



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

August 26, 2015

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

**SUBJECT: SURRY POWER STATION – NRC PROBLEM IDENTIFICATION AND
RESOLUTION INSPECTION REPORT 05000280/2015009 AND
05000281/2015009**

Dear Mr. Heacock:

On July 30, 2015, the U. S. Nuclear Regulatory Commission (NRC) completed a Problem Identification and Resolution biennial inspection at your Surry Power Station Units 1 and 2. The enclosed report documents the inspection results which were discussed on July 30, 2015, with Mr. R. Simmons and other members of your staff.

Based on the inspection samples, the inspectors determined that your staff's implementation of the corrective action program supported nuclear safety. In reviewing your corrective action program, the inspectors assessed how well your staff identified problems at a low threshold, your staff's implementation of the station's process for prioritizing and evaluating these problems, and the effectiveness of corrective actions taken by the station to resolve these problems. In each of these areas, the inspectors determined that your staff's performance was adequate to support nuclear safety.

The inspectors also evaluated other processes your staff used to identify issues for resolution. These included your use of audits and self-assessments to identify latent problems and your incorporation of lessons learned from industry operating experience into station programs, processes, and procedures. The inspectors determined that your station's performance in each of these areas supported nuclear safety.

Finally, the inspectors determined that your station's management maintains a safety-conscious work environment adequate to support nuclear safety. Based on the inspectors' observations, your employees are willing to raise concerns related to nuclear safety through at least one of the several means available.

D. Heacock

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The NRC inspectors did not identify any findings or violations of more than minor significance. 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 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/

Anthony D. Masters, Chief
Reactor Projects Branch 7
Division of Reactor Projects

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

Enclosure:
Inspection Report
05000280/2015009 and 05000281/2015009
w/Attachment: Supplemental Information

cc: Distribution via Listserv

D. Heacock

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Letter to David A. Heacock from Anthony Masters dated Aug 26, 2015

SURRY POWER STATION – NRC PROBLEM IDENTIFICATION AND RESOLUTION
INSPECTION REPORT 05000280/2015009 AND 05000281/2015009

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-280, 50-281

License Nos.: DPR-32, DPR-37

Report No.: 05000280/2015009 and 05000281/2015009

Licensee: Virginia Electric and Power Company

Facility: Surry Power Station, Units 1 and 2

Location: 5850 Hog Island Rd
Surry, VA 23883

Dates: July 13 – 17, 2015
July 27 – 30, 2015

Inspectors: R. Rodriguez, Senior Project Engineer (Team Leader)
N. Staples, Senior Project Inspector
M. Coursey, Reactor Inspector
K. Steddenbenz, Construction Inspector

Approved by: Anthony D. Masters, Chief
Reactor Projects Branch 7
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000280/2015009, 05000281/2015009; 07/13/2015 – 07/30/2015; Surry Power Station, Units 1 and 2; Biennial Inspection of Problem Identification and Resolution Program.

The inspection was conducted by one senior project engineer, one senior project inspector, one reactor inspector, and a construction inspector. No findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Identification and Resolution of Problems

The inspectors concluded that, in general, problems were properly identified, evaluated, prioritized, and corrected. The licensee was effective at identifying problems and entering them into the corrective action program (CAP) for resolution, as evidenced by the relatively few number of deficiencies identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. Generally, prioritization and evaluation of issues were adequate, formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective and implemented in a timely manner.

The inspectors determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and appropriate corrective actions were developed to address the issues identified. Operating experience usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work, and plant operations.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors determined that personnel at the site felt free to raise safety concerns to management and use the CAP to resolve those concerns.

The NRC inspectors did not identify any findings or violations of more than minor significance.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

