



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

May 5, 2017

Ernest J. Kapopoulos, Jr.
Site Vice President
H. B. Robinson Steam Electric Plant
Duke Energy
3581 West Entrance Road, RNPA01
Hartsville, SC 29550

**SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT – NRC INTEGRATED INSPECTION
REPORT 05000261/2017001**

Dear Mr. Kapopoulos:

On March 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your H. B. Robinson Steam Electric Plant, Unit 2. On April 17, 2017, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. Additionally, the NRC inspectors documented one Severity Level IV violation with no associated finding. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance (Green) in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the violations or significance of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II, the Director, Office of Enforcement, and the NRC Resident Inspector at H. B. Robinson Steam Electric Plant, Unit 2.

If you disagree with a cross-cutting aspect assignment 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC resident inspector at the H. B. Robinson Steam Electric Plant, Unit 2.

E. Kapopoulos

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This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Steven D. Rose, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket No.: 50-261
License No.: DPR-23

Enclosure:
Inspection Report 05000261/2017001
w/Attachment: Supplemental Information

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E. Kapopoulos

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SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT – NRC INTEGRATED INSPECTION
REPORT 05000261/2017001 May 5, 2017

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Enclosure

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-261

License Nos.: DPR-23

Report No.: 05000261/2017001

Licensee: Duke Energy Progress, Inc.

Facility: H. B. Robinson Steam Electric Plant, Unit 2

Location: 3581 West Entrance Road
Hartsville, SC 29550

Dates: January 1, 2017 through March 31, 2017

Inspectors: J. Zeiler, Acting Senior Resident Inspector
A. Beasten, Resident Inspector
A. Butcavage, Reactor Inspector (Section 1R08)
C. Dykes, Health Physicist (Section 1RS1)
M. Meeks, Senior Operations Engineer (Section 1R11.3)
S. Shah, Operations Engineer (Section 1R11.3)
R. Williams, Senior Reactor Inspector (Section 1R08)

Approved by: Steven D. Rose, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

SUMMARY

Integrated Inspection Report 05000261/2017001; January 1, 2017, through March 31, 2017; Duke Energy Progress, Inc., H. B. Robinson Steam Electric Plant, Unit 2, Refueling and Other Outage Activities.

The report covered a 3-month period of inspection by resident inspectors and five regional inspectors. There were two NRC-identified violations documented in this report. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP), dated April 29, 2015. The cross-cutting aspects are determined using IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process (ROP)," Revision 6.

Cornerstone: Barrier Integrity

- Green. An NRC-identified Green non-cited violation (NCV) of 10 CFR Part 50.55a, "Codes and Standards," was identified for the failure to perform general visual examinations of moisture barriers in the containment leak-chase channel test connections in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME BPVC), Section XI, Subsection IWE, Requirements for Class MC and Metallic Liners of Class CC Components of Light-Water Cooled Plants. Following the inspectors' identification of this issue, the licensee initiated actions to conduct the required visual examinations during the March 2017 refueling outage and initiated actions to revise the containment inservice inspection (ISI) plan such that the required examinations will be performed in the future. This issue was entered into the licensee's corrective action program (CAP) as nuclear condition report (NCR) 02109909.

The failure to conduct the required visual examination of moisture barrier material in accordance with the ASME BPVC, Section XI, Subsection IWE, was a performance deficiency (PD). The finding was of more than minor significance because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, visual examinations of moisture barriers associated with the containment leak-chase channel test connections provide assurance that the containment metal liner and liner seam welds remain capable of performing its intended safety function. In the absence of such examinations, corrosive conditions at the moisture barrier (concrete-to-tubing interface) could go undetected. As a result, degradation of inaccessible portions of the containment liner could progress to challenge the containment operational capability. Using IMC 0609, Attachment 4, "Initial Characterization of Findings," the finding was determined to affect the Barrier Integrity Cornerstone because it involved ISI program examinations designed to identify degradation of the containment metal liner. The inspectors screened the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) For Findings At-Power," "Exhibit 3 – Barrier Integrity Screening Questions," and determined that the finding was of very low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of the containment. The inspectors reviewed this performance deficiency for cross-cutting aspects as required by IMC 0310, "Components With Cross-Cutting Aspects." The finding was determined to be reflective of present licensee performance because in 2014, the licensee did not take effective corrective actions to implement the ASME BPVC

requirements in the Subsection IWE Program, when a reasonable opportunity was available through the review of NRC Information Notice (IN) 2014-07, which highlighted this industry-wide problem. Therefore, the finding was assigned a cross-cutting aspect in the resolution component of the problem identification and resolution cross-cutting area (P.3). (Section 1R20)

- Severity Level IV. An NRC-identified severity level IV (SL IV) NCV of 10 CFR 50.9(a), “Completeness and Accuracy of Information,” was identified for the licensee’s failure to provide complete and accurate information in a license amendment request (LAR), dated November 19, 2015, requesting extension of the containment leak rate test frequencies required by various containment technical specifications (TSs). In this LAR, the licensee incorrectly stated that they had revised their ASME BPVC, Section XI, Subsection IWE program to include visual examinations of the test connections in the leak-chase channel penetration pressurization system (PPS), when in fact, the program had not been revised and the examinations had not been performed. This information was material to the NRC because it was used, in part, as the basis for the approval and issuance of License Amendment 247, dated October 11, 2016, extending the TS containment leak rate test frequencies. The licensee’s corrective actions included conducting the visual examinations of the test connections in the leak-chase channel PPS during the ongoing refueling outage in March 2017 and initiating actions to add the visual examination requirements to their Subsection IWE program. This issue was entered into the licensee’s CAP as NCR 02110516.

The failure to provide complete and accurate information in accordance with 10 CFR 50.9(a) for the LAR associated with License Amendment 247 is a violation of NRC requirements. This violation was screened against the ROP guidance in IMC 0612, Appendix B, “Issue Screening,” and no associated ROP finding was identified. The inspectors evaluated this issue using the Traditional Enforcement process because it had the potential to impact the NRC’s ability to perform its regulatory function. Specifically, the violation impacted the regulatory process, in that the inaccurate information was material to the NRC’s review and acceptance of licensee actions to address the industry-wide operating experience discussed in NRC IN 2014-07. Based on licensee inaccurate information that they had addressed IN 2014-07 by revising their containment ISI program to perform visual inspections of accessible tubing in the containment leak-chase channel PPS system, the NRC staff concluded that the licensee was properly implementing the ASME BPVC, Section XI, Subsection IWE program. In accordance with the guidance in Sections 2.2 and 6.9 of the NRC Enforcement Policy, the inspectors determined this is an SL IV violation, because had the information been complete and accurate at the time provided, it likely would have resulted in the need for further clarification of the licensee’s actions to address NRC IN 2014-07, but would not have caused the NRC to change its decision to issue the license amendment or resulted in substantial further inquiry. Also, on March 23, 2017, the licensee completed the visual examinations of the subject tubing in the leak-chase channel system and did not identify any significant degradation. In accordance with IMC 0612, Appendix B, traditional enforcement issues are not assigned a cross-cutting aspect. (Section 1R20)

