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

February 22, 2005

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

SUBJECT: NORTH ANNA POWER STATION - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT NOS. 50-338/2005-006 AND 50-339/2005-006

Dear Mr. Christian:

On January, 28, 2005, the NRC completed a team inspection at your North Anna Power Station. The enclosed report documents the inspection findings which were discussed on January 27, 2005, with Mr. J. Davis, North Anna Site Vice President, and other members of your staff.

The inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved selected examination of procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the samples selected for review, the team concluded that, in general, problems were properly identified, evaluated, and resolved within the corrective action program. However, based on the results of this inspection, the inspectors identified one issue of very low safety significance (Green). The issue was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because the issue has been entered into your corrective action program, the NRC is treating the issue as a non-cited violation (NCV), in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you contest the NCV in this report, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, 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 and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system

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

Sincerely,

//RA//

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

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

Enclosure: NRC Inspection Report Nos. 05000338/2005006 and 05000339/2005006
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-338, 50-339
License Nos.:	NPF-4, NPF-7
Report Nos.:	05000338/2005006, 05000339/2005006
Licensee:	Virginia Electric and Power Company (VEPCO)
Facility:	North Anna Power Station, Units 1 & 2
Location:	1022 Haley Drive Mineral, Virginia 23117
Dates:	January 10 - January 28, 2005
Inspectors:	B. Desai, Senior Project Engineer (Team Leader) A. Sabisch - Resident Inspector, Catawba Nuclear Station G. Laska, Senior Operating Licensing Examiner E. Riggs, Resident Inspector, Oconee Nuclear Station
Approved by:	K. Landis, Chief, Reactor Projects Branch 5 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000338/2005-006, IR 05000339/2005-006, Virginia Electric and Power Co., 01/10 - 01/28/05, North Anna Power Station Units 1 & 2, biennial baseline inspection of the identification and resolution of problems. One violation was identified in the area of corrective actions.

The inspection was conducted by a senior project engineer, two resident inspectors, and a senior operator licensing examiner. One finding of very low safety significance (Green) was identified which was a non-cited violation. 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.

Identification and Resolution of Problems

The team concluded that, in general, problems were properly identified, evaluated, and corrected. The licensee was effective at identifying problems and entering them in the corrective action process. Issues were prioritized and evaluated appropriately, and in a timely fashion. The evaluations of significant problems were in general of sufficient depth to determine the likely root or apparent causes, as well as, address the potential extent of the circumstances contributing to the problem and provide a clear basis to establish corrective actions. Corrective actions that addressed the causes of problems were generally identified and implemented. Reviews of sampled operating experience information were comprehensive. Licensee audits and assessments were found to be adequately broad based and effective in providing management a tool for identifying adverse trends. Previous noncompliance issues documented as non-cited violations were properly tracked and resolved via the corrective action program. Based on discussions with plant personnel and the low threshold for items entered in the corrective action program database, the inspectors concluded that workers at the site were free to raise safety concerns to their management.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. Between 1993 and 2004, the licensee replaced 5 of the 18 thermocouples associated with the Unit 1 and 2 charging pump inboard, outboard, and thrust bearings. The replacement thermocouples were of the incorrect type. The finding was a failure of the licensee to take corrective actions following the identification of the incorrect thermocouples being used on the charging pump bearings in 2002. The finding was more than minor as the condition could have adversely impacted the ability of control room operators to detect charging pump bearing degradation or an impending failure during normal or emergency operations.

  The event was determined to be of very low safety significance (Green) because the alternate train charging pumps which had the original "T" type thermocouples were available to perform their safety function for the period between 1993 and 2004. This

finding is a non-cited violation of 10 CFR 50 Appendix B Criterion XVI, "Corrective Actions." This finding involved the cross-cutting aspect of Problem Identification and Resolution. (Section 4OA2.3)

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

1. Effectiveness of Problem Identification

a. Inspection Scope

The inspectors reviewed items selected across the three strategic performance areas (reactor safety, radiation safety, and physical protection) to verify that problems were being properly identified, appropriately characterized, and entered into the corrective action program (CAP) for evaluation and resolution. The inspectors reviewed program documents including VPAP-1601, "Corrective Action," and VPAP-1501, “Deviations”, which describe the administrative process for documenting and resolving issues. The inspectors reviewed Plant Issues (PIs) associated with systems that ranked the highest on the licensee’s risk significance list. The systems were ranked by risk achievement worth, an indicator of how much impact the system’s failure or unavailability would have on the plant.

Systems selected included the following:

- Instrument Air
- Component Cooling Water
- Chemical Volume Control System
- Emergency Diesel Generators
- Service Water
- Main Steam
- Auxiliary Feedwater System

The inspectors reviewed a sampling of PIs that had been generated since the last problem identification and resolution inspection. The specific documents reviewed are listed in Attachment 1.

The inspectors conducted multiple computer database searches to identify the threshold at which issues were identified and documented in the CAP. The review was performed to verify that the licensee’s threshold for identification and documentation of issues was consistent with procedural guidance and licensee management expectations. The inspectors reviewed a sampling of work orders (WOs) for risk significant systems, which were issued or revised, to verify equipment problems were being entered into the PI database in accordance with procedure requirements.

The inspectors reviewed industry operating experience (OE) items to determine if they were appropriately evaluated for applicability to North Anna and whether problems identified through these reviews were entered into the PI database. Once applicable OE issues were identified, the inspectors evaluated whether corrective actions to prevent recurrence were taken in a timely manner.

The inspectors reviewed plant equipment issues associated with maintenance rule (a)(1) items, functional failures, maintenance preventable functional failures (MPFFs), and repetitive MPFFs, to verify that maintenance rule equipment deficiencies were being appropriately entered into the PI database.

The inspectors toured the plant to determine whether equipment and material condition problems were being identified. The inspectors attended several of the licensee's Plant Issue Review Team (PIRT) meetings and attended a portion of the quarterly Management Safety Review Committee (MSRC) meeting to determine the level of management attention that problems received and to assess the effectiveness of the screening process in ensuring that problems were properly captured in the licensee's PI database. The inspectors had discussions with plant personnel and the NRC resident inspectors to determine if problems were properly identified.

