



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

July 27, 2009

Mr. David A. Heacock
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION
REPORT 05000338/2009003 AND 05000339/2009003

Dear Mr. Heacock:

On June 30, 2009, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your North Anna Power Station Units 1 and 2. The enclosed integrated inspection report documents the inspection findings which were discussed on July 17, 2009, with Mr. Daniel Stoddard and other members of your staff.

The inspection examined activities conducted under your licenses as they related 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.

This report documents one NRC-identified finding and one self-revealing finding of very low safety significance (Green) which were determined to be violations of NRC requirements. However, because of the very low safety significance of the findings and because they were entered into your corrective action program, the NRC is treating the findings as non-cited violations (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you wish to contest 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 Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the North Anna Power Station.

Additionally, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at the North Anna Power Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

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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 the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Gerald J. McCoy, Chief
Reactor Projects Branch 5
Division of Reactor Projects

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

Enclosure: Inspection Report 05000338/2009003 and 05000339/2009003
w/Attachment: Supplemental Information

cc w/encl. (See page 3)

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Letter to David A. Heacock from Gerald J. McCoy dated July 27, 2009.

SUBJECT: NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION
REPORT 05000338/2009003 AND 05000339/2009003

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-338, 50-339

License Nos: NPF-4, NPF-7

Report No: 05000338/2009003 and 05000339/2009003

Licensee: Virginia Electric and Power Company (VEPCO)

Facility: North Anna Power Station, Units 1 & 2

Location: 1022 Haley Drive
Mineral, Virginia 23117

Dates: April 1, 2009 through June 30, 2009

Inspectors: J. Reece, Senior Resident Inspector
R. Clagg, Resident Inspector
R. Hamilton, Sr. Health Physicist (2PS3, 4OA1)
H. Gepford, Sr. Health Physicist (2PS1, 4OA1)
W. Loo, Sr. Health Physicist (2OS3)
R. Williams, Reactor Inspector (4OA5, 4OA7)

Approved by: Gerald J. McCoy, Chief
Reactor Projects Branch 5
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000338/2009-003, 05000339/2009-003; 04/01/2009 – 06/30/2009; North Anna Power Station, Units 1 and 2; Refueling and Other Outage Activities, Identification and Resolution of Problems.

The report covered a 3 month period of inspection by resident and regional inspectors. Two findings were identified and determined to be non-cited violations (NCVs). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspect was determined using IMC 0305, "Operating Reactor Assessment Program." 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 4, dated December 2006.

A. NRC Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

Green. A self-revealing, Green, non-cited violation of 10 CFR 50, Appendix B, Criterion XV, Nonconforming Materials, Parts, or Components was identified for failure to repair or rework nonconforming parts in accordance with documented procedures which resulted in the failure of a Unit 1 pressurizer power operated relief valve (PORV). The licensee entered this problem into their corrective action program as condition report 328709 to review extent of condition and determine addition corrective actions.

The inspectors reviewed IMC 0612, Appendix B, and determined the finding was more than minor because if left uncorrected the performance deficiency would have the potential to lead to a more significant safety concern. The inspectors reviewed IMC 0609, Appendix G because the plant was shut down at the time, and determined that the finding did not require a quantitative assessment and thus screened as Green. The cause of this finding involved the cross-cutting area of human performance, the component of work practices, and the aspect of procedural compliance, H.4(b), because the licensee failed to follow procedural requirements that precluded work orders from containing instructions that alter plant/SSC design unless authorized by approved design documents or plant procedures. (Section 1R20)

Green. A Green, non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified by the NRC for failure to promptly identify and correct a condition adverse to quality associated with inadequate tornado missile protection for the emergency diesel generator (EDG) fuel oil day tank vents on each train for Units 1 and 2. The licensee entered this problem into their corrective action program as condition report 335031.

The inspectors reviewed IMC 0612, Appendix B, and determined the finding was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of design control for the

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initial structure, system, component design. The inspectors evaluated the finding using the significance determination process and determined that the finding was of very low significance because the design deficiency did not result in the loss of functionality and the finding did not screen as potentially risk significant due to a severe weather initiating event. This finding involved the cross-cutting area of problem identification and resolution, the component of the corrective action program, and the aspect of thorough evaluation of problems such that resolutions address extent of condition, P.1(c), because the licensee failed to identify inadequate tornado missile protection for the EDG day tank vents during an extent of condition evaluation and review. (Section 4OA2.2)

B. Licensee Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period in a refueling outage that began on March 8, 2009. On April 4, 2009, Unit 1 returned to full Rated Thermal Power (RTP) and operated at full power for the remainder of the report period.

Unit 2 began the inspection period at full RTP and operated at or near full RTP until May 17, 2009, when power was reduced to 85% RTP for condenser tube leak repairs. Unit 2 returned to full RTP on May 22, 2009, and remained at or near full RTP until the end of the quarter.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

.1 Seasonal Susceptibilities

a. Inspection Scope

The inspectors reviewed the licensee's adverse weather preparations for hot weather operations specified in 0-GOP-4.1, "Hot Weather Operations," Revision 24, and the licensee's corrective action data base for hot weather related issues. The inspectors walked down the four risk-significant areas listed below to verify compliance with procedural requirements and to verify that the specified actions provided the necessary protection for applicable structures, systems, or components (SSCs).

- Unit 1 and 2 Emergency Diesel Generator (EDG) Rooms
- Unit 1 and 2 motor driven and turbine driven Auxiliary Feedwater (AFW) Pump Rooms
- Unit 1 and 2 Quench Spray (QS) pump rooms
- Unit 1 and 2 Main Steam Valve House

b. Findings

No findings of significance were identified.

.2 Review of Offsite Power and Alternate AC Power Readiness

a. Inspection Scope

The inspectors verified that plant features, maintenance status, alternate AC (AAC) diesel generator (DG), and procedures for operation and continued availability of offsite and alternate AC power systems were appropriate. The inspectors reviewed the licensee's procedures affecting those areas, and the communications protocols between the transmission system operator and the nuclear power plant to verify that the

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appropriate information was exchanged when issues arose that could impact the offsite power system.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Walkdowns

a. Inspection Scope

The inspectors conducted three equipment partial alignment 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 systems 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 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 qualified offsite circuit to the 2J emergency bus due to loss of a qualified offsite circuit to the 2H emergency bus
- Unit 1 1H EDG and AAC DG due to emergent work on 1J EDG to replace a cracked cylinder liner
- Unit 2 control room chiller, 2-HV-E-4A, during pre-planned major maintenance work on 2-HV-E-4B

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

The inspectors performed a detailed walkdown and inspection of the Unit 2 turbine driven AFW pump and related valves/piping/supports/instrumentation to assess proper alignment and to identify discrepancies that could impact its availability and functional capacity. The inspectors assessed the physical condition and position of related risk significant components based on guidance from internal NRC risk documentation, related TS, UFSAR, and design bases documents. The inspection also included a review of the alignment and the condition of support systems including fire protection, room ventilation, and emergency lighting. Equipment deficiency tags were reviewed as well as the work history and corrective action program (CAP) documentation. This

inspection sample was completed using the guidance listed in Operating Experience Smart Sample FY2009-02, "Negative Trend and Recurring Events Involving Feedwater Systems."

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted tours of the six areas listed below that are 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," Revision 29. 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.

- Normal Switchgear Room Unit 1 (fire zone 5-1 / NSR-2) and Normal Switchgear Room Unit 2 (fire zone 5-2 / NSR-2)
- Cable Vault and Tunnel Unit 1 (includes Control Rod Drive Room and Z-27-1) (fire zone 3-1a / CV & T-1)
- Cable Vault and Tunnel Unit 2 (includes Control Rod Drive Room and Z-27-2) (fire zone 3-2a / CV & T-2)
- Fuel Oil Pump Room – Motor Control Center Room (fire zone 10C / MCC), Casing Cooling Tank & Pump House Unit 1 (fire zone Z-41-1 / CCT&PH-1), and Casing Cooling Tank & Pump House Unit 2 (fire zone Z-41-2 / CCT&PH-2)
- Main Steam Valve House Unit 1 (fire zone 17-1a / MSVH-1) and Motor Generator Set House Unit 1 (fire zone Z-27-1 / MGS-1)
- Main Steam Valve House Unit 2 (fire zone 17-2a / MSVH-2) and Motor Generator Set House Unit 1 (fire zone Z-27-2 / MGS-2)

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors assessed the internal flooding vulnerability of the Unit 1 and 2 Emergency Switchgear Rooms interface with Air Conditioning Chiller Rooms with respect to adjacent safety-related areas to verify that the flood protection barriers and equipment were being maintained consistent with the UFSAR. The licensee's corrective

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action documents were reviewed to verify that corrective actions with respect to flood-related items identified in condition reports were adequately addressed. The inspectors conducted a field survey of the selected areas to evaluate the adequacy of flood barriers, and floor drains to protect the equipment, as well as their overall material condition.

b. Findings

Introduction: An unresolved item (URI) was identified for an issue regarding protection of an internal flood protection feature for the instrument rack room and control room chiller rooms on Units 1 and 2.