A violation of very low safety significance that was identified by the licensee has been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee’s corrective action program (CAP). This violation and corrective action tracking number is listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The unit began the inspection period at essentially 100 percent rated thermal power. The unit was shut down for a planned refueling outage on February 25, 2017. The unit remained shut down in Mode 4 at the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

a. Inspection Scope

Impending Adverse Weather Conditions

The inspectors reviewed the licensee's preparations to protect risk-significant systems from extreme cold weather conditions expected during January 9 - 10, 2017. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures, including operator staffing, before the onset of and during the adverse weather conditions. The inspectors reviewed the licensee's plans to address the ramifications of potentially lasting effects that may result from extreme cold weather conditions. The inspectors verified that operator actions specified in the licensee's adverse weather procedure maintain readiness of essential systems. The inspectors verified that required surveillances were current, or were scheduled and completed, if practical, before the onset of anticipated adverse weather conditions. The inspectors also verified that the licensee implemented periodic equipment walkdowns or other measures to ensure that the condition of plant equipment met operability requirements. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04 – 4 samples)

a. Inspection Scope

.1 Partial Walkdown

The inspectors verified that critical portions of the selected systems were correctly aligned by performing partial walkdowns. The inspectors selected systems for assessment because they were a redundant or backup system or train, were important for mitigating risk for the current plant conditions, had been recently realigned, or were a single-train system. The inspectors determined the correct system lineup by reviewing plant procedures and drawings. Documents reviewed are listed in the attachment.

The inspectors selected the following systems or trains to inspect:

- Service water booster pump (SWBP) 'A' while SWBP 'B' was out of service for scheduled preventive maintenance

- Residual heat removal (RHR) pump 'B' while RHR pump 'A' was out of service for scheduled preventive maintenance
- Motor driven auxiliary feedwater (AFW) pump 'B' and steam driven AFW pump while AFW pump 'A' was out of service for scheduled preventative maintenance

.2 Complete Walkdown

The inspectors verified the alignment of the safety injection system. The inspectors selected this system for assessment because it is a risk-significant mitigating system. The inspectors determined the correct system lineup by reviewing plant procedures, drawings, the updated final safety analysis report, and other documents. The inspectors reviewed records related to the system's outstanding design issues, maintenance work requests, and deficiencies. The inspectors verified that the selected system was correctly aligned by performing a complete walkdown of accessible components.

To verify the licensee was identifying and resolving equipment alignment discrepancies, the inspectors reviewed corrective action documents, including NCRs and outstanding work orders. The inspectors also reviewed periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – 6 samples)

a. Inspection Scope

.1 Quarterly Inspection

The inspectors evaluated the adequacy of selected fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program. In evaluating the fire plans, the inspectors assessed the following items:

- control of transient combustibles and ignition sources
- fire detection systems
- water-based fire suppression systems
- gaseous fire suppression systems
- manual firefighting equipment and capability
- passive fire protection features
- compensatory measures and fire watches
- issues related to fire protection contained in the licensee's CAP

The inspectors toured the following five fire areas to assess material condition and operational status of fire protection equipment. Documents reviewed are listed in the attachment.

- Turbine building mezzanine level, fire zone 25
- Component cooling water (CCW) pump room, fire zone 5
- Battery room 'A' and 'B', fire zone 16
- Charging pump room, fire zone 4
- Hagan room and CCW surge tank room, fire zones 23 and 36

.2 Annual Inspection

The inspectors evaluated the licensee's fire brigade performance during a drill on January 20, 2017, and assessed the brigade's capability to meet fire protection licensing basis requirements. The inspectors observed the following aspects of fire brigade performance:

- capability of fire brigade members
- leadership ability of the brigade leader
- use of turnout gear and fire-fighting equipment
- team effectiveness
- compliance with site procedures

The inspectors also assessed the ability of control room operators to combat potential fires, including identifying the location of the fire, dispatching the fire brigade, and sounding alarms. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

a. Inspection Scope

Underground Cables

The inspectors reviewed related flood analysis documents and inspected the areas listed below containing cables whose failure could disable risk-significant equipment. The inspectors directly observed the condition of cables and cable support structures and, as applicable, verified that dewatering devices and drainage systems were functioning properly. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the CAP. Documents reviewed are listed in the attachment.

- Unit 2, M-35, SW Pump 'A' and 'B'
- Unit 2, M-36, SW Pump 'C' and 'D'
- Unit 2, M-50A, South SW Electrical Manhole
- Unit 2, M-50B, North SW Electrical Manhole

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07 – 1 sample)

a. Inspection Scope

Annual Review

The inspectors verified the readiness and availability of the CCW heat exchanger 'A' to perform its design function by reviewing the performance test report, verifying the licensee uses the periodic maintenance method outlined in NRC Generic Letter 89-13, reviewing the licensee's implementation of biofouling controls, and verifying correct

categorization and receipt of maintenance under the Maintenance Rule. Additionally, the inspectors verified that the licensee had entered any significant heat exchanger performance problems into the CAP and that the licensee's corrective actions were appropriate. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08 – 1 sample)

a. Inspection Scope

Non-Destructive Examination Activities and Welding Activities

From March 6 – March 10, 2017, the inspectors conducted an onsite review of the implementation of the licensee's ISI program for monitoring degradation of the reactor coolant system boundary, risk-significant piping and component boundaries, and containment boundaries in Unit 2.

The inspectors either directly observed or reviewed the following non-destructive examinations (NDEs) mandated by the ASME BPVC (Code of Record: 2007 Edition, with 2008 Addenda) to evaluate compliance with the ASME Code, Section XI and Section V requirements and, if any indications or defects were detected, to evaluate if they were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement. The inspectors also reviewed the qualifications of the NDE technicians performing the examinations to determine whether they were current and in compliance with the ASME Code requirements.

- Ultrasonic Testing (UT)-17-019, RHR Piping Weld, Tee to Pipe, Weld ID No. 221/172, NDE Summary No. 225100, Class 2 (partial observation and document review)
- Visual Examination (VT-2), Leakage Examination of the Lower Reactor Vessel Head Penetrations, Class 1 (video and document review)
- Penetrant Testing (PT), Weld Document No.161101 Work Order 13345164-03 Weld W-2 and W-3, Class 1 (reviewed)
- PT, Weld Document No.161108, Work Order 13345166-01 Weld W-1 and W-2, Class 1 (reviewed)
- PT-17-042, Component ID 221/172, Tee to Pipe Weld, Class 2 (document reviewed)
- VT-17-007, Loop "C" Hot Leg Nozzle to Safe End, ASME Code Case N-770-1, Augmented VT-2 (reviewed)
- Visual Examination of Containment Liner plate, Work Order 13535851-01 (partially observed in progress examination and document review)

The inspectors reviewed the following welding activities, qualification records, and associated documents in order to evaluate compliance with procedures and the ASME Code, Section XI and Section IX requirements. Specifically, the inspectors reviewed the weld data sheets, procedure qualification records, and NDE reports.

- SI-875-J, Safety Injection Valve Socket Welds, Weld Document No. 161101, Class 1
- SI-875-N, Safety Injection Valve Socket Welds, Weld Document No. 161108, Class 1

The inspectors also reviewed the following surface examination work order package used to correct a recordable indication that was analytically evaluated and accepted for continued service against the ASME Code Section XI.

- PT, Work Order 13528492-01, Rejectable Indication Discovered on Weld 245/29, ASME Code Class 1.

Pressurized Water Reactor Vessel Upper Head Penetration Inspection Activities

The inspectors verified that for the Unit 2 reactor vessel closure head, a bare metal visual examination based on ASME Code Case N-729-1, combined with a sample of examination results from the 2015 examination efforts, was not required this outage. The inspectors also concluded that based on H.B. Robinson Relief Request No. 11, a volumetric examination of the reactor closure head penetrations was not required during this outage, in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D).