Licensee assessments were performed for individual functional areas such as security, maintenance, operations, operating experience, and other areas. The results of these assessments were reviewed to determine if they were documented in the licensee's corrective action program as appropriate. These assessments touched on corrective action elements as they related to specific issues within the functional area being evaluated.

The inspectors reviewed VPAP-1601 to determine if the trending at the site level was as prescribed in VPAP-1601 for the Event Codes that represented cross cutting areas. Finally, the inspectors reviewed various self-assessments for effectiveness in identifying problems in the CAP process and reviewed whether improvement areas were properly captured in the CAP.

b. Assessment

PI Generation

Licensee self-assessments were thorough and effective in identifying deficiencies in the corrective action program and other programmatic areas. These deficiencies were routinely entered into the corrective action program and corrective actions were implemented.

The team determined that the licensee was identifying problems and entering them into the corrective action program at an appropriate threshold. The team found that problems identified through industry experiences that met the threshold for a PI at the site were entered into the corrective action program for resolution. The inspectors observed appropriate and timely management involvement in the review of the issues documented in PIs.

The team concluded that site personnel were appropriately generating PIs as required by the licensee's program with exceptions. During this inspection, the team identified a few examples, noted below, that demonstrated that site personnel were not always generating PIs at the threshold expected by plant management. The team determined that the station's corrective action program encourages the reporting of plant deviations;

however, some lower-level deviations are not being reported as required by programmatic guidance on a consistent basis. Some of these deviations were captured in other station programs such as narrative logs or the work management process while others were only reported when prompted by non-station personnel.

The value of capturing these issues in the station's corrective action program lies in the ability to identify adverse trends prior to a more significant problem occurring. While some of the issues were captured in other station programs, computerized trending was not able to identify adverse trends as described in the corrective action program. Based on a review of historical PI's and PIRT meeting attendance, many of the repeat occurrences flagged in PI's or trends of lower-level deviations are identified through the memory of station personnel that have been on-site for considerable lengths of time.

The team determined that possible contributors to this condition were that some of the criteria contained in VPAP-1501 is subjective in nature and allows for individuals to interpret the guidance and need for a PI. Additionally, the recent revision to VPAP-1501 added a number of new criteria for which a PI should be initiated and several criteria for which a PI would not be required. In some cases, the guidance contained within the two sections conflict with one other. Training has been provided to some of the plant staff such as some licensed operators and the Nuclear Safety Group; however, most of the plant staff have not received training to ensure the new criteria contained in VPAP-1501 is interpreted and implemented on a consistent basis. These contributors were validated through interviews conducted with station personnel in several departments. The Dominion Self Assessment conducted in March 2004 also identified the same issue, and two PIs were initiated to address the Area for Improvement. Since the Self Assessment was conducted and the corrective actions implemented, 128 PI's had been initiated that were not submitted by individuals directly involved in the event or observing the condition.

The team recognizes that the new Central Reporting System scheduled to be implemented at all Dominion sites in April 2004 was intended to consolidate multiple reporting processes to reduce the potential for missed or mis-filed issues.

The examples of PI's generated as a result of this NRC inspection include:

- NRC inspectors noted two minor boric acid leaks on valves in the charging system during a system walkdown. PI-N-2005-0155 was generated by the licensee and entered into the Boric Acid Control Program following the walkdown.

- Licensee generated PI-N–2005-0911 following identification of chromate leaks on four valves during a walkdown of the component cooling water system by the NRC inspectors.

- An oil leak on the Unit 1, 1A charging pump auxiliary oil pump was found by the NRC and PI-N–2005-0147 was subsequently generated.

- Oil was noted on the Unit 2 TDAFW pump pedestal during a walkdown by the NRC and PI-N–2005-0330 was generated to document this condition.

- According to the Operator Narrative logs, on September 19, 2004, low water level was noted in the SBO diesel expansion tank and the tank was refilled. A PI was not generated for this condition at the time it was noted. On October 8, the condition recurred and the expansion tank was refilled. A PI was generated for the October 8 occurrence and referenced the September 19 occurrence; however, the ability to detect a trend was not afforded based on the single PI from October 8.

- On October 1, the containment annulus crane was noted to be drifting with a load suspended from the hook. This issue was documented in the Outage Narrative Log; however, a PI was not generated. Two similar events were documented in previous PI's.

- On December 1, 2004, oil sample taken from 1-BC-P-1A was found to contain iron particles that exceeded the alert range. This was documented in the Engineering Log. Subsequent analysis revealed that the iron content was acceptable; however, per the Station Nuclear Safety Group manger, a PI should have been initiated when the initial sample results were obtained.

In addition, 29 PI's were initiated during the period of 06/15/04 through 01/15/05 based on NRC inspections and plant walkdowns that had not been initiated by plant personnel.

Operating Experience

The team noted that the station formally reviews industry operating experience when conducting root cause evaluations and Maintenance Rule MPFF (a)(1) assessments in accordance with procedures. However, industry operating experience (OE) is not used routinely when performing apparent cause evaluations or reviewing routine PI's. Further, inspectors noted during interviews with station personnel and reviews of completed ACE / routine PI's and non-(a)(1) MPFF's that the use of external OE is not fully utilized in the evaluation of plant issues.

Industry OE does not necessarily need to be used for evaluating all PI's issued by the station; however, where PI's describe equipment-related or potentially generic issues, not using OE would preclude the use of valuable information contained in other external data systems which can provide insight to those involved in evaluating issues and developing corrective actions.

A breakdown of PI's for 2003 and 2004 showing the numbers that received a root cause evaluation (RC), apparent cause evaluation (ACE) or were classified as routine are as follows:

2003: RC - 17; ACE - 1060; Routine - 246
2004: RC - 20; ACE - 1274; Routine - 404

The team determined that a possible contributor to this issue was that the large number of ACE's generated annually limits the amount of time that the system engineers and other station personnel can dedicate to the evaluation of non-root cause PI's.

2. Prioritization and Evaluation of Issues

a. Inspection Scope

The inspectors reviewed a sample of corrective action documents to determine if the licensee appropriately characterized problems and entered them into the CAP for evaluation and resolution. The corrective action documents were selected across the seven cornerstones of safety (initiating events, mitigating systems, barrier integrity, emergency preparedness, public radiation safety, occupational radiation safety, and physical protection) with the focus on plant systems having the highest risk significance.

