if certain criteria are met

Section 2OS1: Access Controls to Radiologically Significant Areas

Procedures, Manuals, and Guidance Documents

- Health Physics Administrative Procedure HPAP-1081, Radiation Work Permit Program, Revision 4
- C-HP-1032.061, High Radiation Area Key Control, Revision 3
- C-HP-1032.060, Radiological Posting and Access Control, Revision 1
- C-HP-1061.020, Personnel Contamination Monitoring and Decontamination, Revision 8
- C-HP-1081.010, Radiation Work Permits: Preparing and Approving, Revision 7
- C-HP-1081.020, Radiation Work Permits: RWP Briefing and Controlling Work, Revision 5
- C-HP-1081.040, Radiation Work Permits: Providing HP Coverage During Work, Revision 1
- HP-1071.020, Controlling Contaminated Material, Revision 6
- Standing Order #125, Compensatory measures implemented for the use of RMS, 8/15/05

Radiation Work Permits

- 05-2-1102, Load, transport, and store spent fuel dry storage casks
- 06-2-3503, Replace transfer canal blank flange and transfer cart inspection
- 06-2-3507, Vacuum debris from cavity/transfer canal during refueling operations, perform decon of transfer canal
- 06-2-3510, Perform eddy current testing and tube plugging of S/G
- 06-2-3230, Walkdowns, inspections, and observations
- 06-2-3220, Perform ultrasonic, magnetic particle, and liquid penetrant examination for inservice inspection program
- 06-2-1502, Containment entry during subatmospheric conditions
- 06-2-1210, Spent resin transfer

Surveys, Data, Records

- Plant Status Board Radiological Surveys (3/13/06-3/17/06, 3/27/06-3/29/06)
- High Radiation Key Locker Log, printed 3/8/06
- Whole Body Count and Inhalation Intake Data Sheets, TLD 3020, 10/14/05
- Special Dosimetry Issue Worksheets, TLDs 6021 and 7625, 3/20/06

Audits and Self-Assessments

- ITC-SA-04-02, Assessment of Nuclear Business Unit for Adverse Trends in Radiological Protection Events, 4/29/04
- Nuclear Oversight Audit Report 05-06, Radiological Protection, Process Control Program, and Chemistry Program at Millstone, North Anna, and Surry, 05/09/2005 - 05/27/2005

CAP Documents (Plant Issues)

- N-2005-3958, Worker received dose rate alarm while working under Unit 2 reactor vessel, 10/3/05
- N-2005-4038, Lock for “B” motor cube door on 262' of Unit 2 containment is broken. Currently this door is being controlled as a locked high radiation area., 10/5/05
- N-2005-4099, Supplemental information to document events propagated from a Level 1 PCE; 8,000 dpm in facial area, 10/6/05
- N-2005-4389, Individual received a DAD dose rate alarm while working on scaffold platform in “B” cube 241', 10/13/05
- N-2005-4657, Worker received dose rate alarm while performing deconatmination activities in Unit 2 reactor cavity, 10/21/05
- N-2006-1001, Decon Building basement high radiation gate locks have been found to be defective 8 times in the last 24 months, 3/9/06
- N-2006-1336, An HP technician received a dose alarm while performing surveys in Unit 1 reactor containment, 3/18/05
- N-2006-1378, Individual received dose rate alarm while performing observations on the scaffold platform in “C” cube 241', 3/19/06
- N-2006-1462, Individual received dose rate alarm while performing valve maintenance activities on scaffold platform in “C” cube 241', 3/21/06
- N-2006-1544, Worker performing inspections in the secondary side of Unit 1 “B” S/G received a dose alarm, 3/22/06

Section 2OS2: ALARA

Procedures

- C-HP-1020.011, Radiological Protection Action Plan During Diving Activities, Revision 3
- C-HP-1020.010, Radiological Protection Failed Fuel Action Plan, Revision 3
- C-HP-1032.010, Radiological Survey Records, Revision 3
- C-HP-1032.020, Radiological Survey Criteria and Scheduling, Revision 5
- C-HP-1032.040, Contamination Surveys, Revision 5
- C-HP-1032.050, Airborne Radioactivity Surveys, Revision 6
- C-HP-1032.060, Radiological Posting and Access Control, Revision 1
- C-HP-1081.010, Radiation Work Permits: Preparing and Approving, Revision 7
- C-HP-1081.020, Radiation Work Permits: RWP Briefing and Controlling Work, Revision 5
- C-HP-1081.030, Radiation Work Permits: Extending, Revising and Terminating, Revision 2
- C-HP-1061.320, Contamination Enclosures: Use and Control, Revision 0
- HP-1031.023, RWP Dosimetry: Exposure Control Support, Revision0
- HPAP-1032, Radiological Survey Program, Revision 3
- HPAP-2119, Radiation Work Permit Program: Technical Bases, Revision 2
- VPAP-2102, Station ALARA Program, Revision 11
- VPAP-2105, Temporary Shielding Program, Revision 7