The licensee did not identify any relevant indications that were accepted for continued service on the vessel head. Additionally, the licensee did not perform any welding repairs to the vessel head penetrations since the beginning of the last Unit 2 refueling outage; therefore, no NRC review was completed for these inspection procedure (IP) attributes.

Boric Acid Corrosion Control Inspection Activities

The inspectors reviewed the licensee's boric acid corrosion control (BACC) program activities to determine if the activities were implemented in accordance with the commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants," and applicable industry guidance documents. Specifically, the inspectors performed an onsite records review of procedures and the results of the licensee's containment walkdown inspections performed during the current refueling outage. The inspectors also interviewed the BACC program owner, conducted an independent walkdown of containment to evaluate compliance with licensee's BACC program requirements, and verified that degraded or non-conforming conditions, such as boric acid leaks, were properly identified and corrected in accordance with the licensee's BACC and CAPs.

The inspectors reviewed the following engineering evaluations, completed for evidence of boric acid leakage, to determine if the licensee properly applied applicable corrosion rates to the affected components; and properly assessed the effects of corrosion induced wastage on structural or pressure boundary integrity in accordance with the licensee procedures.

- Metallurgy File Report No 566, Robinson Reactor Vessel Head Smears
- NCR 02011825, Clean Brown Boric Acid on RHR Pump 'A' Motor Base
- NCR 01976227, PS-952 Sample Line Isolation Wet Boric Acid at Fitting

The inspectors reviewed the following NCRs and associated corrective actions related to evidence of boric acid leakage to evaluate if the corrective actions completed were consistent with the requirements of the ASME Code and 10 CFR Part 50, Appendix B, Criterion XVI.

- NCR 02106284, Dry Residue At Base of Rod Position Indication Coil for F-12, Bank 'C'
- NCR 01992792, SI-888C Has Wetted Yellow Boric Acid
- NCR 02011825, Clean Brown Boric Acid on RHR Pump 'A' Motor Base
- NCR 01976227, PS-952 Sample Line Isolation Wet Boric Acid at Fitting

Steam Generator Tube Inspection Activities

The inspectors reviewed the Unit 2 steam generator maintenance program. This inspection schedule was verified with the requirements of the ASME Code, the licensee's TSs, and applicable industry guidance. For steam generators A, B, and C, the inspectors performed the following activities to verify compliance with program requirements, regulatory requirements, and industry guidance:

- Reviewed the scope of the eddy current (ET) examinations, and the implementation of scope expansion criteria.
- Reviewed documentation for a sample of ET data analysts, probes, and testers to verify that personnel and equipment were qualified to detect the applicable degradation mechanisms.
- Reviewed a sample of site-specific examination technique specification sheets.
- Reviewed the in-situ steam generator tube pressure testing screening criteria. The inspectors verified that the assumed NDE flaw sizing accuracy was consistent with data from the examination technique specification sheets or other applicable performance demonstrations.
- Reviewed a sample of ET data for five steam generator tubes with a qualified data analyst.
- Verified that recordable indications were detected and sized in accordance with vendor procedures.
- Reviewed ET indication reports to determine if steam generator tubes with relevant indications were appropriately screened for in-situ pressure testing.
- Compared the latest ET examination results with the last Condition Monitoring and Operational Assessment report to assess the licensee's prediction capability for maximum tube degradation and number of tubes with indications.
- Verified that that current examination results were bound by the operational assessment projections.
- Assessed the latest ET examination results to verify that new degradation mechanisms, if any, were identified and evaluated before plant startup.
- Reviewed the licensee's secondary side steam generator foreign object search and retrieval activities.
- Reviewed the steam generator tube plugging procedure and verified that appropriate tubes were selected for plugging based on the required plugging criteria.
- Reviewed plugging activities for six steam generator tubes.
- Reviewed a sample of primary-to-secondary leakage data for Unit 2 to confirm that operational leakage in each steam generator remained below the detection or action level threshold during the previous operating cycle.

Identification and Resolution of Problems

The inspectors reviewed a sample of ISI-related issues entered into the CAP to determine if the licensee had appropriately described the scope of the problem and had initiated corrective actions. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant, including the control

rod drive mechanism (CRDM) guide card wear issue and the reactor vessel head CRDM seismic support structure that included the disposition of NCR 2109120 by LTR-CHE-17-057 both listed in the document review section. The inspectors performed this review to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11 – 3 samples)

a. Inspection Scope

.1 Resident Inspector Quarterly Review of Licensed Operator Requalification

On January 24, 2017, the inspectors observed an evaluated simulator scenario administered to an operating crew as part of the annual requalification operating test required by 10 CFR 55.59, "Requalification." The scenario evaluated the operator's ability to respond to a fuel failure event followed by a control rod ejection and small break loss of coolant accident.

The inspectors assessed the following:

- licensed operator performance
- the ability of the licensee to administer the scenario and evaluate the operators
- the quality of the post-scenario critique
- simulator performance

Documents reviewed are listed in the attachment.

.2 Resident Inspector Quarterly Review of Licensed Operator Performance in the Actual Plant/Main Control Room

On February 25, 2017, the inspectors observed licensed operator performance in the main control room during a reactor shutdown to commence a scheduled refueling outage. The inspectors assessed the following:

- use of plant procedures
- control board manipulations
- communications between crew members
- use and interpretation of instruments, indications, and alarms
- use of human error prevention techniques
- documentation of activities
- management and supervision

Documents reviewed are listed in the attachment.

.3 Licensed Operator Requalification - Biennial

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the week of January 16 – 20, 2017, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of operating tests associated with the licensee’s operator requalification program. Each of the activities performed by the inspectors were done to assess the effectiveness of the facility licensee in implementing requalification requirements identified in 10 CFR Part 55, “Operators’ Licenses.” The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, “Operator Licensing Examination Standards for Power Reactors,” and IP 71111.11, “Licensed Operator Requalification Program.” The inspectors also evaluated the licensee’s simulation facility for adequacy for use in operator licensing examinations using ANSI/ANS-3.5-2009, “American National Standard for Nuclear Power Plant Simulators for Use in Operator Training and Examination.” The inspectors observed two crews during the performance of the operating tests. Documentation reviewed included written examinations, job performance measures, simulator scenarios, licensee procedures, on-shift records, simulator modification request records, simulator performance test records, operator feedback records, licensed operator qualification records, remediation plans, watchstanding records, and medical records. The records were inspected using the criteria listed in IP 71111.11. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 2 samples)

a. Inspection Scope

The inspectors assessed the licensee’s treatment of the issues listed below to verify the licensee appropriately addressed equipment problems within the scope of the maintenance rule (10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants”). The inspectors reviewed procedures and records to evaluate the licensee’s identification, assessment, and characterization of the problems as well as their corrective actions for returning the equipment to a satisfactory condition. Documents reviewed are listed in the attachment.

- NCR 02095418, spurious actuation of reactor coolant system high delta-T alarm
- NCR 02068297, SW pump ‘A’ failure to start on blackout sequencer

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)a. Inspection Scope

The inspectors reviewed the maintenance activities listed below to verify that the licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and licensee procedures. The inspectors assessed the adequacy of the licensee's risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the CAP. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the effectiveness of the licensee's planning and control of emergent work activities. Documents reviewed are listed in the attachment.