The inspectors attended PIRT meetings on several occasions and reviewed PIs that were assigned one of the three Screening Categories (Significant, Potentially Significant and Routine) to determine whether PIs were properly prioritized and evaluated in accordance with VPAP-1601. The screening categories were defined in VPAP-1601 and were based on decreasing significance. Significant PIs involved "Events that need immediate attention to prevent recurrence dealing primarily with nuclear safety, public safety, and personnel safety" that required Category 1 Root Cause Evaluations (RCE). Potentially Significant PIs included events that are precursors to significant events and typically receive higher levels of cause evaluation than a Routine event with the same frequency of occurrence. The inspectors reviewed PIs covering Significant and Potentially Significant categories, focusing on those associated with risk significant systems, as well as those associated with violations of regulatory requirements and other NRC inspection findings. During this PI review, the inspectors evaluated the disposition of the issue with respect to operability and/or reportability. The inspectors reviewed several PIs which required root cause evaluations to determine the adequacy of the causal determinations.

The inspectors reviewed selected PIs, including those associated with industry operating experience issues to determine whether site personnel conducted reviews for generic implications, repetitive conditions, and common cause failure mode determinations when the condition warranted.

The inspectors reviewed selected PIs that were closed to request for engineering assistance (REA), reviewed Station Administrative Procedure VPAP-0304, "Request for Engineering Assistance" and discussed the closing of PIs to REAs with licensee engineering personnel. It was determined by the inspectors from the review and discussion that if an REA is being disapproved or canceled and is associated with a PI, then the REA must be discussed with Station Nuclear Safety for concurrence. The status of the PI is updated based upon the disposition determined by the discussion.

The inspectors attended PIRT meetings, Station Nuclear Safety and Operating Committee (SNSOC), and a MSRC meeting, to assess the licensee's prioritization and evaluation of issues.

b. Assessment:

In general, the licensee's threshold for classification, prioritization, and evaluation of problems in the corrective action program was considered to be satisfactory. The technical adequacy and depth of evaluations, as documented in individual PIs, were acceptable and the licensee generally prioritized proposed corrective actions in a manner commensurate with the safety significance of the issue, except as discussed in 4OA2.c. Based on the total number of PIs with root cause evaluations that were reviewed during this inspection, the inspectors concluded that the licensee's corrective action program was effectively implemented with respect to evaluation of problems.

The inspectors concluded that the licensee's problem evaluations considered extent of condition and generic implications where appropriate. Operability and reportability of issues were appropriately evaluated and resolved. The team did note two examples where extent of condition reviews were not performed. These examples included contactor problems with the breaker for MOV QS 100 and the pressurizer heater breaker problems.

3. Effectiveness of Corrective Actions

a. Inspection Scope

The inspectors reviewed numerous PIs to verify that the licensee had identified and implemented corrective actions commensurate with the safety significance of the documented issues, and where possible, evaluated the effectiveness of the actions taken. Part of this effectiveness review was conducted by attending a SNSOC meeting and by reviewing SNSOC meeting minutes. The inspectors also verified that common causes and generic concerns were addressed where appropriate. The inspectors reviewed PIs associated with previous non-cited violations (NCVs) to assess the adequacy of corrective actions.

b. Assessment:

General Comments

From the review of PIs , the team determined that the licensee's corrective actions were effective in correcting problems. Management involvement in the corrective action process was also considered to be very effective. The team observed that during the PIRT meeting, managers appropriately questioned PIs and openly and assessed the adequacy and effectiveness of related corrective actions. The team also concluded that corrective actions for previous NCVs were adequate.

Charging Pump Thermocouple Replacement

Introduction:

A Green NCV was identified for the failure to comply with 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. The licensee failed to take effective corrective actions following the identification of the installation of the incorrect type of thermocouple

monitoring bearing temperatures on the Unit 1 and Unit 2 charging pumps. This violation affects the reactor safety strategic performance area and the mitigating systems cornerstone.

Description:

Between 1993 and 2004, the licensee replaced 5 of the 18 thermocouples associated with the Unit 1 and 2 charging pump inboard, outboard and thrust bearings. The original thermocouples were of the "T" type design (copper-constantane) which were five inches in length. The replacement thermocouples (5 of 18) were of the "J" type design (iron-constantane) and were four inches in length. The replacements were conducted under an Engineering Evaluation, IEER N93-5029.000, which concluded that no difference existed between the "J" and"T" type thermocouples in the applications they were being used in. The differences in thermocouple temperature readings caused by the different composition of the wires as well as the shorter thermocouple length resulting in a slower temperature response was not identified in this Engineering Evaluation. The "J" type thermocouple was used in place of the "T" type thermocouple primarily due to availability issues during the initial replacement period. Once the equivalency was justified, the licensee continued to use the same evaluation as the basis for subsequent replacements. During routine maintenance of the 1-CH-P-1A charging pump in 2002, the licensee identified the fact that a shorter thermocouple was being used on two of the pump bearings. A corrective action document, PI-N-2002-0873, was initiated with corrective actions assigned to determine the impact of using "J" type thermocouples on the monitoring capabilities of the charging pumps and develop appropriate corrective actions. The licensee dispositioned the PI without implementing any corrective actions other than determining that the 1-CH-P-1A charging pump bearing temperature**s** were within their normal range and that no problems existed with the other charging pumps. Three of the five “J” type thermocouples were installed subsequent to the PI initiated in 2002 which had identified the shorter thermocouple used to monitor bearing temperatures. Subsequently, in 2004, another PI, N-2004-5370, was initiated due to the thermocouples for the 2-CH-P-2C charging pump not making contact with the bearings and reading approximately 40 degrees F lower than the others. Further, an interview with several control room operators indicated that they were not aware of the deficiency in the plant with the thermocouple and no compensatory actions or caution tags to alert the operators of this condition were initiated.