Description: On June 4, 2009, the inspectors identified scaffold poles and rubber matting stored between the Unit 2 control room chiller room flood wall and the door to the turbine building. In response the licensee initiated condition report (CR) 337066 for evaluation and corrective actions. On June 30, 2009, the inspectors identified station housekeeping materials stored in the same location as noted above, and the licensee entered the problem into their CAP as CR339918 which included a corrective action (CA) 140101 for engineering to document prior operability.

The flood wall within the control room chiller room on each unit is 3 feet high. Another flood wall outside of the control room chiller room which protects the instrument rack room is 3 feet and 3 inches high. This allows a potential service water leak within the control room chiller room to overflow the flood wall within the chiller room and exit the room via a .75 inch gap under the doors leading to the turbine building. Therefore, any debris or materials stored between the flood wall and door can impede the flow under the door and allow an increase in flood height that would overflow the flood wall in the instrument rack room and challenge the solid state protection system instrumentation.

This issue is unresolved pending completion of NRC review of the licensee's evaluation to determine if there is a performance deficiency which is greater than minor and is identified as URI 05000338/2009003-01, Degradation of a Flood Protection Feature.

1R11 Licensed Operator Regualification Program

a. Inspection Scope

The inspectors reviewed a crew scenario associated with the normal requalification process. The scenario involved a failure of a pressurizer spray valve, a failure of a steam generator pressure channel, a main turbine condenser vacuum leak, a failure of the rod control system resulting in a bank of control rods inserting with a subsequent failure of an automatic trip of the reactor and main turbine.

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

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implement appropriate TS actions. The inspectors evaluated the licensee's discussion of simulator fidelity and observed the post training critique to verify that fidelity issues did not present an adverse impact on training, and that strengths and areas for improvement revealed by the training were captured by the instructor 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 effectiveness of the corresponding licensee's preventive and corrective maintenance. The inspectors performed walkdowns of the accessible portions of the systems, performed in-office reviews of procedures and evaluations, and held discussions with system engineers. The inspectors compared the licensee's actions with the requirements of the Maintenance Rule (10 CFR 50.65) using ER-AA-MRL-10, "Maintenance Rule Program," Revision 2.

- Condition Report (CR) 335407, "Coolant leak on 1J EDG increased during 1-PT-82J"
- Maintenance Rule (a)(1) goal (A1G) 000209, "Return of 2H EDG to (a)(2) status"

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, the five activities listed below for the following: (1) effectiveness of the risk assessments performed before maintenance activities were conducted; (2) management of risk; (3) upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and (4) 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.

- Emergent work involving troubleshooting on Unit 1 pressurizer PORV, 1-RC-PCV-1455C, seat leakage
- Emergent entry in to 0-AP-41, "Severe Weather Conditions," Revision 45
- Emergent loss of a qualified offsite circuit to the 2H emergency bus
- Emergent work on 1J EDG involving a cracked cylinder liner
- Emergent entry into 0-AP-41, "Severe Weather Conditions," Revision 46

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed seven 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; and (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 determinations of operability were made as specified by procedure OP-AA-102, "Operability Determination," Revision 4.

- Operability Determination (OD) 000279, "address the oil leak for assessment for degradation and repeat work Unit 1 1-CC-P-1B"
- OD 000274, "Determine operability of 1J EDG with known coolant and fuel oil leaks," and CR 328195, review of OD 000277, "Intermittent Fuel Oil Spray from 1J EDG #6 CS Fuel Injection Pump"
- OD 000284, "Create OD to document operability of associated components for 20 hole diaphragm use in size 18L-Special actuators"
- OD 000291, "Evaluate degradation of breaker enclosure material for 1-EE-MCC-1J1-2S J1 breaker"
- OD 000294, "Evaluate operability of offsite power sources with current degraded overhead line status"
- OD 000295, "Two ASCO SOVs supplied without insulating barriers installed"
- OD 000297, "Request Operability Determination for EDG day tank vents not missile protected"

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed Temporary Modification 1801, "Place 'B' RSST in service with normal, alternate supply to Station Service buses 1B and 2B disconnected," to verify that the modification did not affect system operability or availability as described by the TS and UFSAR. In addition, the inspectors verified that the installation of the temporary modification was in accordance with the work package, and that adequate controls were

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in place, procedures and drawings were updated, and post-installation tests verified the operability of the affected systems.

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 in accordance with licensee procedure VPAP-2003, "Post Maintenance Testing Program," Revision 13. Documents reviewed are listed in the Attachment to this report.

- WO 59101896597, Replace diaphragm on 01-RC-PCV-1455C-VALVOP
- WO 59101880000, Due to discovery of boric acid, remove studs one at a time for VT-3 inspection, 1-SI-HCV-1850D
- WO 59101897603, Repair seat leakage on 1-SI-RV-1857
- WO 59079514501, Repair seat leakage on 1-CH-FCV-1114A
- WO 59101877919, 2-FW-T-2 cross over connection fasteners found loose
- WO 59101928724, Replace #7 cylinder liner on 1J EDG

b. Findings

The enforcement aspects associated with WO 59101896597 are discussed in Section 1R20.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

The inspectors continued oversight of the Unit 1 refueling outage which began March 8, 2009 to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. The inspectors used Inspection Procedure 71111.20, "Refueling and Outage Activities," to observe portions of the 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:

- Licensee configuration management, including daily outage reports, to evaluate maintenance of defense-in-depth commensurate with the Outage Service Plan for key safety functions and compliance with the applicable TS when taking equipment out of service.
- Controls over activities that could affect reactivity.
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system strainers, and reactor physics testing.
- Licensee identification and resolution of problems related to refueling outage activities.

b. Findings

Introduction: A self-revealing, Green, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XV, "Nonconforming Materials, Parts, or Components," was identified by the NRC for a failure to repair or rework nonconforming parts in accordance with documented procedures which resulted in the failure of a Unit 1 pressurizer power operated relief valve (PORV).

Description: On March 26, 2009, Unit 1 was in Mode 6 with pressurizer PORV, 1-RC-PCV-1455C, open and one pressurizer safety valve removed when the pressurizer PORV closed with the control switch in the open position. Field investigation by the licensee determined that air was escaping from the top of the valve actuator which indicated a failed diaphragm. During disassembly of the actuator the licensee confirmed the initial diagnosis and discovered that the diaphragm contained multiple tears in and around the bolt holes used to hold the diaphragm in place. Repairs were completed to the actuator and 1-RC-PCV-1455C was returned to service on March 28, 2009. The inspectors identified that the diaphragm on the pressurizer PORV was replaced on March 18, 2009 and the valve was placed in service and opened on March 24, 2009.

The inspectors reviewed engineering log entries and noted that:

- The actuator used with the pressurizer PORV contained 40 bolts for connecting the upper and lower casings, in between which the diaphragm is held.
- The diaphragm used in the March 18, 2009, work contained 20 bolt holes and was altered by the licensee by drilling an additional 20 holes in the diaphragm.
- The licensee documented that one of the 20 drilled holes was damaged such that a flaw was induced that allowed air to propagate between the layers of the diaphragm causing the failure.
- On April 13, 2009, the licensee identified that the practice of drilling the additional bolts holes had been taking place since the early 1980's and that procedural or work order steps never existed to provide guidance for this work.

Through interviews with licensee personnel the inspectors identified that it was understood by those involved in the planning and execution of maintenance on the pressurizer PORV actuator that drilling would be an integral part of installing a new diaphragm.