- January 9-10, 2017, emergent Yellow risk for Grid System Reliability Alert due to extremely cold ambient temperatures and high electrical demand
- February 22, 2017, scheduled SW pump 'C' replacement due to increasing pump vibrations
- February 28, 2017, scheduled Yellow risk associated with lowered reactor coolant system (RCS) inventory conditions with fuel in the reactor vessel
- March 4-6, 2017, scheduled Yellow risk associated with main generator electrical backfeed refueling outage conditions
- March 7-8, 2017, emergent Yellow risk associated with loss of spent fuel pit cooling pump 'A'

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 5 samples)a. Inspection ScopeOperability and Functionality Review

The inspectors selected the operability determination listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determination to ensure that TS operability was properly justified and the components or systems remained capable of performing their design functions. To verify whether components or systems were operable, the inspectors compared the operability and design criteria in the appropriate sections of the TS and updated final safety analysis report to the licensee's evaluation. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the attachment.

- NCR 02094779, Vibration in Alert range for SW pump 'C'
- NCR 02099280, Steam generator 'A' feedwater level deviation
- NCR 02106627, Foreign material found in steam generator 'C' hot leg

- NCR 02100136, Primary air compressor tripped due to oil sensor malfunction
- NCR 02105228, Pressurizer heater breaker experienced trip condition

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 2 samples)

a. Inspection Scope

The inspectors verified that the plant modifications listed below did not affect the safety functions of important safety systems. The inspectors confirmed the modifications did not degrade the design bases, licensing bases, and performance capability of risk significant structures, systems and components (SSCs). The inspectors also verified that the risk profile of the plant configuration during implementation of the modifications did not place the plant in an unsafe condition. Additionally, the inspectors evaluated whether system operability and availability, configuration control, post-installation test activities, and changes to documents, such as drawings, procedures, and operator training materials, complied with licensee standards and NRC requirements. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with modifications. Documents reviewed are listed in the attachment.

- Engineering Change (EC) 402563, Replace circuit breakers in safety-related 125 Volt DC system to address fault interruption coordination for transition to NFPA 805 fire protection program (Permanent Modification)
- EC 407682, Temporary humidity measurement for HVE-15A charcoal filter (Temporary Modification)

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 5 samples)

a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the maintenance activities listed below to verify the work performed was completed correctly and the test activities were adequate to verify system operability and functional capability.

- Work Orders (WOs) 1347979, 1347980, and 20022388, AFW pump 'B' post maintenance testing following scheduled preventive maintenance in accordance with OST-201-2, MDAFW System Component Test – Train B
- WO 20103876, SWBP 'B' post maintenance testing following scheduled preventive maintenance in accordance with OP-903, Service Water System
- WOs 20007845 and 20067921, SW pump 'C' post maintenance testing following pump/motor replacement due to increased vibrations in accordance with OST-302-4, Comprehensive Flow Test for Service Water Pump C & D

- WO 20124086, RHR pump 'B' post maintenance testing following scheduled preventive maintenance in accordance with OST-251-2, RHR Pump B and Components Test
- WOs 20016147 and 20016148, Blackout safeguards sequencer post maintenance testing following relay replacements in accordance with OST-163, Safety Injection Test and Emergency Diesel Generator Auto Start on Loss of Power and Safety Injections (Refueling)

The inspectors evaluated these activities for the following:

- Acceptance criteria were clear and demonstrated operational readiness
- Effects of testing on the plant were adequately addressed
- Test instrumentation was appropriate
- Tests were performed in accordance with approved procedures
- Equipment was returned to its operational status following testing
- Test documentation was properly evaluated

Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with post-maintenance testing. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 1 sample)

a. Inspection Scope

For the Unit 2 refueling outage from February 25, 2017, through the remainder of the inspection period, the inspectors evaluated the following outage activities:

- outage planning
- shutdown, cooldown, refueling, heatup, and startup
- reactor coolant system instrumentation and electrical power configuration
- reactivity and inventory control
- decay heat removal and spent fuel pool cooling system operation
- containment closure

The inspectors verified that the licensee:

- considered risk in developing the outage schedule
- controlled plant configuration in accordance with administrative risk reduction methodologies
- developed work schedules to manage fatigue
- developed mitigation strategies for loss of key safety functions
- adhered to operating license and TS requirements

Inspectors verified that safety-related and risk-significant structures, systems, and components not accessible during power operations were maintained in an operable condition. The inspectors also reviewed a sample of related corrective action

documents to verify the licensee was identifying and correcting any deficiencies associated with outage activities. Documents reviewed are listed in the attachment.

b. Findings

.1 Failure to Conduct Visual Examinations of Containment Moisture Barriers

Introduction: The NRC identified a Green NCV of 10 CFR Part 50.55a, "Codes and Standards," for the licensee's failure to conduct general visual examinations of accessible test connections in the containment leak-chase channel PPS that provided a moisture barrier to the containment basemat liner seam welds in accordance with ASME BPVC, Section XI, Subsection IWE.

Description: During the refueling outage, the inspectors conducted an inspection of accessible components in the licensee's containment leak-chase channel PPS. This system consists of steel channel sections that are welded continuously over the entire containment basemat metallic shell and liner plate seam welds that were embedded in the 3 to 4 feet thick concrete floor during construction. The network of channels are subdivided into zones, with a test connection for each zone. These test connections consist of 1/4-inch carbon steel tubes that penetrate through the back of the channel and is seal welded to the channel. The tubes extend up through the concrete floor slab to a height of 3 to 4 feet above the floor elevation and are connected to a series of piping manifolds that are part of the PPS. This system allows for pressure testing of the containment seam welds for leak-tightness during original plant construction and during operation. Since these test connection tubes are at the concrete-to-metal interface of the containment floor and are prone to being wetted, they are susceptible to experiencing corrosion. If such degradation were to occur, this could allow moisture intrusion into the leak-chase channels and corrosion degradation of inaccessible areas of the containment shell/liner within the channels.

In May 2014, the NRC issued IN 2014-07, which discussed the applicability of the ASME BPVC, Section XI, Subsection IWE requirements to the leak-chase channel system. Beginning with the 1998 Edition with the 2000 Addenda, Section XI of the ASME BPVC, Subsection IWE, Table IWE-2500-1, Category E-A, "Containment Surfaces," Item E1.30, "Moisture Barriers," specifically requires a general visual examination of 100 percent of moisture barriers every inspection period. This general visual examination includes moisture barrier materials intended to prevent intrusion of moisture against inaccessible areas of the pressure retaining metal containment shell or liner at concrete-to-metal interfaces and at metal-to-metal interfaces which are not seal welded. Based on review of the licensee's leak-chase system configuration, the inspectors determined that the licensee was required to conduct general visual examinations of the test connections at the concrete-to-tube floor interface to ensure there was no corrosion or breach that could allow a pathway for moisture into the leak-chase channel system.