Analysis:

The performance deficiency associated with this finding was a failure of the licensee to take effective corrective actions following the identification of the incorrect thermocouples being used on the charging pump bearings in 2002. The finding is more than minor as the condition could have adversely impacted the ability of control room operators to detect charging pump bearing degradation or an impending failure during normal or emergency operations. The event was determined to be of very low safety significance (Green) because the alternate train charging pumps which had the original “T” type thermocouples were available to perform their safety function for the period between 1993 and 2004. This finding involved the cross-cutting aspect of Problem Identification and Resolution.

Enforcement:

10 CFR 50 Appendix B, Criterion XVI, “Corrective Action”, requires, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, the licensee failed to determine the cause of the installation of the incorrect thermocouples used to monitor charging pump bearing temperatures and take appropriate corrective actions to preclude recurrence. Because the violation is of very low safety significance and because the issue was entered into the licensee's corrective action program, it is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. The NCV is identified as NCV 05000338,339/2005006-001, "Failure to Determine the Cause and take Appropriate Corrective Actions for the Installation of Incorrect Thermocouples in the Charging Pump Bearings." This issue is in the licensee's corrective action program under PI N-2005-0382.

4. Assessment of Safety-Conscious Work Environment

a. Inspection Scope

The inspectors informally interviewed licensee personnel to develop a general view of the safety-conscious work environment at North Anna and to determine if any conditions exist that would cause workers to be reluctant to raise safety concerns. The inspectors also reviewed the licensee’s Employee Concerns Program (ECP), which provides an alternate method to the PI process for employees to raise safety concerns with the option of remaining anonymous. The inspectors reviewed the program to determine if concerns were being properly reviewed and resolved.

b. Assessment

The inspectors concluded that licensee management fostered a safety-conscious work environment by emphasizing safe operations and encouraging problem reporting. Methods available to encourage problem reporting included PIs, WOs, and the ECP.

4OA6 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. J. Davis, Site Vice President and other members of licensee management at the conclusion of the inspection on January 27, 2005.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTARY INFORMATION

POINTS OF CONTACT (Partial List)

G. Bischof, Director, Nuclear Safety and Licensing
J. Crossman, Assistant Operations Manager
L. Curfman, Employee Concerns Program Coordinator
J. Davis, Site Vice President
R. Evans Jr., Manager, Radiation Protection and Chemistry
S. Hugnes, Manager, Operations
J. Kirkpatrick, Manager, Maintenance
M. Sartin, Manager, Engineering
M. Laprade, Supervisor, Station Nuclear Safety Organizational Effectiveness
L. Lane, Director, Operations and Maintenance
L. Leberstien, Technical Advisor, Licensing
F. Mladen, Manager, Site Services
B. Morrison, Assistant Manager, Site Engineering
P. Kemp, Supervisor, Licensing

Other licensee employees included engineers, operations personnel, and administrative personnel.

NRC

M. King, Acting Senior Resident Inspector, North Anna
G. Wilson, Resident Inspector, North Anna
K. Landis, Branch Chief, Division of Reactor Projects, Region II

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

0500338, 339/2005-006-001	NCV	"Failure to Determine the Cause and take Appropriate Corrective Actions for the Installation of Incorrect Thermocouples in the Charging Pump Bearings." (Section 4OA2.3)

Attachment

LIST OF DOCUMENTS REVIEWED

Procedures

VPAP-1501; Deviations Revision 17.
VPAP-1601; Corrective Action Revision 20.
1-OP-8.9; Transferring Running Charging Pumps. Revision 8
1-PT-14.2; Operations Periodic Test "Charging Pump 1-CH-P-1B
0-PT-77.15A; Operations Periodic Test "ECCS PREACS FLOW TEST TRAIN A FILTER"
0-PT-77.14A; Engineering Periodic Test "ECCS PREACS TRAIN A FILTER IN-PLACE TEST"
DNAP-0104; Dominion Nuclear Self-Assessment Program
DNAP-0114; Dominion Nuclear Self-Evaluation Program
DNAP-1004; Boric Acid Corrosion Control (BACC) Program
DNAP-1604; Cause Evaluation Program
DNAP-2000; Dominion Work Management Process
DNAP-3002; Dominion Nuclear Operating Experience Program
VPAP-0815; Maintenance Rule Program
VPAP-1403; Temporary Modifications
VPAP-1408; System Operability
VPAP-1501; Deviations
VPAP-1601; Corrective Action
VPAP-1901; Industrial Safety and Health
VPAP-2801; Commitment Management
VPAP-2802; Notifications and Reports
PLAP-2000; Supplemental Work Management Process
0-GOP-4; Cold Weather Operations
1(2)-AP-28; Loss of Instrument Air
0-OP-6.4; Operation of the SBO Diesel (SBO Event)
0-AP-10; Loss of Electrical Power

Plant Issues (PIs)

N-2001-3289-R1; SW Cathodic Protection
N-2004-4633; AFW 2-FW-127 Body to Bonnet Leak
N-2004-2582; Allen Bradley Relay documentation problem
N-2004-0843; Oil Leak on Lower Motor Bearing for 1-SW-P-1A
N-2004-1071-E1;Chemical Leaking at SW Chemical Addition Building
N-2005-0036-E1;Pin Hole Leak Downstream of 2-HV-MOV-213C
N-2004-0428-E1;Contamination on CCHX for SW
N-2003-1017-E1;Root Cause Evaluation Response for Personnel Inside High Radiation Area with Non-Telemetric Dosimetry
N-2005-0162; W Coating on Inside Surface
N-2004-2297-E2;Fuse Blown on 02-MS-PC-2447A-INTCPM
N-2004-3520-E1; Indications and Crack on 1-MS-PH-R-57.17
N-2003-1449-E1; Unit-2 Reactor Trip after Receiving Process Rack Power Supply Failure
N-2204-0040-E1; Through Wall Leak on Unit 2 Main Feedwater Pump
N-2004-1478-E1; Torque Requirements on 1-FW-RO-103A & 1-FW-RO-102A
N-2004-1414; 2-HV-TV-2306B indicated Closed