a. Assessment of the Corrective Action Program

(1) Inspection Scope

The inspectors reviewed the licensee's corrective action program (CAP) procedures which described the administrative process for initiating and resolving problems primarily through the use of condition reports (CRs). To verify that problems were being properly identified, appropriately characterized, and entered into the CAP, the inspectors reviewed CRs that had been issued between July 2013 and June 2015 including a detailed review of selected CRs associated with the following risk-significant systems: Safety Injection System, Ventilation System for the Emergency Switchgear Rooms and the Auxiliary Building, and Auxiliary Feedwater System. Where possible, the inspectors independently verified that the corrective actions were implemented as intended. The inspectors also reviewed selected common causes and generic concerns associated with root cause evaluations to determine if they had been appropriately addressed. To help ensure that samples were reviewed across all cornerstones of safety identified in the NRC's Reactor Oversight Process, the inspectors selected a representative number of CRs that were identified and assigned to the major plant departments, including operations, engineering, health physics, chemistry, emergency preparedness, and security. These CRs were reviewed to assess each department's threshold for identifying and documenting plant problems, thoroughness of evaluations, and adequacy of corrective actions. The inspectors reviewed selected CRs, verified corrective actions were implemented, and attended meetings where CRs were screened for significance to determine whether the licensee was identifying, accurately characterizing, and entering problems into the CAP at an appropriate threshold.

The inspectors conducted plant walkdowns of equipment associated with the selected systems and other plant areas to assess the material condition and to look for any deficiencies that had not been previously entered into the CAP. The inspectors reviewed CRs, maintenance history, completed work orders/work requests for the systems, and reviewed associated system health reports. These reviews were performed to verify that problems were being properly identified, appropriately characterized, and entered into the CAP. Items reviewed generally covered a two-year period of time; however, in accordance with the inspection procedure, a five-year review was performed for selected systems for age-dependent issues.

The main control room (MCR) deficiency list was assessed to ascertain if deficiencies were entered into the CAP and tracked to resolution. Operator Workarounds and Operator Burden screenings were reviewed, and the inspectors verified compensatory measures for deficient equipment which were being implemented.

The inspectors conducted a detailed review of selected CRs to assess the adequacy of the root cause and apparent cause evaluations of the problems identified. The inspectors reviewed these evaluations against the descriptions of the problem described in the CRs and the guidance in licensee procedures PI-AA-300-3001, "Root Cause Evaluation," and PI-AA-300-3002, "Apparent Cause Evaluation." The inspectors assessed if the licensee had adequately determined the cause(s) of identified problems, and had adequately addressed operability, reportability, common cause, generic concerns, extent-of-condition, and extent-of-cause. The review also assessed if the licensee had appropriately identified and prioritized corrective actions to prevent recurrence where applicable.

The inspectors reviewed selected industry operating experience items, including NRC generic communications to verify that they had been appropriately evaluated for applicability and that issues identified through these reviews had been entered into the CAP.

The inspectors reviewed site trend reports to determine if the licensee effectively trended identified issues and initiated appropriate corrective actions when adverse trends were identified.

The inspectors attended various plant meetings to observe management oversight functions of the corrective action process. These included CR Review Team meetings and Corrective Action Review Board meetings.

Documents reviewed are listed in the Attachment.

(2) Assessment

Identification of Issues

The inspectors determined that the licensee was generally effective in identifying problems and entering them into the CAP and there was a low threshold for entering issues into the CAP. This conclusion was based on the type of problems entered into the CAP; the review of licensee requirements for initiating CRs as described in licensee procedure PI-AA-200, "Corrective Action;" the management expectation that employees were encouraged to initiate CRs for any issue that is not meeting performance expectations regardless of whether it is a potential, suspect, or actual problem; a review of system health reports; and inspectors' observations during plant walkdowns. Trending was generally effective in monitoring equipment performance. Site management was actively involved in the CAP and focused appropriate attention on significant plant issues.

Based on reviews and walkdowns of accessible portions of the selected systems, the inspectors determined that system deficiencies were being identified and placed in the CAP.

Prioritization and Evaluation of Issues

Based on the review of CRs sampled by the inspection team during the onsite period, the inspectors concluded that problems were generally prioritized and evaluated in accordance with the licensee's CAP procedure as described in the CR severity level determination guidance in PI-AA-200, "Corrective Action." The inspectors determined that overall, each CR was assigned an adequate severity level at the CRT meetings, and adequate consideration was given to system or component operability and associated plant risk.

The inspectors determined that station personnel had conducted root cause and apparent cause analyses in compliance with the licensee's CAP procedures and assigned cause determinations were appropriate, considering the significance of the issues being evaluated. A variety of causal-analysis techniques were used depending on the type and complexity of the issue consistent with licensee procedures PI-AA-300, "Cause Evaluation;" PI-AA-300-3001, "Root Cause Evaluation;" PI-AA-300-3002, "Apparent Cause Evaluation;" PI-AA-300-3003, "Common Cause Evaluation;" and PI-AA-300-3004, "Cause Evaluation Methods." The inspectors determined that the licensee had performed evaluations that were technically accurate and of sufficient depth.