The inspectors identified that Electric Power Research Institute Air-Operated Valve Maintenance Guide (NP-7412), Rev. 1 Section 7.4.3 states that adding a bolt hole to a diaphragm should only be performed with a punch because drilling holes can lead to pulling the fibers out of the rubber matrix which reduces the tensile strength of the diaphragm. NP-7412 also states that rubber in the area of the missing fibers has significantly reduced mechanical properties. Section 7.4.3 indicates that drilled holes can be stressed when in service and this can lead to rupture initiation. The inspectors identified that NP-7412 is listed as a reference in VPAP-0816, "Air Operated Valve Program," Revision 2. The inspectors reviewed procedure, WM-AA-100, "Work Management," Revision 4, and identified that a warning existed that precluded work orders from containing instruction that alter plant/SSC design unless authorized by approved design documents or plant procedures. The licensee could not provide any design document or plant procedures that included instructions for the drilling of additional bolt holes in the actuator diaphragm.

The inspectors reviewed apparent cause evaluation (ACE) 017534 and noted that the ACE:

- Could not conclusively determine the cause for the failure and that factors considered included a preexisting flaw and over-torque of the diaphragm.
- Included input from two materials specialists who concluded that the failure was likely the result of a combination of drilling, alignment, and tightening of the diaphragm and that there was no clear fabrication defect in the diaphragm.
- Identified that the pressurizer PORV actuator bolts were being over-torqued due to inadequate maintenance procedures that included torque values contrary to those provided in the vendor technical manual.
- Failed to evaluate drilling of the additional bolt holes as a possible apparent cause.
- Failed to identify the guidance contained in NP-7412, as referenced in VPAP-0816.
- Failed to identify the failure to follow the procedural requirements of WM-AA-100.

The inspectors concluded that, based on the information provided by the initial engineering log entries, the material specialists, and NP-7412, the dominant cause of failure of the diaphragm was due to a flaw induced during the drilling of the additional bolt holes. The inspectors concluded that the over-torque of the actuator bolts was a contributing cause to the failure. The inspectors concluded that the licensee failed to repair or rework nonconforming parts in accordance with documented procedures which resulted in the failure of a Unit 1 pressurizer PORV.

Analysis: The inspectors determined that the failure to repair or rework nonconforming parts in accordance with a documented procedure was a performance deficiency. The inspectors reviewed IMC 0612, Appendix B, and determined the finding was more than minor because if left uncorrected the performance deficiency would lead to a more

significant safety concern. The inspectors reviewed IMC 0609, Appendix G, and determined that the finding did not require a quantitative assessment because the licensee maintained adequate mitigation capability and thus screened as Green. The cause of this finding involved the cross-cutting area of human performance, the component of work practices, and the aspect of procedural compliance, H.4(b), because the licensee failed to follow procedural requirements in procedure WM-AA-100, that precluded work orders from containing instructions that alter plant/SSC design unless authorized by approved design documents or plant procedures.

Enforcement: 10 CFR 50, Appendix B, Criterion XV, requires in part, that nonconforming parts shall be reviewed and repaired or reworked in accordance with documented procedures. Contrary to this, on March 26, 2009, the licensee failed to repair or rework nonconforming parts in accordance with a documented procedure that resulted in the failure of the pressurizer PORV. Because the finding is of very low safety significance and the issue was entered into the licensee's CAP as CR328709, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000338/2009003-02, Failure to Repair or Rework Nonconforming Parts in Accordance with Documented Procedures.

1R22 Surveillance Testing

a. Inspection Scope

For the five surveillance tests listed below, the inspectors examined the test procedures, 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 TS were met.

The inspectors also determined whether the testing effectively demonstrated that the systems or components were operationally ready and capable of performing their intended safety functions.

In-Service Test:

- 2-PT-57.1A, "Emergency Core Cooling Subsystem – Low Head Safety Injection Pump (2-SI-P-1A)," Revision 57
- 1-PT-64.8, "Flow Test of the Inside Recirculation Spray Pumps," Revision 24-0T01

Other Surveillance Tests:

- 2-PT-36.5.3B, "Solid State Protection System Output Slave Relay Test (Train B)," Revision 34
- 1-PT-83.12H, "1H Diesel Generator Test (Start by ESF Actuation) Followed by 24-Hour Run and Hot Restart Test," Revision 18
- 2-PT-82.4B, "2J Diesel Generator Test (Start by ESF Actuation)," Revision 64

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

2OS3 Radiation Monitoring Instrumentation

a. Inspection Scope

Radiation Monitoring Instrumentation During tours of Unit 1 and Unit 2 auxiliary building and spent fuel pool areas, the inspectors observed and evaluated material condition and operational status of installed radiation detection equipment that included area radiation monitoring systems, continuous air monitor instrumentation (AMS-4), portal monitor equipment (PM-7), and post-accident sampling system (high radiation sampling system) components. Sensitivity ranges of selected instruments were compared to UFSAR details and other applicable requirements. The inspectors also observed Health Physics (HP) technician (HPT) selection and use of portable gamma sensitive survey meters.

In addition to equipment walk-downs, the inspectors observed HPTs performing functional checks and alarm set-point testing of various fixed and portable detection instruments. These observations included the daily response checks of portable instruments and friskers including an air sampler, E-520, RO-2, and teletector; and daily response checks of PM-7s and personnel contamination monitoring equipment. Daily source check results for the FastScan and Accuscan whole body counters (WBC) were also reviewed with cognizant licensee representatives. The most recent 10 CFR Part 61 analysis for dry active waste was reviewed to determine if calibration and check sources were representative of the plant source term.

The inspectors reviewed calibration records for selected radiation monitors installed in the plant. The records were evaluated to determine frequency and adequacy of the calibrations. In addition, calibration stickers on portable survey instruments identified as "ready-to-use" and friskers staged throughout the radiologically controlled area were noted. Calibration records for selected instruments staged for use were reviewed. In addition, the most recent calibration of the FastScan and Accuscan WBCs and its analysis libraries were reviewed.

Operability and reliability of selected radiation detection instruments were reviewed against details documented in the following: 10 CFR Part 20; NUREG-0737, Clarification of TMI Action Plan Requirements; Technical Specifications 3.4, 3.6, and 3.9; UFSAR Chapter 11; and applicable licensee procedures. Documents reviewed during the inspection are listed in Section 2OS3 of the report Attachment.

Self-Contained Breathing Apparatus (SCBA) and Protective Equipment Select SCBA units staged for emergency use located in the hallway near the HP control point were evaluated for material condition, air pressure, and number of units available. Selected

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air bottles staged for emergency use were inspected for acceptable air pressure and hydrostatic testing markings. The inspectors also reviewed certification records associated with quality of vendor-provided bottled air including compressed grade D air and enriched 35% oxygen/65% nitrogen (35/65) breathing air. Maintenance records for, and training of individuals performing maintenance on, vital components for 35/65 “containment use only” SCBA were reviewed. The inspectors noted that vital component maintenance for SCBA units using grade D air was performed by a vendor. Administrative controls for segregating SCBA units designated “containment use only” were evaluated.

Selected licensee representatives were interviewed to evaluate their knowledge of available SCBA equipment locations, including corrective lens inserts if needed, and their training on bottle change-out for extended periods of SCBA use. Respirator qualification records were reviewed for select operations, health physics, chemistry, and security department personnel assigned emergency response duties. In addition, the inspectors observed respiratory fit-testing for selected licensee staff.

Licensee activities associated with maintenance and use of respiratory protection equipment were reviewed against 10 CFR Part 20; RG 8.15, Acceptable Programs for Respiratory Protection; and applicable licensee procedures. Documents reviewed during the inspection are listed in Section 2OS3 of the Attachment.

Problem Identification and Resolution Selected licensee plant issues, condition reports, and self-assessments associated with instrumentation and protective equipment were reviewed and assessed. The inspectors evaluated the licensee’s ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure PI-AA-100, Corrective Action, Rev. 6. Documents reviewed are listed in Section 2OS3 of the report Attachment.