Based on review of the licensee's containment ISI inspection program found in document RNP-PM-006, "Second Ten-Year Interval Inservice IWE/IWL Inspection Program," Rev. 3, the inspectors noted that visual examination of the test connections was not being performed. The inspectors subsequently reviewed the licensee's response to IN 2014-07, which was documented in Action Request (AR) 00686620. The AR was closed (with status as complete) on November 5, 2014. The AR evaluation recognized that the licensee's Containment (Subsection IWE) ISI program did not currently include visual examination of the leak-chase connections and stated that actions would be taken to add these examinations to the program and schedule the

examinations during the upcoming May 2015 refueling outage. However, neither of these intended items were assigned formal action assignments and as a result, had not been completed as intended. Since the licensee had no evidence that any other past inspections of the leak-chase channel test connections had been performed, the current condition of the test connections was called into question. This issue was considered an outstanding operability concern that required resolution prior to the unit re-entering Mode 4 from the ongoing refueling outage. The licensee took immediate actions to develop ISI visual examination procedures and conducted the visual examinations on March 23, 2017. The inspectors reviewed the results of the examinations. While many of the tubes at the concrete floor interface had lost some portion of their exterior protective coating, exhibited dark discoloration of the bare metal surfaces, or had evidence of surface irregularities, none of the tubes were degraded to the extent that would have allowed moisture intrusion. Based on this, the inspectors concluded that the licensee had adequately resolved any containment operability concerns.

Analysis: The licensee's failure to conduct general visual examinations of moisture barrier material in the containment leak-chase channel test connections in accordance with the ASME BPVC, Section XI, Subsection IWE, was a PD. The inspectors determined that this PD was of more than minor significance because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, visual examinations of moisture barriers associated with the containment leak-chase channel test connections provide assurance that the containment metal liner and liner seam welds remain capable of performing its intended safety function. In the absence of such examinations, corrosive conditions at the moisture barrier (concrete-to-tubing interface) could go undetected. As a result, degradation of inaccessible portions of the containment liner could progress to challenge the containment operational capability. Using IMC 0609, Attachment 4, "Initial Characterization of Findings," the finding was determined to affect the Barrier Integrity Cornerstone because it involved ISI program examinations designed to identify degradation of the containment metal liner. The inspectors screened the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) For Findings At-Power," "Exhibit 3 – Barrier Integrity Screening Questions," and determined that the finding was of very low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of the containment. The inspectors reviewed this performance deficiency for cross-cutting aspects as required by IMC 0310, "Components With Cross-Cutting Aspects." The finding was determined to be reflective of present licensee performance because in 2014, the licensee did not take effective corrective actions to implement the ASME BPVC requirements in the Subsection IWE Program when a reasonable opportunity was available through the review of NRC IN 2014-07, which highlighted this industry-wide problem. Therefore, the finding was assigned a cross-cutting aspect in the "Resolution" component of the Problem Identification and Resolution cross-cutting area (P.3).

Enforcement: Title 10 of CFR 50.55a, "Codes and Standards," as modified by NRC Final Rule-Making published in the Federal Register dated August 8, 1996, states, in part, that the examination of metallic liners in concrete containments shall satisfy the requirements of ASME BPVC, Section XI, Subsection IWE of the 1992 Edition with the 1992 Addenda through the latest edition, and addenda incorporated by reference in paragraph 10 CFR 50.55a(b)(2). The first containment ISI inspection interval for Robinson for Subsection IWE, effective September 9, 1998, through September 2008, utilizing the 1992 Edition with the 1992 Addenda of ASME Section XI; as well as the current, second containment ISI inspection interval, effective September 9, 2008, through September 8, 2018, utilizing the 2001 Edition with the 2003 Addenda of ASME

Section XI, required examination of moisture barriers in concrete containments. Specifically, Subsection IWE, Table IWE-2500-1, Category E-A, "Containment Surfaces," Item E1.30, "Moisture Barriers," required a general visual examination of 100 percent of moisture barriers intended to prevent intrusion of moisture against inaccessible areas of the pressure retaining metal containment shell or liner at concrete-to-metal interfaces and at metal-to-metal interfaces.

Contrary to the above, from 1998 to March 2017, for the first and second containment ISI intervals, the licensee failed to perform general visual examinations of 100 percent of moisture barrier material intended to prevent intrusion of moisture through the leak-chase channel test connections to inaccessible areas of the pressure retaining metal containment shell. On March 23, 2017, following identification of the violation by the NRC, the licensee performed visual examinations of required leak-chase test connections during the ongoing refueling outage in accordance with Subsection IWE. The visual examination did not identify any significant degradation or indications of moisture intrusion into the test connections leading to the leak-chase channels. The licensee planned to revise the Containment ISI Plan to reflect the applicable Subsection IWE requirements. Because this finding is of very low safety significance and has been entered into the licensee's CAP as NCR 02109909, this violation is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy. (NCV 05000261/2017001-01, Failure to Perform General Visual Examinations of Containment Moisture Barriers Associated with Containment Liner Leak-Chase Channel Test Connections)

.2 Failure to Provide Complete and Accurate Information Involving LAR

Introduction: The NRC identified a SL IV NCV of 10 CFR 50.9, "Completeness and Accuracy of Information," for the licensee's failure to provide complete and accurate information in a LAR, dated November 19, 2015, requesting extension of the containment leak rate test frequencies required by various containment related TSs. In this LAR, the licensee incorrectly stated that they had revised their ASME BPVC, Section XI, Subsection IWE program to include visual examinations of the test connections in the leak-chase channel PPS, when in fact, the program had not been revised and the examinations had not been completed.

Description: On October 11, 2016, the NRC issued License Amendment 247 to Renewed Facility Operating License No. DPR-23, for the H. B. Robinson Steam Electric Plant, Unit No. 2, in part, approving the licensee's request to extend various containment leak rate test frequencies associated with TS 5.5.16, "Containment Leakage Rate Testing Program," TS 3.6.1, "Containment," and TS 3.6.2, "Containment Air Lock." By Duke Energy letter, RNP-RA/15-0090, dated November 19, 2015, the licensee submitted the LAR for the proposed TS changes. While reviewing this amendment and the licensee's associated LAR, the inspectors identified a discrepancy in the licensee's statements addressing their impact assessment of NRC IN 2014-07. Specifically, the licensee stated the following in their LAR:

"The piping/tubing that go through the concrete have not been previously included in the IWE inspection program to verify that there is no corrosion or a breach near the floor level which would allow moisture to enter in a manner like the plants described in the IN. The PPS to weld channels was abandoned in the mid-1970s and per the 10 CFR 50.55(b)(2)(ix)(A) requirement; the piping/tubing should be examined closely enough to say that there is not a breach. To provide reasonable assurance that

aging effects of the containment liner are being managed, the IWE program was revised to perform visual inspections of accessible tubing in the PPS system from manifold to floor of the Containment.”

As previously discussed in Section 1R20.b.1 of this report, the inspectors identified that the licensee had not revised their Subsection IWE program to perform the visual inspections of accessible tubing in the PPS system, as intended, due to the oversight in 2014 involving the failure to implement the corrective actions associated with AR 00686620. Therefore, the statement provided in the LAR was inaccurate and constituted a violation of 10 CFR 50.9, “Completeness and Accuracy of Information.” The licensee initiated NCR 02110516 to address this discrepancy.