Effectiveness of Corrective Actions

Based on a review of corrective action documents, interviews with licensee staff, and verification of completed corrective actions, the inspectors determined that overall, corrective actions were timely, commensurate with the safety significance of the issues, and effective, in that conditions adverse to quality were corrected. For significant conditions adverse to quality, the corrective actions directly addressed the cause and effectively prevented recurrence in that a review of performance indicators, CRs, and effectiveness reviews demonstrated that the significant conditions adverse to quality had not recurred. Effectiveness reviews for corrective actions to prevent recurrence were sufficient to ensure corrective actions were properly implemented and were effective.

(3) Findings

No findings of significance were identified.

b. Assessment of the Use of Operating Experience (OE)

(1) Inspection Scope

The inspectors examined licensee programs for reviewing industry operating experience, reviewed licensee procedure PI-AA-100-1007, "Operating Experience Program," and reviewed the licensee's operating experience database to assess the effectiveness of how external and internal operating experience data was handled at the plant. In addition, the inspectors selected operating experience documents (e.g., NRC generic communications, 10 CFR Part 21 reports, licensee event reports, vendor notifications,

and plant internal operating experience items, etc.), which had been issued since June 2011 to verify whether the licensee had appropriately evaluated each notification for applicability to the Surry plant, and whether issues identified through these reviews were entered into the CAP. Procedure PI-AA-100-1007, "Operating Experience Program," was reviewed to verify that the requirements delineated in the program were being implemented at the station. Documents reviewed are listed in the Attachment.

(2) Assessment

Based on a review of documentation related to the review of operating experience issues, the inspectors determined that the licensee was generally effective in screening operating experience for applicability to the plant. Industry OE was evaluated by plant OE Coordinators and relevant information was then forwarded to the applicable department for further action or informational purposes. OE issues requiring action were entered into the CAP for tracking and closure. In addition, operating experience was included in all root cause evaluations in accordance with licensee procedure PI-AA-300, "Cause Evaluation," PI-AA-300-3001, "Root Cause Evaluation," and PI-AA-300-3002, "Apparent Cause Evaluation."

(3) Findings

No findings were identified.

c. Assessment of Self-Assessments and Audits

(1) Inspection Scope

The inspectors reviewed audit reports and self-assessment reports, including those which focused on problem identification and resolution, to assess the thoroughness and self-criticism of the licensee's audits and self-assessments. The inspectors also verified that problems identified through those activities were appropriately prioritized and entered into the CAP for resolution in accordance with licensee procedures PI-AA-100-1004, "Self-Assessments."

(2) Assessment

The inspectors determined that the scopes of assessments and audits were adequate. Self-assessments were generally detailed and critical, as evidenced by findings consistent with the inspector's independent review. The inspectors verified that CRs were created to document all areas for improvement and findings resulting from the self-assessments, and verified that actions had been completed consistent with those recommendations. Generally, the licensee performed evaluations that were technically accurate. Site trend reports were thorough and a low threshold was established for evaluation of potential trends, as evidenced by the CRs reviewed that identified adverse trends.

(3) Findings

No findings were identified.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

The inspectors randomly interviewed several on-site workers regarding their knowledge of the corrective action program at Surry and their willingness to write CRs or raise safety concerns. During technical discussions with members of the plant staff, the inspectors conducted interviews to develop a general perspective of the safety-conscious work environment at the site. The interviews were also conducted to determine if any conditions existed that would cause employees to be reluctant to raise safety concerns. The inspectors reviewed the licensee's Employee Concerns Program (ECP) and interviewed the ECP manager. Additionally, the inspectors reviewed a sample of ECP issues to verify that concerns were being properly reviewed and identified deficiencies were being resolved and entered into the CAP when appropriate.

(2) Assessment

Based on the interviews conducted and the CRs reviewed, the inspectors determined that licensee management emphasized the need for all employees to identify and report problems using the appropriate methods established within the administrative programs, including the CAP and ECP. These methods were readily accessible to all employees. Based on discussions conducted with a sample of plant employees from various departments, the inspectors determined that employees felt free to raise issues, and that management encouraged employees to place issues into the CAP for resolution. The inspectors did not identify any reluctance on the part of the licensee staff to report safety concerns.