The inspectors completed nine of the specified line-item samples detailed in IP 71121.03.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety [PS]

2PS1 Radioactive Gaseous and Liquid Effluent Monitoring Systems

a. Inspection Scope

Effluent Monitoring and Radwaste Equipment During inspector walkdowns, accessible sections of the U1 and U2 liquid and gaseous radioactive waste (radwaste) and effluent systems were assessed for material condition and conformance with the UFSAR. The inspection included the Waste Gas Surge Drum, Waste Gas Diaphragm Compressors, Gas Stripper Isolation Valves, Gaseous Waste Regenerative Heat Exchanger, Waste Gas HEPA/Charcoal Filter Assembly, High and Low Level Waste Drain Tanks, Clarifier,
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and the Advanced Injection Method System/Advanced Liquid Processing System (AIMs/ALPS). The inspectors also observed the material condition and UFSAR conformance of the following process monitors: Process Vent Particulate/Gas (1-GW-RM-178-1), Ventilation Vent A Particulate/Gas (1-VG-RM-179-1), Ventilation Vent B Particulate/Gas (1-VG-RM-180-1), Component Cooling Heat Exchanger Service water (1-SW-RM-107), Liquid Waste Disposal (1-LW-RM-110,111), Condenser Air Ejector (1/2-SV-RM-121/221), Reactor Coolant Letdown (1/2-CH-RM-128/228), Circulating-Water Discharge Tunnel (1/2-SW-RM-130/230), and High Capacity Steam Generator Blowdown Discharge Monitor (2-SS-RM-225). The inspectors interviewed chemistry and engineering staff regarding radwaste effluent monitor operation and equipment configuration requirements for representative sampling. The inspectors observed collection of particulate, iodine, and tritium samples from the Process Vent, Ventilation Vent A and Ventilation Vent B release pathways, and assessed those activities for procedural adherence. The inspectors also reviewed and discussed Design Change Number 07-160, Replacement of Duratek System with Energy Solutions Ion Exchange System, with cognizant licensee personnel.

The inspectors reviewed performance records and calibration results for selected radiation monitors, flowmeters, and air filtration systems. For monitors 1-GW-RM-178, VG-RM-179, LW-RM-110, 1-LW-RM-111, and RM-SV-121, the inspectors reviewed the most recent calibration records. The inspectors also reviewed the last two functional/flow checks for these effluent monitors. The inspectors reviewed out-of-service monitors from July 2007 to May 2009, and verified that required compensatory sampling was performed. The most recent surveillances on the Waste Gas Filter Systems were reviewed. Performance and operations of the systems were reviewed and discussed with cognizant licensee personnel.

Current licensee programs for monitoring, tracking, and documenting the results of both routine and abnormal liquid releases to onsite and offsite surface and ground water environs were reviewed and discussed in detail. The inspector verified that areas had been properly documented in the licensee's site decommissioning files in accordance with 10 CFR 50.75(g), if required. Current licensee capabilities and routine surveillances to minimize and rapidly identify abnormal leaks from liquid radioactive waste tanks, processing lines, and spent fuel pools were reviewed and discussed in detail.

Installed configuration, material condition, operability, and reliability of selected effluent sampling and monitoring equipment were reviewed against details documented in the following: 10 CFR Part 20; RG 1.21, Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials In Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants; TS Section 5.0; the Offsite Dose Calculation Manual (ODCM), Rev. 15; and UFSAR. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the Attachment.

Effluent Release Processing and Quality Control (QC) Activities The inspector evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides are included, within detectability standards. The inspector reviewed the Part 61 analyses to ensure hard-to-detect radionuclides were included in the source term.

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The inspectors reviewed selected calibrations and QC results of count room instrumentation, including high-purity germanium detectors and liquid scintillation counters. The inspectors reviewed the results of the inter-laboratory comparison program to verify the quality of radioactive effluent sample analyses. The inspectors reviewed assessments of any identified bias in the sample analysis results and the overall effect on calculated projected doses to members of the public.

Selected portions of procedures for effluent sampling, processing, and release were evaluated for consistency with licensee actions. Selected gaseous release permits were reviewed against ODCM specifications for pre-release sampling and effluent monitor setpoints. The inspectors discussed performance of pre-release sampling and analysis, release permit generation, and radiation monitor setpoint adjustment with chemistry technicians. The inspectors reviewed the 2007 and 2008 Annual Radiological Effluent Release Reports to evaluate reported doses to the public and ODCM changes. Public dose calculations were reviewed and discussed with cognizant licensee personnel.

Observed task evolutions, count room activities, and offsite dose results were evaluated against details and guidance documented in the following: 10 CFR Part 20 and Appendix I to 10 CFR Part 50; ODCM; RG 1.21; RG 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I; RG 1.33, Quality Assurance Program Requirements; and TS Section 5.0. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the Attachment.

Problem Identification and Resolution Multiple CRs and an audit associated with effluent release activities were reviewed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve selected issues in accordance with PI-AA-200, Corrective Action, Rev. 6. Reviewed documents are listed in Section 2PS1 of the report Attachment.

Groundwater Monitoring The inspectors discussed current and future programs for onsite groundwater monitoring with Chemistry and Health Physics personnel, including number and placement of monitoring wells and identification of plant systems with the most potential for contaminated leakage. In addition, the inspectors reviewed procedural guidance for identifying and assessing onsite spills and leaks of contaminated fluids and reviewed spill records retained for decommissioning per 10 CFR Part 50.75(g)

Currently, the licensee maintains 11 onsite groundwater monitoring wells with samples taken at various frequencies and for various radionuclides. The results of the sampling were reported in the Annual Radioactive Effluent Release Report. Levels of onsite tritium contamination ranged from no detectable activity to less than 5,000 picocuries per liter. No contamination levels exceeding NRC or Environmental Protection Agency limits have been reported in the offsite environs.

The inspectors completed the three required samples for IP 71122.01.

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Implementation The inspectors reviewed the licensee's most recent Annual Radiological Environmental Operating Reports for 2007 and 2008 which described implementation of the REMP and provided an assessment of the program results. Information regarding surveillance results, analysis of data, land use census, the interlaboratory comparison program, and permitted program deviations were evaluated. The inspector also reviewed and discussed implementation of the REMP with respect to sampling locations, monitoring and measurement frequencies.

The inspectors observed collection of air particulate filters at selected air sampling stations and assessed sample collection methodology and techniques. Calibration procedures and records for the air sampling stations were reviewed. The inspectors also observed thermoluminescent dosimeter (TLD) placement at selected locations as described in the ODCM. The inspectors used a handheld GPS unit to verify that environmental air sample locations were as described in the ODCM.

Calibration procedures and records for the two most recent calibrations of the meteorological monitoring instruments for air temperature, wind speed and direction were also reviewed. The inspectors evaluated the operability of instruments and determined the availability of current meteorological conditions in the Control Room for the primary tower.

Through the above reviews and observations, the licensee's practices and implementation of their radiological environmental monitoring program, meteorological monitoring program and radioactive material control program were evaluated by the inspectors for consistency with the ODCM, the Updated Final Safety Analysis Report, TS and 10 CFR Part 20 requirements.

Meteorological Monitoring Program The inspectors reviewed the operability of the meteorological monitoring equipment and operator access to meteorological data. Current meteorological monitoring equipment performance and calibration were reviewed with cognizant licensee representatives. Cognizant licensee representatives responsible for equipment maintenance and surveillance were interviewed by the inspectors concerning equipment performance, reliability, and routine inspections.

Meteorological monitoring program implementation and results were reviewed against TS, ODCM guidance, and procedures listed in Section 2PS3 of the Attachment.

Unrestricted Release of Materials from the Radiologically Controlled Area (RCA) The inspectors reviewed, evaluated, and discussed with cognizant licensee representatives radiation protection program activities associated with the unconditional release of

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licensed materials from the main RCA and satellite RCA locations. In addition, the inspectors observed personnel and equipment released from the main RCA access point and satellite RCA locations. Licensee guidance and implementation of RCA exit-monitoring activities were evaluated against 10 CFR Part 20 requirements and applicable procedures documented in Section 2PS3 of the Attachment.

Problem Identification and Resolution The inspectors reviewed audits, and selected CRs associated with REMP operations and the program for unrestricted release of materials from the RCA. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with licensee procedure PI-AA-200, Corrective Action, Rev. 6. Specific CR documents reviewed and evaluated in detail for these program areas are identified in Section 2PS3 of the Attachment.

The inspectors completed 10 of the specified line-item samples detailed in IP 71122.03.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

1. The inspectors performed a periodic review of the two following Unit 1 and 2 PI's to assess the accuracy and completeness of the submitted data and whether the performance indicators were calculated in accordance with the guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline." The inspection was conducted in accordance with NRC Inspection procedure 71151, "Performance Indicator Verification." Specifically, the inspectors reviewed the Unit 1 and Unit 2 data reported to the NRC for the period April 2008 through March 2009. Documents reviewed included applicable NRC inspection reports, licensee event reports, operator logs, and station performance indicators.
 - RCS Specific Activity
 - Reactor Coolant System Leakage
2. The inspectors sampled licensee submittals for the performance indicators (PI) documented below. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 5, were used to verify the basis in reporting for each data element.