Analysis: The licensee’s failure to provide complete and accurate information in accordance with 10 CFR 50.9(a) for the LAR associated with License Amendment 247 is a violation of NRC requirements. This violation was screened against the ROP guidance in IMC 0612, Appendix B, “Issue Screening,” and no associated ROP finding was identified. The inspectors evaluated this issue using the Traditional Enforcement process because it had the potential to impact the NRC’s ability to perform its regulatory function. Specifically, the violation impacted the regulatory process, in that, the inaccurate information was material to the NRC’s review and acceptance of licensee actions to address the industry-wide operating experience discussed in IN 2014-07. Based on licensee inaccurate information that they had addressed IN 2014-07 by revising their Subsection IWE program to perform visual inspections of accessible tubing in the containment leak-chase channel PPS system, the NRC staff concluded that the licensee was properly implementing the ASME Code, Section XI, Subsection IWE program. In accordance with the guidance in Sections 2.2 and 6.9 of the NRC Enforcement Policy, the inspectors determined this is a SL IV violation, because had the information been complete and accurate at the time provided, it likely would have resulted in the need for further clarification of the licensee’s actions to address IN 2014-07, but would not have caused the NRC to change the decision to issue the license amendment or resulted in substantial further inquiry. Also, on March 23, 2017, the licensee completed the visual examinations of the subject tubing in the leak-chase channel system and did not identify any significant degradation. In accordance with the IMC 0612, Appendix B, traditional enforcement issues are not assigned a cross-cutting aspect.

Enforcement: Title 10 of CFR 50.9(a), “Completeness and Accuracy of Information,” states, in part, that information required by the NRC’s regulations, orders, and license conditions shall be complete and accurate in all material aspects. Contrary to the above, on November 19, 2015, the licensee failed to ensure that information provided to the NRC was complete and accurate in all material respects associated with a license amendment request to extend the containment leak rate test frequencies required by TS 5.5.16, “Containment Leakage Rate Testing Program,” TS 3.6.1, “Containment,” and TS 3.6.2, “Containment Air Lock.” Specifically, the licensee stated that they had revised their ASME BPVC, Section XI, Subsection IWE program to include visual examinations of accessible test connections in the leak-chase channel PPS to address industry-wide operating experience discussed in NRC IN 2014-07, when in fact, the examinations had not been added to the Subsection IWE program. This information was material to the NRC’s approval of License Amendment 247. The licensee’s corrective actions include conducting the visual examinations of the leak-chase test connections and initiating actions to add the examinations to the Subsection IWE inspection program. In accordance with the guidance in Sections 2.2 and 6.9 of the NRC Enforcement Policy, the inspectors determined this is a SL IV violation, because had the information been

complete and accurate at the time provided, it likely would have resulted in the need for further clarification of the licensee's actions to address NRC IN 2014-07, but would not have caused the NRC to change the decision to issue the license amendment or resulted in substantial further inquiry. Because the violation was of SL IV significance and was entered into the licensee's CAP as NCR 02110516, this violation is being treated as a NCV consistent with Section 2.3.2.a of the Enforcement Policy. (NCV 05000261/2017001-02, Failure to Submit Complete and Accurate Information for a Requested License Amendment)

1R22 Surveillance Testing (71111.22 – 5 samples)

a. Inspection Scope

The inspectors reviewed the surveillance tests listed below and either observed the test or reviewed test results to verify testing activities adequately demonstrated that the affected SSCs remained capable of performing the intended safety functions (under conditions as close as practical to design bases conditions or as required by TSs) and maintained their operational readiness.

The inspectors evaluated the test activities to assess for preconditioning of equipment, procedure adherence, and equipment alignment following completion of the surveillance. Additionally, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with surveillance testing. Documents reviewed are listed in the attachment.

Routine Surveillance Tests

- OST-252-2, RHR System Valve Test – Train B, Rev. 27
- OP-402, Auxiliary Feedwater System, Rev. 96 (Section 8.2.3 for testing AFW 'C' pump)

In-Service Tests (IST)

- OST-908-4, Component Cooling Water Pump C Test, Rev. 3

Containment Isolation Valve

- OST-933-10, Penetration 28, RCP Seal Water Return (CVC-381) Leakage Test, Rev. 3

Reactor Coolant System Leak Detection

- OST-051, Reactor Coolant System Leakage Evaluation, Rev. 49

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 – 1 sample)

a. Inspection Scope

The inspectors observed the simulator emergency preparedness drill conducted on January 24, 2017. The inspectors observed licensee activities in the simulator to evaluate implementation of the emergency plan, including event classification and notification. The inspectors evaluated the licensee's performance against criteria established in the licensee's procedures. Additionally, the inspectors attended the post-exercise critique to assess the licensee's effectiveness in identifying emergency preparedness weaknesses and verified the identified weaknesses were entered in the corrective action program. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2. RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01 – 7 samples)

a. Inspection Scope

Hazard Assessment and Instructions to Workers

During facility tours, the inspectors directly observed radiological postings and container labeling for areas established within the radiologically controlled area (RCA) of the reactor building, auxiliary building and radiological waste (radwaste) building, and radwaste processing and storage locations. The inspectors directly observed measured radiation dose rates verifying licensee radiation surveys for selected RCA areas. The inspectors reviewed survey records for several plant areas including surveys for airborne radioactivity, gamma surveys with a range of dose rate gradients, surveys for alpha-emitters and other hard-to-detect radionuclides, and pre-job surveys for upcoming tasks. The inspectors also discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection. The inspectors attended pre-job briefings and reviewed Radiation Work Permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers.

Control of Radioactive Material

The inspectors observed surveys of material and personnel being released from the RCA using small article monitor, personnel contamination monitor, and portal monitor instruments. The inspectors discussed equipment sensitivity, alarm setpoints, and release program guidance with licensee staff. The inspectors also reviewed records of leak tests on selected sealed sources and discussed nationally tracked source transactions with licensee staff.

Hazard Control

The inspectors evaluated access controls and barrier effectiveness for selected High Radiation Area (HRA), Locked High Radiation Area (LHRA), and Very High Radiation Area (VHRA) locations and discussed changes to procedural guidance for LHRA and VHRA controls with Radiation Protection (RP) supervisors. The inspectors reviewed implementation of controls for the storage of irradiated material within the spent fuel pool. Established radiological controls, including airborne controls and electronic dosimeter (ED) alarm setpoints, were evaluated for selected Refueling Outage 30 tasks. In addition, the inspectors reviewed licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations. The inspectors also reviewed the use of personnel dosimetry including extremity dosimetry and the possible use of multibadging in high dose rate gradients.

Radiation Worker Performance and RP Technician Proficiency

Occupational workers' adherence to selected RWPs and RP technician proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff. Jobs observed included steam generator work, radiography, and work conducted in the reactor building in high radiation and contaminated areas. The inspectors also evaluated worker responses to dose and dose rate alarms during work activities in high radiation areas.

Problem Identification and Resolution

The inspectors reviewed and assessed NCRs associated with radiological hazard assessment and control. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with licensee procedures. The inspectors also reviewed recent self-assessment results.

Inspection Criteria

Radiation protection activities were evaluated against the requirements of Updated Final Safety Analysis Report Section 12, TS Sections 5.0, 10 CFR Parts 19 and 20, and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, "Control of Radioactively Contaminated Material." Documents and records reviewed are listed in the attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 4 samples)

a. Inspection Scope

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for the Unit 2 PIs listed below. The inspectors reviewed plant records compiled between January 1, 2016, and December 31, 2016, to verify the accuracy and completeness of the data reported for the station. The inspectors verified that the PI

data complied with guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedures. The inspectors verified the accuracy of reported data that were used to calculate the value of each PI. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with PI data. Documents reviewed are listed in the attachment.