N-2004-2903; 2-HV-F-57d did not give Flow Alarm in the Control Room
N-2004-2385; Control Room Differential Pressure Out-of-Spec
N-2003-1836; 2-HV-AC-163 is making Unusual Noise
N-2003-2897-E1; SWPH Sump Hi Lvl Alarms
N-2004-2186; 2-SW-S-1A chain Thickness is below 20 percent
N-2003-3411; Six issues related to TLD
N-2003-0095; WBC showed 4.14e-3 microcuries of Co-60
N-2005-0059; 1 CH-P-1A1 Unit 1 “A” charging pump Auxiliary Oil Pump Broken Coupling.
N-2005-0037; U2 CH-P-1A Unit 2 charging pump grease on motor to gear shaft coupling hard.
N-2004-4913; U1-CH-P-1A Unit 1 “A” charging pump inboard mechanical seal become hot.
N-2004-4948; U1 CH-P-1A Unit 1 “A” charging pump disaster bushing anti-rotational dowel misaligned.
N-2003-3498; U2 CH-P-1C Unit 2 “C” charging pump broken shaft.
N-2005-0092; U2 CH-P-1A Unit 2 “A” charging pump sparks coming from inboard seal.
N-2003-1140; NRC PI&R inspection identified an issue with timely resolution of charging pump seal leakage problems.
N-2004-5185; U2 CH-P-1C Unit 2 “C” charging pump grease/coupling may be degraded.
N-2003-2375; Boric acid buildup found during 2-PT-57.7
N-2004-4779; U2-CH-MOV-2269B found dried boric acid in packing gland area.
N-2003-3765; U2-CH-FCV-2122 Valve leakoff has 20 ml/min leak
N-2004-2185; U2-CH-29 valve, leak developed when isolating
N-2004-3231; U1-CH-P-1A Outboard seal has pencil stream leak
N-2004-2738; Boric acid found on piping between SI-MOV-1860A and SI-305 (weld leak)
N-2004-3421; 1-RS-MOV-155B While stroking, valve made loud popping noise.
N-2004-1453; 2-RC-MOV-2593 Valve did not fully stroke
N-2004-4299; 1EE -BKR-14h1-4 CKT BRK 52 cell switch installed incorrectly
N-2004-4276; 1-QS-MOV-100A Failed to stroke
N-2005-0080; 2-EE-BKR-24H1-6 CKT BKR contact configuration reversed
N-2004-4011-E1; 1-RS-E-1A,B, and D were found containing water
N-2004-3421; 1-RS-155B loud popping noise while stroking
N-2004-2301; U2 Reactor Trip Incorrect cell switch alignment.
N-2004-5370; 2-CH-TE-202C Detector thermocouple probe not making contact with bearing
N-2005-0282; 1-CH-TE- 102A-2, 102A-3, and 102C-2 incorrect thermocouples installed
N-2004-5382; 1-CH-TE-102C-1 incorrect thermocouple installed
N-2004-5385; 2-CH-TE-202C-2 incorrect thermocouple installed
N-2005-0318; 2-CH-P-1A Lube oil temperature swinging 10 degrees
N-2004-5020; 1-RS-P-2A Recirc Spray Pump 2A Seal Head Tank Hi/Low alarm received
N-2005-0155; Boric acid found on SI-MOV-1863A and 2-CH-MOV-2115B
N-2005-0177; 1-CH-ICV 326S found inoperable/frozen closed.
N-2004-4835; Small Packing leak found on 1-SI-TV-100 and 2-SI-TV-100
N-2004-0551; 1-CH-P-1A charging pump speed increaser making high pitched sound.
N-2002-0873; 1-CH-P-1A charging pump 1A Noted that thermocouples do not penetrate bearing.
N-2005-0348; 1-RS-P-2A Recirc Spray Pump 2A Seal Head Tank Hi/Low alarm received
N-2003-0517; During performance of 0-PT-77.15B, Eccs preacs flow test safeguards developed a positive pressure.

N-2004-3132; Operator aids were posted on both Unit 1 and 2 control boards that were not listed in the operator aids section of equipment status.
N–2004-4566; Mechanical seal on 0-BCW-P-3 breaking down and leaking.
N–2004-4562; Mechanical seal on 0-BCW-P-3 installed incorrectly when rebuilt.
N–2004-4400; Station Blackout (SBO) Diesel Generator (DG) coolant level low out of spec.
N–2004-1092; Seal leakage on 0-BCW-P-3 increased from 3 dpm to 120 dpm.
N–2004-0874; Seal leakage on 0-BCW-P-3.
N–2005-0340; During modification of the 1J EDG room door, discovered time delay with securing door.
N–2005-0333; Found 1J EDG room door blocked during maintenance with no EQ or fire watch.
N–2005-0323; 1J EDG coolant not sampled due to expansion tank level being low in band.
N–2005-0310; 2H EDG Lube Oil Temperature at 108 degrees F, NQC temperature indicator at 112 degrees F and 2H EDG Room south side Unit Heater not supplying heat.
N–2005-0307; During post-operational checks of the 1J EDG, it was noted that the “Shutdown Interlocks Not Reset” annunciator did not alarm as expected.
N–2005-0306; During operator rounds, a minor coolant leak was discovered on the 1J EDG.
N–2005-0284; 2HJ EDG coolant sample indicates an increase in calcium, magnesium, aluminum and iron.
N–2005-0251; 1H EDG, generator end bearing oil sample indicates high iron and overall particle counts.
N– 2005-0224; 2H EDG Lube Oil Temperature at 108 degrees F, NQC temperature indicator above 110 degrees F.
N–2005-0026; During 2-PT-82H on 2H EDG, a small coolant leak was noted near the 1C, 4C and 5C cylinders. Maximum total leak rate was 160 dpm with EDG loaded.
N–2004-5334; 2J EDG jacket water glycol concentration is high out of spec at 39%. The specification is 35 to 38%.
N–2004-4749; 2J EDG jacket water glycol concentration is high out of spec at 39%. The specification is 35 to 38%.
N–2004-4619; 1H EDG jacket water glycol concentration is low out of spec at 34%. The specification is 35 to 38%.
N–2004-4479; During 2-PT-82.2A (2H EDG fast start), a minor coolant leak was noted in the area of #5, 6 and 7 cylinder exhaust shield area.
N–2004-4415; During 1-PT-82J on the 1J EDG, a minor coolant leak (~84 ml/hr) was noted near the #12 cylinder.
N–2004-4156; 2J EDG jacket water glycol concentration is low out of spec at 34% due to the incorrect concentration of glycol makeup water being added to the system. The specification is 35 to 38%.
N–2004-2461; During 2-PT-82.12H, the 2H EDG, steady state frequency while isochronously was close to TS limit and was at TS max following load reject.
N–2004-1372; 2H EDG jacket water glycol concentration is low out of spec at 34%. The specification is 35 to 38%.
N–2004-1099; 1H EDG jacket water glycol concentration is low out of spec at 33%. The specification is 35 to 38%.
N–2004-0687; The quantity of jacket coolant drained from the 1H EDG was incorrectly reported to Chemistry as 440 gallons, but 300 gallons of glycol/water had been drained.
N–2003-3354; While conducting system walkdown of the 1H EDG, discovered the #7 Kiene valve indicator adapter collar nut leaking coolant at ~2 dpm.