Occupational Radiation Safety Cornerstone: The inspectors reviewed the Occupational Exposure Control Effectiveness Performance Indicator results for the period of July 2007 through March 2009. For the assessment period, the inspectors reviewed HP shift log

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entries, electronic dosimeter alarm logs, and licensee procedural guidance for collecting and documenting Performance Indicator data. Condition Reports were reviewed for uptakes and abnormal TLD results. Documents reviewed are listed in section 4OA1 of the Attachment.

Public Radiation Safety Cornerstone: The inspectors reviewed the Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences PI results from January 2007 through March 2009. The inspectors reviewed CAP documents, effluent dose data, and licensee procedural guidance for classifying and reporting PI events. Reviewed documents are listed in Sections 2PS1 and 4OA1 of the Attachment.

The inspectors completed the two radiation protection related line-item samples detailed in IP 71151.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Review of Items Entered into the Corrective Action Program (CAP):

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 CAP. This review was accomplished by reviewing daily condition report (CR) summaries and periodically attending daily CR Review Team meetings.

.2 Annual Sample: Review of CR335031, "Emergency Diesel Generator Fuel Oil Day Tank Vent Missile Protection"

a. Inspection Scope

The inspectors reviewed the licensee's assessments and corrective actions for CR335031, "Emergency Diesel Generator Fuel Oil Day Tank Vent Missile Protection," 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 CR against the requirements of the licensee's CAP as specified in procedure, PI-AA-200, "Corrective Action Program," Revision 6, and 10 CFR 50, Appendix B.

b. Findings

Inadequate Corrective Action to Identify Lack of Tornado Missile Protection of Emergency Diesel Generator Fuel Oil Day Tank Vents

Introduction: A Green, NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified by the NRC for the failure to promptly identify and correct a condition adverse to quality associated with inadequate tornado missile protection for the EDG fuel oil day tank vents on each train for Units 1 and 2.

Description: The inspectors reviewed the licensee's CAP and associated extent of condition evaluations and reviews based on previously identified tornado missile protection deficiencies as documented in NRC Integrated Inspection Report 05000338, 339/2006004. The licensee's CAP is implemented by procedure, PI-AA-200, Revision 2, "Corrective Action," which states in Step 1.1, "This procedure establishes the process for identifying and documenting operability and reportability of conditions potentially adverse to quality." Step 5.2.8 states, "Engineering is responsible for providing technical justification to support operability decisions in accordance with OP-AA-102, Operability Determination, and OP-AA-102-1001, Development of Technical Basis to Support Operability Determinations." Step 5.3.18 defines extent of condition as, "The extent to which the actual condition exists with other plant equipment, organizations, processes or human performance. It is expected that the level of effort in determining and documenting the extent of condition is commensurate with the level of investigation and significance of the event. Consider the impact on opposite unit, related or similar equipment, and related documents." Licensee procedure, OP-AA-102, Revision 1, "Operability Determination," states in step 3.2.6d, "An OD evaluation documents the review of the degraded or nonconforming condition against the TS SSC functional requirements, as specified in TS, TS Bases, Design Basis documents and CLB. The following items are required to be evaluated and documented; the extent of condition for all similarly affected TS SSCs".

Licensee guidance and reference document, OP-AA-102-1001, Revision 0, "Development of Technical Basis to Support Operability Determinations," states in step 3.3.3.a.2, "Summarize the extent of condition. Identify other SSCs that perform a safety function in the plant that are potentially subject to the same degraded or nonconforming condition, including the failure mechanism, when known. Determine if any of these SSCs are directly involved with the outcome of the OD evaluation."

The inspectors reviewed the following ODs:

- OD000019, Revision 2, for CR's 001132, 008612 and CA015133, and approved on April 1, 2008, stated in the Extent of Condition section, "Based on site inspections, SSC's which are potentially vulnerable to a tornado driven missile are the steam exhaust pipes on the turbine driven AFW pumps, the diesel driven fire pump engine exhaust or fuel tank vent, the SWVH and SWPH ventilation, the S/G PORV's, the MS safety valves, and decay heat release valves." This OD was last reviewed on March 31, 2009, and section E of the review stated, "The OD evaluation is attached and remains correct and complete. OD000019 was closed on April 22, 2009, following

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the completion of modifications to implement tornado missile protection for AFW turbine driven pump steam exhaust piping.

- OD000081, Revision 3, for CR008613 and approved on March 26, 2008, stated in the Extent of Condition section, "The exhaust pipe for the diesel engine, and vent pipe for the tank extend outside the pump house and are not missile protected. The extent of this Operability Determination is limited to these two identified items." This OD remains open and was last reviewed by the licensee on April 1, 2009; the reviewed concluded, "The OD remains accurate."

Additionally, CR008613 for the above OD000081 stated in its problem description, "During the extent of condition walkdown to verify missile protection for components listed in UFSAR Table 3.2-1 that are designed to tornado criteria, the following external components were identified as potentially vulnerable to tornado generated missiles: 1-FP-P-2, engine-driven fire pump exhaust pipe outside the SWPH is not missile protected. 1-FP-TK-4, 300 gal diesel oil tank for 1-FP-P-2 vent pipe outside the SWPH is not protected. The ventilation fans and dampers on top of the SWPH and SWVH are not protected from the exhaust opening side." The inspectors reviewed UFSAR Table 3.2-1, "Structures Systems, And Components That Are Designed To Seismic And Tornado Criteria," and noted that EDG fuel oil day tanks and fuel oil piping and valves have a "P" designation which refers to systems and components that will not fail during the design tornado, since they are protected by tornado-resistant structures.

The licensee performed a prompt operability determination, OD000297, which initially concluded that the EDGs are functional but not fully qualified. The inspectors concluded that the licensee's extent of condition evaluations and reviews per their CAP were inadequate because they failed to identify a condition adverse to quality involving inadequate missile protection for the EDG fuel oil day tank vents.

On May 15, 2009, the licensee initiated CR335031, "Emergency Diesel Generator Fuel Oil Day Tank vent missile protection," in response to questions by the resident inspectors regarding inadequate missile protection for the EDG day tank vents.

Analysis: The inspectors determined that the failure to promptly identify and correct a condition adverse to quality associated with inadequate tornado missile protection for the EDG fuel oil day tank vents on each train for Units 1 and 2, was a performance deficiency. The inspectors determined the finding was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of design control for the initial SSC design. The inspectors evaluated the finding using the significance determination process and determined that the finding was of very low significance because the design deficiency did not result in the loss of functionality and the finding did not screen as potentially risk significant due to a severe weather initiating event. This finding involved the cross-cutting area of problem identification and resolution, the component of the corrective action program, and the aspect of thorough evaluation of problems such that resolutions address extent of condition, P.1(c), because the licensee failed to identify

inadequate tornado missile protection for the EDG day tank vents during an extent of condition evaluation and review.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," states in part that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, on May 15, 2009, the licensee's CAP prescribed extent of condition evaluations failed to promptly identify conditions adverse to quality involving inadequate tornado missile protection for EDG fuel oil day tank vents. Because the finding is of very low safety significance and it was entered into the licensee's CAP as CR335031, this violation is being treated as a Green NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000338, 339/2009003-03, Failure to promptly identify and correct a condition adverse to quality involving inadequate tornado missile protection for the EDG day tank vents.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's correction action program documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment and corrective maintenance issues but also considered the results of daily inspector corrective action program item screening discussed in Section 4OA2.1. The review included issues documented outside the normal correction action program in system health reports, corrective maintenance work orders, component status reports, site monthly meeting reports, and maintenance rule assessments. The inspectors' review nominally considered the six month period of January through June 2009, although some examples expanded beyond those dates when the scope of the trend warranted.