(3) Findings

No findings were identified.

4OA6 Meetings, Including Exit

On July 30, 2015, the inspectors presented the inspection results to Mr. R. Simmons and other members of the site staff. The inspectors confirmed that all proprietary information examined during the inspection had been returned to the licensee.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

K. Dunn, Engineering
B. Garber, Licensing Supervisor
M. Haduck, Manager Outage and Planning
D. Lawrence, Director of Nuclear Safety and Licensing
J. Pollard, Licensing Engineer
T. Sadler, Corrective Action Coordinator
R. Scanlan, Manager Maintenance
R. Simmons, Plant Manager
M. Smith, Manager Nuclear Organizational Effectiveness
D. Wilson, Assistant Operations Manager

NRC

C. Jones, Resident Inspector
P. McKenna, Senior Resident Inspector

LIST OF REPORT ITEMS

Opened and Closed

None

Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

Procedures

- CM-AA-400, 10 CFR 50.59 and 10 CFR 72.48 - Changes, Tests, and Experiments, Rev. 4
- CM-AA-ETE-101, Engineering Technical Evaluation (ETE), Rev. 5
- ER-AA-1021, Component Health Report, Rev. 4
- ER-AA-AMP-10, License Renewal Aging Management Program, Rev. 2
- ER-AA-AMP-101, Implementation of Activities Performed by License Renewal Aging Management Coordinators, Rev. 5
- ER-AA-MRL-10, Maintenance Rule Program, Rev. 6
- ER-AA-MRL-100, Implementing Maintenance Rule, Rev. 8
- ER-AA-SYS-1001, System Health Report, Rev. 9
- MA-AA-108, Station Rework Reduction Program, Rev. 4
- NO-AA-102, Internal Auditing and Oversight, Rev. 0
- NO-AA-IAP-101, Internal Audit Program, Rev. 0
- NOD-GL-2, Nuclear Oversight Assessment Methodology, Rev. 17
- OP-AA-1700, Operations Aggregate Impact, Rev. 6
- PI-AA-100-1004, Self-Assessments, Rev. 11
- PI-AA-100-1007, Operating Experience Program, Rev. 12
- PI-AA-100-1014, INPO Consolidated Event System (ICES) Reporting, Rev. 1
- PI-AA-100-1007, Operating Experience Program, Rev. 12
- PI-AA-200, Corrective Action, Rev. 24
- PI-AA-200-2001, Trending, Rev. 5
- PI-AA-200-2002, Effectiveness Reviews, Rev. 8
- PI-AA-300, Cause Evaluation, Rev. 7
- PI-AA-300-3001, Root Cause Evaluation, Rev. 5
- PI-AA-300-3002, Apparent Cause Evaluation, Rev. 10
- PI-AA-300-3003, Common Cause Evaluation, Rev. 0
- PI-AA-300-3004, Cause Evaluation Methods, Rev. 4
- WM-AA-100, Work Management, Rev. 25

Condition Reports Reviewed

005502	520596	524081	532177	543530	556512
407679	520709	524610	532238	543829	556638
499479	520859	524728	532587	545860	558221
510066	520995	524837	532909	545915	558429
514296	521056	524940	533401	546194	558445
517372	521073	526055	534876	546512	560488
517641	521342	526671	534883	547060	561820
517650	521753	528051	534883	547179	564583
517681	522817	528665	534947	547821	564824
517686	522854	529424	535094	547893	567004
517750	523156	529694	535970	548892	568663
518039	523409	529738	538686	551015	568832
518984	523621	530722	538877	554100	569629
519939	523692	530850	539501	554144	569885
520351	523854	531965	539637	554205	570194
520500	523998	532060	542547	555158	570365

571367	575640	577173	577671	582642
572840	575931	577523	580151	
573995	576816	577609	581245	

Condition Reports Generated

1002648, Unclear question in the Equipment Reliability Adequacy Review section of cause Evaluations

1002955, NCAQ CRs that are submitted to create programmatic WOs do not indicate or reference the CR that identified the original equipment or component issue