Cornerstone: Mitigating Systems

- residual heat removal system
- cooling water systems

Cornerstone: Barrier Integrity

- reactor coolant system leak rate

Occupational Radiation Safety Cornerstone:

The inspectors reviewed the Occupational Exposure Control Effectiveness PI results for the Occupational Radiation Safety Cornerstone from July 2016 through February 2017. For the assessment period, the inspectors reviewed electronic dosimeter alarm logs and NCRs related to controls for exposure significant areas. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 1 sample)

.1 Routine Review

The inspectors screened items entered into the licensee's CAP to identify repetitive equipment failures or specific human performance issues for followup. The inspectors reviewed NCRs, attended screening meetings, or accessed the licensee's computerized corrective action database.

.2 Annual Followup of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of NCR 02068392, Reactor trip loss of offsite power event.

The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional NCRs

- completion of corrective actions in a timely manner

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153 - 2 samples)

(Closed) Licensee Event Reports (LERs) 05000261/2016-005-00 and 05000261/2016-005-01, Reactor Trip and Automatic System Actuation Due to Weather-Related Loss of Offsite Power

a. Inspection Scope

This LER and its supplement was associated with the events that occurred on October 8, 2016, associated with a momentary loss of offsite power (LOOP) event and automatic reactor trip on undervoltage due to a grid voltage disturbance during adverse weather conditions associated with Hurricane Matthew. The inspectors reviewed the LERs, the associated CAP reports documenting the event, and discussed the issue with licensee staff. Details of the initial event response were previously evaluated and discussed in Section 4OA3.1 of NRC Inspection Report 05000261/2016004.

The cause of the voltage drop in the Robinson switchyard was due to a fault on a 230 kilovolt switchyard transmission line that was not immediately isolated due to a failed non-safety related fault detection relay that was common to the primary and secondary fault detection circuitry for the transmission line. This relay was subsequently replaced and a design change was initiated to install two fault detection relays, one in the primary and one in the secondary fault detection circuitry, to eliminate the vulnerability. Since this issue involved non-safety related equipment and there was no weakness identified in the existing transmission preventive maintenance relay replacement program, no finding or violation of NRC requirements was identified.

The cause of the inadvertent auxiliary feedwater actuation during post-event recovery actions was due to inadequate guidance in the operations electrical alignment procedure OP-603, "Electrical Distribution." The procedure was revised to provide additional guidance for the infrequently performed condition of restoring power to vital buses following a LOOP event. The inspectors concluded that this inadequate procedure was a violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," which requires procedures affecting quality be appropriate to the circumstances. Due to the fact that no actual loss of auxiliary feedwater occurred during the incident and there was no adverse impact on plant operation, the failure to comply with this requirement constituted a violation of minor safety significance that was not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee entered this issue into their CAP as NCR 02068565. LERs 05000261/2016-005-00 and 05000261/2016-005-01 are closed.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (ISFSI) (60855.1)

a. Inspection Scope

The inspectors performed a walkdown of the onsite ISFSI. The inspectors reviewed changes made to the ISFSI programs and procedures, including associated 10 CFR 72.48, "Changes, Tests, and Experiments," screens and evaluations to verify that changes made were consistent with the license or certificate of compliance. The inspectors also reviewed surveillance records to verify that daily surveillance requirements were performed as required by TS. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

.2 (Closed) Temporary Instruction (TI) 2515/192, Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerability in Electric Power Systems

a. Inspection Scope

The objective of this performance based TI is to verify implementation of interim compensatory measures associated with an open phase condition (OPC) design vulnerability in electric power systems for operating reactors. The inspectors conducted an inspection to determine if the licensee had implemented the following interim compensatory measures. These compensatory measures are to remain in place until permanent automatic detection and protection schemes are installed and declared operable for OPC design vulnerability. Documents reviewed are listed in the attachment. The inspectors verified the following:

- The licensee had identified and discussed with plant staff the lessons-learned from the OPC events at the U.S. operating plants including the Byron station OPC event and its consequences. This includes conducting operator training for promptly diagnosing, recognizing consequences, and responding to an OPC event.
- The licensee had updated plant operating procedures to help operators promptly diagnose and respond to OPC events on offsite power sources credited for safe shutdown of the plant.
- The licensee had established and continue to implement periodic walkdown activities to inspect switchyard equipment such as insulators, disconnect switches, and transmission line and transformer connections associated with the offsite power circuits to detect a visible OPC.
- The licensee had ensured that routine maintenance and testing activities on switchyard components had been implemented and maintained. As part of the maintenance and testing activities, the licensee assessed and managed plant risk in accordance with 10 CFR 50.65(a)(4) requirements.

b. Findings

The inspectors verified the criteria were met and identified no findings.

40A6 Meetings, Including Exit

On April 17, 2017, the resident inspectors presented the inspection results to Mr. Kapopoulos and other members of the licensee's staff. The inspectors confirmed that no proprietary information was retained by the inspectors or documented in this report.

40A7 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 the NRC Enforcement Policy, for being dispositioned as a NCV.

- 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified. Contrary to the above, in March 2014, while performing examinations in steam generator 'C' during forced shutdown RFO229F3, the licensee failed to identify a loose part lodged in contact with tube R37C22. The licensee identified the loose part in March 2017 during refueling outage RO30. The licensee verified that indications of the part were detectable during RFO229F3, retrieved the part, verified that degradation caused by the part met all structural integrity requirements, plugged the tube, and removed it from service. This issue was identified in the licensee's CAP as NCR 0210725. The inspectors evaluated this violation using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," and 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," and determined that the violation was of very low safety significance (Green) because evaluations demonstrated that the tube could sustain three times the differential pressure across it during normal full power steady state operation and that the steam generator did not violate the accident leakage performance criterion.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

L. Belton, Steam Generator Site Lead
C. Claudell, Licensing Engineer
M. Dugan, Engineering Programs
E. Fonteneau, Steam Generator Corporate Lead
F. Giannone, Training Manager
T. Giese, Manager, Operations Training
D. Hall, Nuclear Oversight Manager
S. Hall, Acting Radiation Protection Superintendent
G. Hartzler, Chemistry Manager
D. Hoffman, Manager, Operations
J. Kammer, General Manager, Engineering
E. Kapopoulos, Site Vice President
T. Kirwin, Manager, Maintenance
J. Krakuszeski, Plant General Manager
C. Orr, Manager, Nuclear Work Management
T. Pilo, Regulatory Affairs Manager
D. Pitsley, Manager, Emergency Preparedness
G. Pizzuti, Engineering Programs
C. Sherman, Organizational Effectiveness Director
J. Wild, Regulatory Affairs

NRC personnel

J. Zeiler, Senior Resident Inspector
A. Beasten, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000261/2017001-01	NCV	Failure to Perform General Visual Examinations of Containment Moisture Barriers Associated with Containment Liner Leak-Chase Test Connections (Section 1R20)
05000261/2017001-02	NCV	Failure to Submit Complete and Accurate Information for a Requested License Amendment (Section 1R20)

Closed

05000261/2016-005-00	LER	Reactor Trip and Automatic System Actuation Due to Weather-Related Loss of Offsite Power (Section 4OA3)
05000261/2016-005-01	LER	Reactor Trip and Automatic System Actuation Due to Weather-Related Loss of Offsite Power (Section 4OA3)
2515/192	TI	Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerability in Electric Power Systems (Section 4OA5.1)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Impending Adverse Weather Conditions