The inspectors compared and contrasted their results with the results contained in the licensee's latest integrated quarterly assessment report. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy.

b. Assessment and Observations

No findings of significance were identified. In general, the licensee has identified trends and has addressed the trends with their corrective action program. However, the inspectors identified an adverse trend in the rigor of extent of condition reviews conducted within the licensee's ODs. The inspectors reviewed procedure OP-AA-102, "Operability Determination," Revision 6, and noted that it requires operability determination evaluations document the extent of condition for all similarly affected technical specification structures, systems, and components (SSC). OP-AA-102 provides further that the extent of condition should consider if other trains, systems or the other unit are affected. Procedure PI-AA-200, "Corrective Action," Revision 6, was reviewed by the inspectors where they noted that it addresses extent of condition and documents that it should consider the impact on the opposite unit and related or similar equipment. The inspectors identified several instances where the licensee failed to

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extend the scope of OD extent of condition reviews to include other similar SSCs or the other unit as required by OP-AA-102. Specifically, the inspectors identified the following ODs and associated parent CRs where this failure occurred:

- OD000291, Evaluate degradation of breaker enclosure material for 1-EE-MCC-1J1-2S J1, associated with CR332993. Additional information provided concerning 1-EE-MCC-1J1-2S J1 breaker
- OD000294, Eval. Oper. of offsite power sources, with current degraded overhead lines, associated with CR333917, Engineering to evaluate operability of offsite power
- OD000297, Request OD for EDG vents, associated with CR335365, EDG day tank vent lines not missile protected
- OD000299, Determine operability of 2-SW-PP-4.00-WS-PIPE-H48-163-Q3 with existing flaw, associated with CR336805, MIC leakage identified during SW MIC inspection

The licensee has acknowledged the identified trend placed this issue in their CAP as CR340120 which initiated the following corrective actions (CA):

- CA140337, Review and revise OD000299 to document extent of condition
- CA140338, Review and revise OD000099, OD000291, OD000294 and OD000297 to document extent of condition
- CA140347, to investigate potential programmatic weakness with ODs

The enforcement aspects of this issue are discussed in Section 4OA2.2.

4OA3 Event Follow-up

2H Emergency 4160V Bus Blackout

a. Inspection Scope

The inspectors reviewed the licensee's actions taken on April 28, 2009, in response to the Unit 2 blackout on the 2H emergency 4160V bus due to non-safety cable fault which isolated the normal, qualified offsite power source via 'B' Reserved Station Service Transformer (RSST). The inspectors interviewed operations, engineering, and licensee management personnel to obtain an understanding of the event and assess follow-up actions. The inspectors reviewed operator actions taken in accordance with licensee procedures and reviewed unit and system indications to verify that actions and system responses were as expected. The inspectors also reviewed the initial licensee notifications to verify that the requirements specified in NUREG-1022, Event Reporting Guidelines were met.

b. Findings and Observations

No findings of significance were identified.

4OA5 Other Activities.1 Quarterly Resident Inspector Observations of Security Personnel and Activitiesa. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with the licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.2 (Closed) URI 05000338/2009002-01, Degradation of the Containment Sump

On September 30, 2007 the licensee identified that containment test connections had significant corrosion and had not been inspected in accordance with the requirements of the ISI Program, as required by 10 CFR 50.55a(g)(4). The inspectors reviewed the licensee's Apparent Cause Evaluations as documented in ACE017474, Rev 0, April 15, 2009 and ACE017479, Rev 0, April 22, 2009 as well as the containment liner corrosion calculation documented in Calculation IS-0001, Rev 0, March 23, 2009. The regulatory aspects are dispositioned in Section 4OA7.

4OA6 Meetings, Including ExitExit Meeting Summary

On June 26, 2009, the health physics inspectors presented the inspection results to Mr. Larry Lane, Bruce Evans and other members of his staff. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

On July 17, 2009, the senior resident inspector presented the inspection results to Mr. Daniel Stoddard and other members of the staff, who acknowledged the findings. 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 violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

- 10 CFR 50.55a(g)(4) requires augmented inspections for the containment surfaces. Contrary to this, on September 30, 2007, the licensee identified that they failed to include two pressure test connections that are directly attached to the containment liner plate within their ASME Section XI IWE Program. As a result, these areas did not receive their required inspections. The violation was determined to be of very low safety significance because pressure tests performed on these connections did not detect any leakage. Additionally, the licensee performed calculations to address possible containment liner corrosion and verified that the containment liner integrity was maintained. The licensee included this issue in their corrective action program as condition reports CR 325382 and CR 021245.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

W. Anthes, Manager, Nuclear Maintenance
D. Blakeney, Nuclear Operations Division Manager
J. Breeden, Supervisor, Radioactive Analysis and Material Control
R. Evans, Manager, Radiological Protection and Chemistry
E. Hendrixson, Director, Nuclear Safety and Licensing
T. Huber, Director, Nuclear Engineering
S. Hughes, Manager, Nuclear Operations
P. Kemp, Supervisor, Station Licensing
L. Lane, Plant Manager
M. Lane, Supervisor HP-Ops
G. Lear, Manager, Organizational Effectiveness
T. Maddy, Manager, Nuclear Protection Services
G. Marshall, Manager, Nuclear Outage and Planning
C. McClain, Manager, Nuclear Training
F. Mladen, Manager, Nuclear Site Services
J. Moore, Supervisor Instruments and Controls
B. Morrison, Supervisor Nuclear Engineering
J. Scott, Supervisor, Nuclear Training (operations)
G. Simmons, Supervisor Radiological Analysis
D. Stoddard, Site Vice President
M. Young, Supervisor Radioactive Material Control

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000338/2009003-01 URI Degradation of a Flood Protection Feature (Section 1R06)

Closed

05000338/2009002-01 URI Degradation of the Containment Sump (Section 4OA5.2)

Opened and Closed

05000338/2009003-02 NCV Failure to Repair or Rework Nonconforming Parts in Accordance with Documented Procedures (Section 1R20)

05000338, 339/2009003-03 NCV Failure to promptly identify and correct a condition adverse to quality involving inadequate tornado missile protection for the EDG day tank vents (Section 4OA2.2)

LIST OF DOCUMENTS REVIEWED

Section 20S3: Radiation Monitoring Instrumentation and Protective Equipment

Procedures

0-PT-38.1.1.1, New Fuel Storage Area Radiation Monitor (RM-RMS-152) Channel Operational Test, Rev. 13
1-PT-38.1.5, Containment Particulate Radiation Monitor (1-RM-RMS-159) Channel Operational Test, Rev. 30
1-PT-38.1.6, Containment Area Radio Gas Radiation Monitor (1-RM-RMS-160) Channel Operational, Test, Rev. 26
C-HP-1033.011, Check Source Reference Readings and Geotropism Checks for Portable Instruments, Rev. 5
C-HP-1033.012, Portable Radiation Protection Instrumentation Control, Rev. 2
C-HP-1033.021, Reference Sources for Radiation Protection Instrumentation, Rev. 0
CHP-1033.015, Personnel Contamination Monitoring Instrumentation Control, Rev. 14
C-HP-1033.503, Eberline E-520: Calibration and Operation, Rev. 3
C-HP-1033.520, Eberline Teletector 6112: Calibration and Operation, Rev. 4
C-HP-1033.533, MGP Telepole: Calibration and Operation, Rev. 2
C-HP-1033.540, Eberline RO-2, RO-2A, RO-20, and Thermo Scientific RO-20AA: Calibration and Operation, Rev. 4
C-HP-1033.544, Bicon Surveyor 2000: Calibration and Operation, Rev. 4
C-HP-1033.610, Eberline Air Monitor AMS-4 Calibration and Operation, Rev. 5
C-HP-1033.620, Portable Air Samplers Calibration and Operation, Rev. 7
C-HP-1033.711, Eberline Personnel Monitor Model PM-7, Calibration and Operation, Rev. 1
C-HP-1042.011, Respirator User Qualification, Rev. 1
C-HP-1042.151, Respirator Issue, Rev. 1
C-HP-1042.450, Self-Contained Breathing Apparatus Maintenance, Rev. 13
C-HP-1042.520, Respiratory Protection Program Equipment Criteria and Verification, Rev. 5
HP-1033.022, J.L. Shepherd Model 89 Shielded Calibration System, Operation and Surveillance, Rev. 2
HP-1041.044, Standup Whole Body Counter: Operation and Performance Checks, Rev. 10
HP-1041.046, Accuscan II Whole Body Counter: Operation and Performance Checks, Rev. 4
HP-1041.064, Standup Whole Body Counter: Calibration, Rev. 6
HP-1041.066, Accuscan II Whole Body Counter: Calibration, Rev. 4
PI-AA-100, Corrective Action, Rev. No. 5