N–2003-2824; While conducting system walkdown of the 2H EDG, discovered the #9 Kiene valve indicator seal o-ring leaking coolant at ~3 to 4 dpm .
N–2003-2403; 1H EDG inoperable greater than 14 days.
N–2003-2357; 1H EDG failed to trip with emergency stop pushbutton.
N–2003-1903; Oil leaks on the 1H EDG exhaust manifold gaskets during slow start PT.
N–2005-0342; Unit 1 ICCM System trouble Train A annunciator received.
N–2005-0330; Oil leaking from the Unit 2 TDAFW pump
N-2005-0207; Moisture/Condensation on the exterior of some CC piping in the Auxiliary Building
N-2004-0778; During Self-Assessment, several conditions were noted in station narrative logs that did not have PI's submitted for them.
N-2003-1160; Snubber support found misaligned during walk down with NRC inspector
N-2003-4337; During inspection of the service water side of the charging pump gear box cooler, it was discovered that the rear channel head had been installed 90 degrees out
N-2004-2127; During performance of 2-PT-17.2, Hot Rod Drop Testing, the counter did not indicate properly for control bank "D", group 2
N-2003-4019; Two valves on the hydrogen recombiner were found in the closed position which prevented the recombiner from starting
N-2004-1018; Failure to properly torque studs for TDAFW pump discharge restricting orifice
N-2004-1542; Two items were noted during containment sump inspection that did not meet the sump design basis
N-2004-4037; Seven snubbers were found to be in a condition outside of their design during walkdowns by engineering personnel
N-2005-0191; Four CC valves found to have chromate leaks during NRC system walk downs
N-2003-4210; Small amount of boric acid and water found at connection for 2-SI-PI-2941
N-2004-4489; Packing leaks found on 1-CH-MOV-1289B and 1-SI-67
N-2004-4681; Boric acid leaks found on six valves in the CH and SI systems
N-2005-0207; Moisture / condensation on chilled water piping in Auxiliary Building noted during NRC walk down
N-2004-4757; 2-IA-PI-201B was found out of specification high and was replaced
N-2004-4846; 1 IA valves were removed from the plant; however, procedures were not updated to reflect this fact
N-2004-4912; 1-IA-C-1 failed to start when attempting to place it in service
N-2004-5064; 1-IA-C-1 failed to start during equipment rotation

System Health Reports and System Engineer Notebook

Auxillary Feedwater System
Service Water System
Main Steam System
Heating Ventilation and Air Conditioning System
Component Cooling Water System, 2004-3
Reactor Protection System, 2004-3
Instrument Air and Service Air, 2004-3
Emergency Electrical (EE), 2004-3
Station Blackout Diesel Generator & Support Systems (AAC), 2004-3
Emergency Diesel Generators and Support Systems (EG), 2004-3

H and J Emergency Diesel Generators and associated support systems
Station Blackout Diesel and associated support systems

COMPLETED ROOT CAUSE EVALUATIONS:

N-2004-1261; During walk down of EDG missile shields on the roof of the diesel generator building, Engineering/NRC noted cracking on the concrete above the exhaust heat shield with the worst being 1/4" wide by 4' long.
N-2004-1542; During the activities associated with evaluating NRC Generic Safety Issue 191 "Evaluation of Sump Performance on Debris Impact" two items were noted to potentially not be in-accordance with the Sump Design Basis.
N-2004-3937; Snubber found to be impacting adjacent structural steel during NRC walkdown and as found, did not meet its design requirements
N-2004-3938; Two snubbers were found to have a large offset resulting in questioning their ability to meet design requirements
N-2004-1264; Contrary to the requirements of VPAP-2801, multiple examples of licensing commitment extensions exceeding the limitations as stated in the program procedure. In addition, multiple examples of exceeded due dates were also identified.
N-2004-1336; During a review of 70 PI's involving "operable but degraded", deficiencies were identified in the operability assessments on 8 PI's
N–2004-4562; Mechanical seal on 0-BCW-P-3 installed incorrectly when rebuilt.
N–2004-5340; This PI is written to enhance N–2004-5320 (Lifting of RV on 2-EG-C-2HB) and N–2004-2700 (Lifting of RV on 2-EG-C-2HB due to blockage from 2-EG-D-2HB).
N–2004-4167; Received battery charger 2-III trouble alarm. Low voltage alarm card had failed due to running to failure. Card provides an alarm function only, no operability concerns.
N–2004-3017; Upon swapping to the 2-IV battery charger, notice a burned smell coming from the charger. Opened the charger's front door, and noticed that the DC low voltage card had failed/burned due to running to failure. Card provides an alarm function only, no operability concerns.
N–2004-2461; During 2-PT-82.12H, the 2H EDG, steady state frequency while isochronously was close to TS limit and was at TS max following load reject.
N–2004-2311; Discovered 2-EG-RV-701HB lifting and reseating while 2-EG-C-2HB was running.
N–2004-1609; During the maintenance run of the 2H EDG, a small candle flame fire ignited on the control side of the exhaust manifold. The fire was promptly extinguished.
N–2004-1925; During 2-PT-83.12j on the 2J EDG, a coolant leak developed requiring the EDG to be shutdown 21 hours into a 24 hour run.
N-2004-1583; During walk down of 2J EDG exhaust bunker, 3 of the 4 shims on the engine exhaust stack support on the south wall had fallen out of place. The remaining shim was loose and one of the anchor bolts had fallen out.
N–2004-0067; During 2-PT-82H on the 2H EDG, the insulation covering the flange connection of the exhaust collector and turbo charger ignited producing a small, candle flame fire (opposite the control side). The fire was promptly extinguished.
N–2003-3917; During the monthly run of the 1J EDG, the insulation covering the flange connection of the exhaust collector and turbo charger ignited producing a small, candle flame fire (opposite the control side). The fire was promptly extinguished.