CAP Documents (Plant Issues)

- N-2005-4189, Operations wanted to lower steam generator secondary water level while the steam dryers were occupied. Maintenance Supervisor recognized that lowering the level would result in significant increases in dose rate to workers and would not approve it.
- N-2006-0723, Diversion of letdown to gas stripper caused elevated dose rates.
- N-2005-3345, Final pump down of fluid waste treatment tank resulted in elevated dose rates.
- N-2005-4018, Valve bypassed ion exchangers on crud burst cleanup due to limit switch out of position.
- N-2005-1146, Minor maintenance job stopped due to workers identifying during prejob brief that the removal of permanent lead shielding would result in creating an access to a locked high radiation area.
- N-2006-0212, Health Physics requesting procedural controls that would require Operations to notify HP whenever water is directed to gas strippers to allow assessment of potential changes to radiological conditions.

ALARA Packages/ Work in progress ALARA reviews (WIPAR)

- 06-008, Install/ Remove scaffolding during the U-1 2006 Refueling Outage.
- 06-016, Disassemble/ reassemble reactor (RX) head, Seal table Eddy Current, Incore drive maintenance. Replace Incore detector(s), and Lift/Set RX head during the U-1 2006 Refueling outage.
- 06-019, Perform valve maintenance to include repack, adjustment, cut out, inspection of manual valves during the U-1 2006 refueling outage.
- 06-023, Perform Health Physics zone coverage, Surveys, and walkdowns during the Unit 1 2006 Refueling outage.
- 06-029, Perform AOV valve maintenance to include repack, adjustment, cut out, and inspection of AOV's during Unit 1 2006 Refueling outage.
- WIPAR: RWP 06-2-3241, Perform AOV maintenance during Unit 1 2006 refueling outage, 3/27/06
- WIPAR: RWP 06-2-3204, Perform RCP maintenance during unit 2006 outage. Includes A Seals, and annual PM's, 3/27/06
- WIPAR: RWP 06-2-3214, Remove, replace and inspect snubbers during Unit 1 2006 refueling outage, 3/28/06

Section 2PS2: Radioactive Material Processing and Transportation

Procedures, Guidance Documents, and Manuals

- HP-1071.021, Storing Radioactive Material Outside the Protected Area, Revision 14
- HP-1071.030, Receiving Radioactive Material, Revision 11
- HP-1072.010, Packaging Radioactive Waste, Revision 9
- HP-1072.020, Sampling, Analyzing, and Classifying Solid Radioactive Waste, Revision 7
- 0-HSP-INST-002, Health Physics Assessment of Radioactive Waste Stream Changes, Revision 0
- C-HP-1071.040, Packaging and Shipment of Radioactive Material, Revision 1

- C-HP-1072.040, Radioactive Waste Disposal Using the Barnwell Disposal Facility, Revision 3
- C-HP-1072.050, Radioactive Waste Transfer to Licensed Waste Processors, Revision 1
- VPAP-2104, Radioactive Waste Process Control Program, Revision 5

Records and Data

- 2004 and 2005 Radioactive Waste Shipment Summary Forms
- Radioactive Material Shipment Log, 2005 and 2006 (Year-to-Date)
- HAZMAT/Transportation Safety Qualification List, Undated
- Annual Radioactive Effluent Release Report, North Anna Power Station (January 01, 2004 to December 31, 2004)
- Flow Valve Operating Numbers Diagram (FVOND), Waste Disposal System, North Anna Power Station - Unit 1 (NAPSU1), Drawing No. 11715-FM-87A, Sheet 1, Revisions 26 and 27
- FVOND, Waste Disposal System, NAPSU1, Drawing No. 11715-FM-87A, Sheet 2, Revision 30
- FVOND, Waste Disposal System, NAPSU1, Drawing No. 11715-FM-87A, Sheet 3, Revision 33
- FVOND, Waste Disposal System, NAPSU1, Drawing No. 11715-FM-087D, Sheet3, Revision 33
- New Waste Stream Data Reports, Dated 11/16/2002, 04/25/2003, 12/08/2004, 02/27/2005, 08/05/2005
- Radwaste Shipping Package 05-DUR-05, 8/31/05
- Radwaste Shipping Package 05-DUR-06, 12/16/05
- Radwaste Shipping Package 05-CNS-02, 6/7/05
- SCO Shipping Packages 05-1032 (8/17/05), 05-1046 (10/6/05), and 06-1021 (3/19/06)

Audits and Self-Assessments

- Nuclear Oversight Audit Report 04-08: Radiation Protection & Process Control Program, 05/17/2004 - 05/28/2004
- Nuclear Oversight Audit Report 05-06: Radiation Protection/Process Control/Chemistry Programs, 05/09/2005 - 05/27/2005