Records and Data

Accuscan II Performance Check, Dated 06/24/09
Calibration Certificates – Bicon MicroRem Survey Meter, S/N C5566, Dated 04/10/08, 10/13/08 and 04/13/09
Calibration Certificates – Bicon Surveyor 2000, S/N I-209A, Dated 01/29/08, 09/16/08 and 03/01/09
Calibration Certificates - Eberline AMS-4, S/N 1553, Dated 02/25/08, 03/16/09 and 09/22/09
Calibration Certificates – Eberline E-520, S/N 3944, Dated 04/11/08, 01/28/09 and 03/21/09
Calibration Certificates – Eberline RO-2, RO-2A, and RO-20, S/N 1238, Dated 02/28/08, 09/19/08 and 03/01/09
Calibration Certificates – Eberline RO-2, RO-2A, and RO-20, S/N 156, Dated 09/04/07, 05/31/08 and 02/26/09

Calibration Certificates – Eberline Teletector 6112, S/N 110383, Dated 03/18/08, 09/15/08, 03/07/09 and 03/26/09
 Calibration Certificates – MGP TelePole, S/N 6606-040, Dated 01/03/08, 09/29/08, 03/18/09, and 03/26/09
 Calibration Certificates – Portable Air Sampler, S/N 8269, Dated 04/24/08, 11/01/08 and 05/18/09
 Calibration Records – Accuscan II Whole Body Counter, Dated 05/06/08 and 05/27/09
 Calibration Records - Standup Whole Body Counter, Dated 05/07/08 and 05/18/09
 Fastscan Performance Check, Dated 06/24/09
 Instrument Calibration, Containment Area Radio Gas Radiation Monitor Calibration, Dated 08/22/07
 Instrument Calibration, New Fuel Storage Area Radiation Monitor (RM-RMS-152) Calibration, Dated 11/04/08
 Instrument Calibration, RMS-159 Containment Particulate Radiation Monitor Calibration, Dated 11/11/08
 Instrument Periodic Test, Containment Area Radio Gas Radiation Monitor (1-RM-RMS-160) Channel Operational Test, Dated 06/23/09
 Instrument Periodic Test, New Fuel Storage Area Radiation Monitor (RM-RMS-152) Channel Operational Test, Dated 06/23/09
 Instrument Periodic Test, Containment Particulate Radiation Monitor (1-RM-RMS-159) Channel, Operational Test, Dated 06/23/09
 MSA BMR and MME Certified C.A.R.E. Technician Certificates for select individuals, Dated 04/03/08
 Radiological Use SCBA Inspection Records, January 2008 – June 2009
 Respiratory Equipment Performance Verification Logs, Dated 02/04/09 and 02/05/09
 SCBA Cylinder Hydrostatic Test Records, Dated 10/26/05, 12/06/05, 12/21/05, 01/27/06, 02/13/06, 04/23/07 and 05/17/07

Self-Assessments

Audit 08-06: Radiological Protection and Process Control Program, Dated 09/05/08
 Self Assessment No. SAR000370, RP Portable Radiation Detection Instrumentation, Dated 07/01/08

Condition Reports

CR 90036, 2-SS-RM-222 shows no response to check source
 CR 91570, Fastscan Stand-up Whole Body Counter failed daily performance check
 CR 92638, Attempts to source check 1-SW-RM-124 unsuccessful, declared “Not Functional”
 CR 94839, PM-7 No. 433 failed to alarm on detector 4 during performance check
 CR 330507, 1-RM-RMS-163 appears to have failed low and does not source check

Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Procedures and Guidance Documents

HP-3010.020, Radioactive Liquid Waste Release Permits, Rev. 5
 HP-3010.021, Radioactive Liquid Waste Sampling and Analysis, Rev. 19
 HP-3010.030, Radioactive Gaseous Waste Release Permits, Rev. 10
 HP-3010.031, Radioactive Gaseous Waste Sampling and Analysis, Rev. 28

HP-3051.020, Ground Water Protection Program, Rev. 1
 0-GIP-4.0, RMS Calibration Sources, Rev. 8
 0-PT-440, Monitoring Normally Non-Radioactive Systems for Radioactive Contamination, Rev. 7
 0-AP-53, Accidental, Unplanned, or Uncontrolled Radioactive Liquid Release, Rev. 7
 RP-AA-502, Groundwater Protection Program, Rev. 2
 RP-AA-503, Radiological Decommissioning Records – 10 CFR 50.75(g) Program, Rev. 0
 Offsite Dose Calculation Manual, Rev. 15
 Assessment of North Anna Effluent Sampling Lines for Particulate Aerosol and Gaseous Iodine
 Transmission, 2/16/96

Records and Data

Annual Radioactive Effluent Release Report, 2008
 Annual Radioactive Effluent Release Report, 2007
 WO 00603771-01, Process Vent Normal and High Range Effluent Radiation Monitor (1-GW-
 RM-178) Calibration, 6/16/06
 WO 00766079-01, Process Vent Normal and High Range Effluent Radiation Monitor (1-GW-
 RM-178) Calibration, 1/10/08
 WO 00523549-01, Vent Stack Normal and High Range Radiation Monitor (VG-RM-179)
 Calibration, 2/23/05
 WO 00729327-01, Vent Stack Normal and High Range Radiation Monitor (VG-RM-179)
 Calibration, 8/22/06
 WO 00768903-01, Vent Stack Normal and High Range Radiation Monitor (VG-RM-179)
 Calibration, 2/15/08
 WO 00778003-01, Liquid Waste Evaporator Radiation Monitor (LW-RM-110) Calibration,
 2/12/08
 WO 00721569-01, Liquid Waste Clarifier Radiation Monitor (1-LW-RM-111) Calibration, 8/30/05
 WO 00722128-01, Liquid Waste Clarifier Radiation Monitor (1-LW-RM-111) Calibration, 9/7/06
 WO 590786526, Liquid Waste Clarifier Radiation Monitor (1-LW-RM-111) Calibration, 7/19/08
 WO 00725590-01, Condenser Air Ejector Radiation Monitor (RM-SV-121) Calibration, 6/22/06
 WO 00725590-01, Condenser Air Ejector Radiation Monitor (RM-SV-121) Calibration, 10/7/07
 WO 59101683458, Condenser Air Ejector Radiation Monitor (RM-SV-121) Calibration, 4/7/09
 0-ICP-LW-RW-111, Liquid Waste Clarifier Radiation Monitor (1-LW-RM-111) Calibration, 9/8/07
 0-PT-69.7A, Waste Gas Charcoal Filter System (Post-Maintenance Test on HEPA Filter for 1-
 GW-FL-1A), 3/5/09
 0-PT-69.8A, Waste Gas Charcoal Filter (Post-Maintenance Test on Charcoal Filter for 1-GW-
 FL-1A), 3/5/09
 0-PT-69.4A, Waste Gas Charcoal Filter System Laboratory Analysis (1-GW-FL-1A), 5/15/09
 Analytics Cross-Check Analysis Results (1st Quarter 2007, 3rd Quarter 2007, 1st Quarter 2008,
 3rd Quarter 2008)
 Liquid Waste Continuous Release Permit 09-CE-05, 5/31/09
 Liquid Waste Continuous Release Permit 09-HCBD-05, 5/31/09
 Liquid Waste Batch Release Permit 08-LBATCH-03, 7/18/08
 Vent- Vent A Continuous Gaseous Release Permit 09-VVA-25, 5/31/09
 Vent- Vent B Continuous Gaseous Release Permit 09-VVB-25, 5/31/09
 High-purity Germanium Detector #1 Calibration, Various Geometries, 12/16/08
 High-purity Germanium Detector #1 Weekly Background/LLD Checks, 12/23/08-6/23/08
 Liquid Scintillation Detector Calibration, 10/27/08
 Liquid Scintillation Detector Daily QC Checks, 11/1/08-6/25/09

Design Change Package (DCP) 07-160, Replacement of Duratek System with Energy Solutions Ion Exchange System, 3/11/08