N–2003-3388; During the maintenance run of the 1J EDG, the insulation covering the flange connection of the exhaust collector and turbo charger ignited producing a small, candle flame fire (opposite the control side). The fire was promptly extinguished.
N–2003-2414; During 2_PT-82J on the 2J EDG, the insulation covering the flange connection of the exhaust collector and turbo charger ignited producing a small, candle flame fire (opposite the control side). The fire was promptly extinguished.
N–2003-2357; 1H EDG failed to trip with emergency stop pushbutton
N–2003-2015; While performing 0-EPM-0302-01 on the 4160 volt, 1J EDG output breaker foreign material was found.

NCV'S AND LICENSEE EVENT REPORTS (LERs):

N-2004-2301; Green NCV; Reactor Trip due to improper cell switch installation
N-2001-3600 / 2003-1761; Green NCV; Failure of the Corrective Action Program to Preclude a Reactor Trip due to EHC Power Supply System Failures
N-2004-3937 / N-2004-3938; Green NCV; Failure to Adequately Prevent the Improper Installation of three hydraulic snubber supports
N-2003-1160; Green NCV; Failure to correctly install hydraulic snubber support
N-2004-2108; Green Finding; Incomplete Closeout Inspections of Unit 2 Containment
N-2003-1932 / N-2003-2138 / N-2004-1018 / N-2004-1478; Green NCV; Failure to properly torque studs for the TDAFW pump discharge restricting orifice
N-2004-1224; Green NCV; Failure to assess and manage the increase in risk of operating a jet impingement
N-2004-1261; Green NCV; Failure to properly inspect the EDG tornado exhaust missile shield
N-2003-2539; Green NCV; Failure to classify and declare an NOUE as required by 10CFR50.54(q), 50.47(b) and Section IV.B of Appendix E of 10CFR50
N-2002-0606; Green NCV; Failure of the Corrective Action Program to determine the cause of charging pump seal leaks to preclude repetition

OPERATING EXPERIENCE DOCUMENTS:

Plant Issue - SEN 223; Recurring Event – Personnel Exposure Exceeds Electronic Dosimeter Alarm Setpoint
Plant Issue; Remote dosimetry monitoring system limitations result in missed dose rate alarm
RCE S-2003-2210; Loss of 1B DC Bus during disconnection of test equipment

OTHER DOCUMENTS:

Maintenance Rule a(1) Status Reports
Unavailability Time List for Maintenance Rule a(1) systems
Maintenance Preventable Functional Failure List since 1/1/2000
Repetitive Maintenance Preventable Functional Failure List since 1/1/2000
2002 Maintenance Department Self Assessment
Self Assessment NAPS-SA-03-05; Assessment of Rigging and Lifting
Self Assessment NAPS-SA-03-07; Assessment of Work Management Process Error Rate Reduction for Work Orders

Self Assessment NAPS-SA-03-09; Assessment of Selected Maintenance Programs
Self Assessment NAPS-SA-03-24; Assessment of Maintenance Department Rework Evaluation
Self Assessment MPA-04-01; Assessment of Maintenance Department MT&E Program
Self Assessment NAPS-SA-04-09; Assessment of Maintenance Department Welding Program
Self Assessment NAPS-SA-04-11; Assessment of Multi-Craft Work Orders
Self Assessment NAPS-SA-04-12; Assessment of Quality/QMT Inspection Program
Self Assessment NAPS-SA-04-13; Assessment of Rigging and Load Handling
Nuclear Oversight Audit 04-03; Special Processes and Inspection
NAPS Draft Corrective Action System Trend Report for the 4th Quarter of 2004
North Anna Boric Acid Corrosion Control Program database printout
50 Oldest PI report
Operability Assessment Checklist
Jumper List; Unit 1, Unit 2 and Common
Flow Diagram 11715-FM-082B; Compressed Air System, North Anna Unit 1
Design Change 04-014; Instrument Air and Service Air Compressor Timers
Dominion Cause Evaluation Manual
Dominion Generation System Engineering Handbook
Operable but Degraded PI's issued since January 1, 2003
IEER 000 N93-5029.000 Thermocouple (Ceramocouple)-Charging Pumps Model TC27184
Request for Engineering Assistance REA-93-421
Operator Work Around List
Audit 04-07 Corrective Actions
Self Assessment NAPS-SA-04-03
North Anna UFSAR Chapter 9
SW System Improvements Inspection of the Coatings, Technical Report ME-0006
Procedure 0-PT-75.15, GL 89-13 SW System Testing Requirements Coordination
Open SERIL item list, dated January 10, 2005
Instrument Calibration Procedure 0-ICP-MIS-G-001, Miscellaneous Instrument Calibration
Safety Evaluation for SW, N–97-396, Corrosion Prevention for Underground Piping
Self Assessment NAPS-SA-04-03; Corrective Action and Root Cause Programs Periodic Assessment (3/8-12/04)
North Anna Power Station Corrective Action System (CAS) Monthly Trend Reports for: October, November, December 2004
Nuclear Oversight Audit 04-07; Corrective Actions

Request for Engineering Assistance (REA) Review:

REA 2001-005, SW Cathodic Protection System
REA N-99-0587, Pitting Corrosion of Stainless Steel SW Components

Work Orders:

WO 170562; Control Room Bottled Air Supply Isolation Valve
WO 492543; NAMCO Limit Switch Replacement
WO 00517729 02; Unit 1-1C charging pump thrust bearing temperature elem 08/29/2004
WO 0026079 01; Unit 1 1-CH-TE-102A-2 Detect Leaking Oil 11/02/1993