1004096, Security CRs closed to "Work Management Process" with no specific documentation that dispositioned the issue

1004527, CR significance did not meet the administrative requirements of PI-AA-200

1004765, CA tracking was not initiated from 2 corrective actions from an NOD Audit Escalated Finding response

Work Orders

38102848120	38103440690	38103526041
38102848154	38103441767	38103542758
38103196058	38103493072	38103607134
38103430905	38103508140	38103608194
38103438780	38103517511	
38103439560	38103517512	

Self-Assessments

Assessment 13-046-S, SW/CW Chemical Injection Performance, 09/25/2013

Assessment 14-006-S, Commercial Grade Dedication Process, 02/28/2014

Assessment 14-23-S, Surry Unit 2 Cycle 25 Refueling Outage - Operations, 08/28/2014

Assessment 15-04-S, System Engineering, 03/27/2015

Audit 13-03: Measuring and Test Equipment, 06/20/2013

Audit 13-06: Nuclear Training, 09/25/2013

Audit 14-04: Design Control, Engineering Programs, and Surry Refueling, 07/01/2014

Audit 14-06: Radiological Protection/Process Control Program/Chemistry, 08/25/2014

Audit 14-11: Maintenance, 02/12/2015

Audit 15-01: Security and Fitness for Duty, 03/13/2015

Audit 15-02: Emergency Preparedness, 04/21/2015

SAR002692, Surry Power Station Maintenance Rule (a)(3) Formal Self-Assessment

13-032-S, Fragnet Quality and Adherence

13-061-S, Surry Cold Weather Preparations

14-001-S, Maintenance Rule Program Functional Failure Evaluations Surry Power Station

14-006-S, Commercial Grade Dedication Process Surry Power Station

15-04-S, Surry Power Station System Engineering

SAR001118, Status of the SPS LR Program, dated 3/26/2010

SAR001987, Effectiveness Review for Surry LR Implementation, dated 7/2/2013

SAR0002287, Perform informal self-assessment of "INPO, "Consolidated Event System" in accordance with PI-AA-100-1007, dated 7/16/2013

Other Documents

0-ECM-1406-05, Electrical Corrective Maintenance, Auxiliary Feedwater Pump Motor Maintenance, Rev. 22

0-OSP-VS-011, Backwashing SW Strainers to Flush Piping in MER 3 and MER 4, Rev. 8

1-OPT-FW-001, Operations Periodic Test, Motor Driven Auxiliary Feedwater Pump, 1-FW-P-3A, Rev. 36

38-0x-CS-MOV-x01-x, Assembly, Reach Rod 8" Valve, CS, Rev. C

Drawing No. 11448-FM-068A, Flow/Valve Operation Numbers Diagram Feedwater System, Surry Power Station Unit 1, Virginia Power, Rev. 65

Drawing No. 11448-MKS-100G1, Steam Generator Feed Water Loop A, Surry Power Station - Unit 1, Rev. 3

Drawing No. 11548-FM-068A, Flow/Valve Operation Numbers Diagram Feedwater System, Surry Power Station Unit 2, Virginia Power, Rev. 62

ETE-SU-2014-0059m Discussion on Evaluation of Pressurizer Spray Shorter Stroke Valve Trim Assemblies, Rev. 0

ETE-SU-2015-0044, Engineering Evaluation for Mechanical Agitation of 1-SI-79, Rev. 0

Lead Auditor Qualification Records - Nuclear Oversight

Lead Auditor/Auditor Annual Maintenance of Proficiency Records - Nuclear Oversight

ME-0029, Specification for 4 Inch, 1500 lb, Air Operated Stainless Steel Globe Valves for Reactor Coolant System Pressurizer Spray Valves, Rev. 0

OC-18, Surry Power Station Operations Checklist, 10/05/11

Pioneer Motor Bearing Co. Engineering Report, Operability Review of Damaged #1-FW-P-3A Outboard Motor Bearing, 03/13/2015

SPS-2500-CS, Assembly, CS Drive Shaft, Rev. B

System Health Report for VS2 Ventilation, Q1-2015

System Health Report for VS2 Ventilation, Q2-2015

System Health Report for VS2 Ventilation, Q4-2014

System Health Report for VS3 Ventilation, Q4-2013

System Health Report for VS3 Ventilation, Q4-2014