DCP 99-006, Ventilation Radiation Monitoring (KAMAN) System Replacement, 7/17/01

Liquid Effluents Dose Projections, January 2009 – June 2009

Liquid Effluents Cumulative Dose Summary, January 2009 – May 2009

Gaseous Effluents Dose Projections, January 2009 – June 2009

Gaseous Effluents Cumulative Dose Summary, January 2009 – May 2009

Corrective Action Program Documents

Audit 07-10, ODCM/REMP/EPP, 2/4/08

CR019352, As found data low out of acceptable range for isotopic calibration 1-LW-RM-111

CR333596, Sample flow rate to MGPI radiation monitors (1-VG-RM-179/180) are not isokinetic

CR015408, Noted decreasing trend in "A" WGDT inner tank pressure

CR100683, 2007 Annual Radioactive Effluent Release Report contains an incorrect value

CR091602, "A" Vent Stack Rad Monitor analyzer low flow

CR028556, 01-GW-RM-178 mass flow as founds out of spec high

CR027666, 1-GW-RI-178-1 Process Vent Rad Monitor Failure

CR022180, Water sample from a vault leading to BRTs indicates tritium

CR326189, Unplanned radioactive release while venting RCS for SV removal

CR094027, No flow to 1-SS-FI-110A as a result of pump 1-SS-PA OOS, all related to VVA

Section 2PS3: Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program

Procedures and Guidance Documents

0-ICP-MM-DP-1, Primary Meteorological Tower Dew Point Measuring System Calibration, Rev: 006

0-ICP-MM-RG-1, Primary Meteorological Tower Precipitation Monitor Calibration, Rev: 005

0-ICP-MM-S-101A, Weather Tower 48 Meter Wind Speed Calibration, Rev: 008

0-ICP-MM-S-101C, Backup Weather Tower Wind Speed Calibration, Rev: 007

0-ICP-MM-SR-ZR-1A, Primary Meteorological Tower 10 Meter Wind Speed and Wind Direction Calibration, Rev. 7

0-ICP-MM-SR-ZR-1B, Primary Meteorological Tower 48 Meter Wind Speed and Wind Direction Calibration, Rev. 8

0-ICP-MM-ST-100, Backup Weather Tower Sigma Theta Calibration, Rev. 9

0-ICP-MM-T-100A, Weather Tower 10 Meter Temperature Calibration, Rev. 9

0-ICP-MM-T-100B, Weather Tower 10/48 Meter Delta Temperature Calibration, Rev. 10

0-ICP-MM-TEMP-1, Primary Meteorological Tower Ambient Temperature and Differential Temperature Calibration, Rev. 12

0-ICP-MM-Z-101A, Weather Tower 48 Meter Wind Direction Calibration, Rev: 008

0-ICP-MM-Z-101B, Weather Tower 10 Meter Wind Direction Calibration, Rev.8

0-ICP-MM-Z-101C, Backup Weather Tower Wind Direction Calibration, Rev: 006

0-PT-40.1, Meteorological Monitoring System Calibration, Rev: 006

0-PT-487.10, Radiological Environmental Monitoring Program, Land Use Census, Rev. 10

0-PT-487.21, Annual Radiological Environmental Operating Report, Draft, Rev: 005

0-PT-487.22, Annual Radiological Environmental Operating Report, Final, Rev: 005

C-HP-1033.440, NE Technology SAM-9/SAM-11 Calibration and Operation, Rev.6

C-HP-1033.620, Portable Air Samplers Calibration and Operation, Rev.7

HP-3051.010, Radiological Environmental Monitoring Program, Rev.33
 0-ICP-MM-RCDR-001, Weather Tower Recorder Calibration, Rev: 002
 0-ICP-MM-S-101B, Weather Tower 10 Meter Wind Speed Calibration, Rev: 008
 0-ICP-MM-SR-ZR-2, Backup Meteorological Tower Wind Speed and Wind Direction Calibration,
 Rev. 9
 RP-AA-225, Unrestricted Release of Material, Rev. 0
 RP-AA-230, Personnel Contamination Monitoring and Decontamination, Rev.1
 VPAP-2103N, Offsite Dose Calculation Manual (North Anna), Rev.15

Instrument Calibration and Environmental Data Records

NAPS Calibration Certificates for portable air sampler kits 1 through 15
 NAPS Calibration Certificate- NE Technology SAM-9/SAM-11 No. 247, 1/1/07, 7/17/07,
 1/9/08,7/29/08, and 1/7/09
 NAPS Calibration Certificate- NE Technology SAM-9/SAM-11 No. 177A, 7/17/07, 10/30/07,
 4/7/08, 10/2/08 and 4/3/09
 Annual Radiological Environmental Operating Report North Anna Power Station, January 1,
 2007 to December 31, 2007 [ML081280636]
 Annual Radiological Environmental Operating Report North Anna Power Station January 1,
 2008 to December 31, 2008 [ML091270309]
 Interlaboratory Comparisons for Gell Labs 2009
 Radioactive Material Transport Vehicle Surveys dated 4/2/09 and 4/6/09 showing dose rates on
 sea land container prior to shipment, during shipment, after electrical fire destroyed the
 tractor enroute and after receipt of shipment at Surry after tractor was replaced.

CAP Documents

CR015697, Average X/Q values show increasing trend.
 CR021444, More restrictive dose commitment determined as a result of new location for garden
 sample point during 2007 Land Use Census.
 CR021730, Revision to ODCM based on Land Use Census changes.
 CR025673, Procedures are not identified as Regulatory Guide 1.97 procedures. This is an
 administrative issue.
 CR028539, Nuclear Oversight ODCM, EPP, REMP Audit 07-10 Recommendations
 CR112717, Land census results
 CR336571, Samples removed from 1-VG-RM-180 were not counted within the 48 hour time
 period.

Section 40A1: Performance Indicator Verification

Records and Data

Liquid Effluents Dose Projections, January 2009 – June 2009
 Liquid Effluents Cumulative Dose Summary, January 2009 – May 2009
 Gaseous Effluents Dose Projections, January 2009 – June 2009
 Gaseous Effluents Cumulative Dose Summary, January 2009 – May 2009

CAP Documents

CR015339, It is unclear which individual a PAM/DAD was checked out to (malfunction).
 CR015586, Individual entered the PA on two occasions without a TLD.
 CR100852, DAD indicated a dose rate higher than the ambient dose rates accessed.

CR104863, A radiation worker accessed the protected area without a TLD.

CR110281, Worker Reported to Exposure Control with DAD in alarm

CR325691, Individual discovered that their DAD was in PAUSE when returning to the PDA.

CR334956, Deficiency in documenting Dose Investigations for DAD/TLD correlation errors

LIST OF ACRONYMS & ABBREVIATIONS

ADAMS	Agency wide Document Access and Management System
ALARA	As Low As Reasonably Achievable
AMS	Air Monitoring System
ANSI	American National Standards Institute
CA	Corrective Action
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DAD	Digital Alarming Dosimeter
EDG	Emergency Diesel Generator
EPP	Environmental Protection Plan
FAQ	Frequently Asked Questions
GPS	Global Positioning System
HP	Health Physics
HPT	Health Physics Technician
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
JPM	Job Performance Measures
LHRA	Locked High Radiation Area
LHSI	Low Head Safety Injection
NAPS	North Anna Power Station
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
No.	Number
NRC	Nuclear Regulatory Commission
OD	Operability Determination
ODCM	Offsite Dose Calculation Manual
OOS	Out-of-Service
PARS	Publicly Available Records
PASS	Post-Accident Sampling System
PCM	Personnel Contamination Monitor
PCP	Process Control Program
PI	Performance Indicator
PM	Portal Monitor
QC	Quality Control
QS	Quench Spray
RAB	Reactor Auxiliary Building
Radwaste	Radioactive Waste
RCA	Radiologically Controlled Area
RCB	Reactor Containment Building
RCE	Root Cause Evaluation
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
Rev.	Revision

RFO	Refueling Outage
RG	Regulatory Guide
RP	Radiation Protection
RTP	Rated Thermal Power
RWP	Radiation Work Permit
SAM	Small Article Monitor
SCBA	Self-contained Breathing Apparatus
SDP	Significance Determination Process
SR	Surveillance Requirements
TDAFWP	Turbine Driven Auxiliary Feedwater Pump
TLD	Thermoluminescent dosimeter
TS	Technical Specifications
U1	Unit 1
U2	Unit 2
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VEPCO	Virginia Electric and Power Company
VHRA	Very High Radiation Area
VPAP	Virginia Power Administrative Procedure
WBC	Whole-body Counter
WO	Work Order