WO 00517722 02; Unit 1-1C Charging Pump outboard bearing temperature elem replace install new thermocouple. 10/13/2004
WO 00359172; Unit 2 1B charging pump outboard bearing temperature elem replace thermocouple 02/08/97
WO 004476362 01; Unit 1 1B charging pump outboard bearing temperature elem investigate/ repair T/C 11/10/2002
WO 00406539 01; Unit 1 1B charging pump outboard bearing temperature elem oil leak around T.E. 01/05/2000
WO 004483594 01; Unit 2 1B charging pump outboard bearing replace oil deflector 12/27/2002
WO 00526166 01; Unit 2 1B charging pump auxiliary oil pump 1b1 replace coupling spider.01/06/2005
WO 00513375; Investigate cause of position counter for Unit 2 control bank “D” group 2 rods
WO 00507647; Replace 4 inch IA check valve
WO 00502471; Repair seal leak on IA compressor
WR 00104725; Packing leak on 2-FW-FCV-2489
WR 00104724; Packing leak on 2-FW-FY-2489
WR 00107548; Air leak on 2-SI-TV-201
WO 00502471; IA compressor cooling water pump seal leak
WO 00513436; IA compressor cooling water pump seal leak
WO 00507647; IA receiver 1 inlet valve air leak
WO 00507665; IA air receiver 1 inlet isolation valve internal leak
WO 00524171; Replace relay timers in accordance with DCP 04-014
WO 00518966; Repair pinhole leak in copper piping
WO 00494107; 2-CC-TV-200B failed 2-PT-213.15; indicated intermediate while closed
WO 00495398; 2-CC-TV-200B failed 2-PT-213.15; indicated intermediate while closed
WO 00474438; Repair relief valve 2-CC-214
WO 00481912; Replace 1-CC-RV-115C, failed PM
WO 00481771; Replace 1-CC-RV-122B
WO 00520064; Repack 1-CC-201
WO 00487591; Rebuild 1-CC-RV-104A
WO 00506408; Rebuild 1-CC-RV-104A
WO 00508959; Overhaul or replace valve 1-CC-TV-104C
WO 00512567; Replace air regulator on 2-CC-TV-204B
WO 00301363; Replace the SBO EDG’s Jacket Water Heater Pump, 0-BCW-P-3
WO 00328734; Replace the mechanical seal on the SBO EDG’s Jacket Water Heater Pump, 0-BCW-P-3
WO 00358839; Replace the SBO EDG’s Jacket Water Heater Pump, 0-BCW-P-3
WO 00399468; Replace the mechanical seal on the SBO EDG’s Jacket Water Heater Pump, 0-BCW-P-3
WO 00499896; Replace the mechanical seal on the SBO EDG’s Jacket Water Heater Pump, 0-BCW-P-3
WO 00513424; Replace the SBO EDG’s Jacket Water Heater Pump, 0-BCW-P-3
WO 00481210; Repair Kiene valve leak, repair injector nozzle leaks, replace adapter water jacket gaskets, and repair/replace blower tubing (1H EDG)
WO 00485400; Replace relief valve 1-EG-RV-602JB (1J EDG)
WO 00485919; Repair/Replace relief valve 1-EG-RV-602JA (1J EDG)

WO 00488164; Replace o-rings in #7 kiene valve and replace #7 cylinder liner on 1H EDG (1H EDG)
WO 00488056; Replace exhaust gaskets (OCS) # manifold and install new exhaust gaskets (Cogebi gasket on 2H EDG)
WO 00488441; Replace insulation on exhaust extension (2H EDG)
WO 00489186; Install new type exhaust gasket (Cogebi gasket on 1J EDG)
WO 00489187; Install new type exhaust gasket (Cogebi gasket on 1H EDG)
WO 00490142; Replace exhaust gaskets (CS) #1 manifold (Cogebi gasket on 2H EDG)
WO 00493910; Replace gaskets (OCS) #9, 11 Manifold (Cogebi gasket on 1H EDG)
WO 00494409; Refill and adjust coolant (1H EDG)
WO 00496533; Repair #7 Kiene valve leak
WO 00498598; Tighten OSC bolting on exhaust extension to turbocharger (1J EDG)
WO 00499687; Repair exhaust leaks as required (2H EDG)
WO 00499946; Replace o-rings in #11 Kiene valve (1H EDG)
WO 00500179; Replace CS exhaust gaskets (Cogebi gasket on 2H EDG
WO 00500227; Remove exhaust piping/manifold (2J EDG)
WO 00501032, Replace ½" coolant tubing (2J EDG)
WO 00501784; Install Cogebi gasket/shielding bolting (1H EDG)
WO 00507635; Replace gasket 10-11-12 manifold to extension (Cogebi gasket on 1H EDG)
WO 00508944; Replace insulation on exhaust extension (2H EDG)
WO 00509690; Replace insulation on exhaust extension (2J EDG)
WO 00510549; Add coolant (1H EDG)
WO 00516930; Replace/re-route tubing (1J EDG)
WO 00516931; Replace/re-route tubing (1H EDG)
WO 00516933; Replace/re-route tubing (2J EDG)
WO 00513750; Replace flange gasket with Cogebi gaskets (exhaust piping on 2H EDG)
WO 00516932; Replace/re-route tubing (2H EDG)
WO 00517627; Repair coolant fitting leak (2H EDG)
WO 00518412; Verify torque of #10 exhaust piping (2H EDG)
WO 00520639; Add glycol (1H EDG)
WO 00521146; Change out diesel coolant for winter (2J EDG)
WO 00521844; Add glycol (2H EDG)
WO 00523886; Replace exhaust gasket OCS (2J EDG)

SYSTEM DESCRIPTION MANUALS:

NCRODP-41; Chemical Volume and Control System
NCROSP-51; Component Cooling Water System
NCROSP-52; Safety Injection System
NCROSP-77; Reactor Protection System
NCRODP-55-NA; Station Diesel Generator Systems

NARRATIVE LOGS:
Unit 1 Operator Logs (10/01/04 through 10/05/04 and 01/01/05 through 01/10/05)
Unit 2 Operator Logs (11/07/04 through 11/20/04 and 01/01/05 through 01/10/05)
Unit 1 Outage Coordinator Logs (10/01/04 through 10/07/04)
Engineering Narrative Logs (09/18/04 through 10/07/04)