CAP Documents (Plant Issues)

- N-2004-1182, Repetitive failures are occurring on the discharge line for 2-DA-P-7B, Unit 2 inside Mat Sump pump, 04/15/2004
- N-2004-1788, Spent OLCMS secondary resin (which was counted in two separate marinelli containers) was released for disposal to clean trash, 05/16/2004
- N-2005-2366, An upward trend in dose rates around the Fluid Waste Treatment Tank has been noticed by HP during routine radiological surveys.
- N-2005-2586, contrary to the requirements of 49 CFR Subpart H “Code of Federal Regulations, Transportation,” a Facilities and Support personnel has been transporting hazardous material (gasoline and diesel fuel) offsite without completing employer HAZMAT training.

- N-2005-3345, Upon completion of the final pump down of the Fluid Waste Treatment Tank, dose rates in the area increased to 300-500 mr/hr around the tank.

Section 4OA1: Performance Indicator Verification

Procedures, Manuals, and Guidance Documents

- VPAP 1501, Deviations, Revision 17

Records and Data

- EPD Dose/Dose Rate Alarms: July 2005 - March 2006
- NAPS NRC Performance Indicator Data: January 2005 - January 2006
- North Anna Power Station Units 1 and 2 and ISFSI Annual Radioactive Effluent Release Report for Calendar Year 2004, dated 4/14/05
- Quarterly printouts for Liquid and Gaseous Effluent doses to members of the public, January - December 2005

CAP Documents (Plant Issues)

- Review of all Plant Issues from July 1, 2005 to March 18, 2006 with search terms "DAD Dose Rate Alarm", "Dose Rate Alarm", "Dose Rate", "DAD", and "dosimeter". Detailed review and discussion with licensee of Plant Issues listed in Section 2OS1 of the Attachment.

Section 4OA5: Other Activities

ISFSI Radiological Controls

Procedures

- HP-1020.012, Radiological Protection Action Plan During Dry Storage Cask Activities, Revision 014
- 0-Health Physics Surveillance (HPS)-ISFSI-001, Independent Spent Fuel Storage Installation (ISFSI) Health Physics TLD Survey Surveillance, Revision 3

Surveys, Data, and Records

- ALARA Package 05-003, Load, transport, and store spent fuel dry storage cask
- Cask TN-32 #47 load, transport, and placement surveys (4/5/05-4/14/05)
- ISFSI Pad surveys (2/17/04, 5/21/04, 8/22/04, 11/19/04, 8/24/05 11/23/05, 2/21/06)
- Cask TN-32 #42 Grid Survey, 2/7/04
- Cask TN-32 #43 Grid Survey, 3/13/04
- Cask TN-32 #45 Grid Survey, 6/21/04
- ISFSI Environmental Monitoring Results - TLD data (4th quarter 2004 - 3rd quarter 2005)

CAP Documents (Plant Issues)

- N-2004-2910, Some discrepancies between TLD readouts and calculated neutron exposures were noted on the 1st quarter 2004 TLDs, 8/4/04
- N-2004-4993,While performing ISFSI perimeter fence survey as part of the quarterly Controlled Area Survey, noted that a jersey barrier was located directly between the northernmost ISFSI TLD and the SF casks, 11/19/04
- N-2005-1326, During spent fuel cask activities, 4 bubble dosimeters used to estimate neutron exposure, did not respond as expected, 4/6/05

LIST OF ACRONYMS

ALARA	As Low As Reasonably Achievable
ASME	American Society of Mechanical Engineers
BACCP	Boric Acid Corrosion Control Program
CAP	corrective action program
CC	component cooling
DOT	Department of Transportation
ED	electronic dosimeter
EDG	emergency diesel generator
EPRI	Electric Power Research Institute
HPT	health physics technician
HRA	high radiation area
Hx	heat exchanger
IMC	inspection manual chapter
ISFSI	Independent Spent Fuel Storage Installation
ISI	inservice inspection
JPMs	Job Performance Measures
LHRA	locked high radiation area
LHSI	Low Head Safety Injection
LOCA	Loss of Coolant Accident
NCV	non-cited violation
NDE	nondestructive examination
PCP	Process Control Program
PREACS	Emergency Core Cooling System Pump Room Exhaust Air Clean-up System
RAB	reactor auxiliary building
RCA	radiologically controlled area
RCB	reactor containment building
RCP	reactor coolant pump
RCS	reactor coolant system
RFO	Refueling Outage
RSST	Reserve Station Service Transformer
RWP	Radiation Work Permit
SDP	Significance Determination Process
S/G	steam generator
SSC	structures, systems, and components
SSPS	solid state protection system
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
VHRA	very high radiation area
VPAP	Virginia Power Administrative Procedure
WO	Work Order