AP-015, Portable Heaters/Heating Devices Issuance and Inspection, Rev. 21
AP-053, Severe Weather Response, Rev. 6
EDP-009, Freeze Protection Panels, Rev. 67
OMM-021, Operation During Adverse Weather Conditions, Rev. 50
OP-925, Cold Weather Operation, Rev. 67
NCRs 2090185, 2090481, 2090672, 2090909, 2091302, and 2091286

Section 1R04: Equipment Alignment

Partial Walkdown

OP-903, Service Water System, Rev. 146
OP-201, Residual Heat Removal System, Rev. 73
OP-402 Auxiliary Feedwater System, Rev. 99
Drawing G-190197, Feedwater, Condensate, and Air Evacuation System Flow Diagram, Rev. 73, Sheet 4 of 5

Complete Walkdown

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Drawing 5379-1082, Safety Injection System Flow Diagram, Rev. 55, Sheet 2 of 5
Drawing 5379-1082, Safety Injection System Flow Diagram, Rev. 28, Sheet 3 of 5

Section 1R05: Fire Protection

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OMM-001-4, Communications, Rev. 24
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Section 1R06: Flood Protection Measures

Underground Cables

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EGR-NGGC-0512, License Renewal Aging Management Activities, Rev. 8
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TMM-044, Heat Exchanger NDE Inspection Process, Rev. 1
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NCR 02105775, Eddy current inspection for “A” CCW heat exchanger
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03-1217919, Field Procedure & Operating Instructions for Installation of Flexible Stabilizer in a Recirculating Steam Generator, Rev. 21
03-1275284, Field Procedure for Remote Rolled Plugging Utilizing Plugging Control Box Level 2, Rev. 22
03-9181563, Field Procedure & Operating Instructions for Stabilizer Installation Using the MIZ-80 Probe Pusher Level 1, Rev. 3
03-9260065, Field Procedure & Operating Instructions for Stabilizer Installation Using a Pulling Method Level 1, Rev. 0
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AD-MN-ALL-0006, Fluid Leak Management, Rev. 5
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Section 1R11: Licensed Operator Requalification

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EOP-E-0, Reactor Trip or Safety Injection, Rev. 8
EOP-E-1, Loss of Reactor or Secondary Coolant, Rev. 6
EOP-ECA-1.1, Loss of Emergency Coolant Recirculation, Rev. 2
AOP-005, Radiation Monitoring System, Rev. 34
AOP-016, Excessive Primary Plant Leakage, Rev. 24
AOP-038, Rapid Downpower, Rev. 3
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OMM-001, RNP Conduct of Operations, Rev. 70
GP-006-1, Normal Plant Shutdown from Power Operation to Hot Shutdown, Rev. 14
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LORP Training Attendance records (17 Reviewed)
Medical Files (11 Reviewed)
Remedial Training Records (22 Reviewed)
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TAP-410, NRC License Examination Security Program, Rev. 21
TAP-411, Simulator Setup, Rev. 34
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 1.1, Repeatability Test, dated December 14, 2016
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 4.3, Annual Simultaneous Closure of MSIV's Transient Test, dated September 28, 2015
 4.4, Annual Simultaneous Trip of All RCP's Transient Test, dated September 29, 2015
 4.5, Annual Single RCP Trip Transient Test, dated September 30, 2015
 4.6, Annual Turbine Trip From 37% Power Transient Test, dated October 6, 2015
 4.7, Annual Maximum Rate Power Ramp Transient Test, dated October 6, 2015
 4.8, Annual DBA LOCA with Loss of Offsite Power, dated October 6, 2015
 4.9, Annual DBA Main Steam Line Break Transient Test, dated October 6, 2015
 4.10, Annual PZR PORV Stuck Open without SI Transient, dated October 19, 2015
 4.11, Annual Maximum Design Load Rejection Test, dated October 26, 2015

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 2017 Exam 02, Rod Control System Urgent Failure, 600 gpm SGTR
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 CR-006, Isolate a Faulted Steam Generator, Rev. 18
 CR-055, Respond to a Loss of a Circulating Water Pump, Rev. 2

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 CR-119, Perform a Post LOCA Cooldown and Depressurization, Rev. 4
 CR-120, Respond to Pressurizer Pressure Instrument Failure, Rev. 0
 CR-121, Respond to a Loss of Letdown, Rev. 0
 IP-018, Control S/G PORVs at Secondary Control Panel, Rev. 47
 IP-051, De-energize Emergency Busses Using DSP-002, Att. 1, Rev. 8
 IP-127, Respond to a Loss of Instrument Air, Rev. 4
 IP-183, Restoring AC Power at the EDG Local Control Panel using ECA-0.0, Rev. 1

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 NCR 02106189, 52/13C (SFPC [sic]) found in bound condition
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 WO 20015900, Perform fuel insert shuffles during refueling
 OP-603, Electrical Distribution, Rev. 126
 NCR 02105319, Stop of all critical path work breaker 52/9 phase B has low gas pressure
 NCR 02105321, Repair generator output circuit breaker to 230kV north bus
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 NCR 02098153, B/U grp B PZR heater breaker circuit 1 tripped free
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 AD-EG-ALL-1130, Activation of Engineering Changes, Rev. 2
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 PIC-202, Robert Shaw Room Relative Humidity Controller, Rev. 5
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 AR 02102945, Prepare applicability determination for temporary modification of EC 407682
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PLP-033, Post Maintenance Testing Program, Rev. 64
 PM-163, Inspection Testing for DB-50 Circuit Breakers for 480 Volt Bus E2
 NCR 02109788, 52/2C inspection, breaker failed to close
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 NCR 02110226, ELS-47 failed during OST-163
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 CM-603, Disassembly and Assembly of the Containment Equipment Hatch and Missile Barrier,
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 FMP-019, Fuel and Insert Shuffle, Rev. 49
 GP-006-1, Normal Plant Shutdown from Power Operation to Hot Shutdown, Rev. 14
 GP-007, Plant Cooldown from Mode 3 to Mode 5, Rev. 105
 GP-008, Draining the Reactor Coolant System, Rev. 90
 GP-009-1, Filling the Refueling Cavity with Fuel in the Reactor Vessel, Rev. 25
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 GP-009-3, Draining the Refueling Cavity with Fuel in the Reactor Vessel, Rev. 17

GP-001, Fill and Vent of the Reactor Coolant System, Rev. 69
 GP-002, Cold Shutdown to Hot Subcritical at No Load Tavg, Rev. 139
 MRP-004, Reactor Vessel Head Removal and Installation, Rev. 43
 MRP-005, Upper Internals Removal and Installation, Rev. 32
 OMM-001-18, Outages, Rev. 29
 OMM-033, Implementation of CV Closure, Rev. 38
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 NCR 02104147, SW valves found installed backwards
 NCR 02104905, Reactor head lift momentary load cell weight indication outside expected range
 NCR 02106121, Entry into AOP-042 for loss of spent fuel pool cooling pump
 NCR 02109357, Protected equipment not in accordance with key safety function procedure
 NCR 02106984, Foreign material discovered in 'C' SG primary side tubes
 NCR 02108176, Spent fuel pool visibility issue
 NCR 02111369, Mode 4 containment cleanliness problems
 NCR 02111404, Ground cable found disconnected for RCP 'C' deluge station
 NCR 02110250, Personnel performing work without signing onto clearance
 NCR 02120277, Leak on weld of AFW recirculation piping valve AFW-44A
 NCR 02110708, Corrosion at interface of containment liner and support
 NCR 02110712, EDG 'B' air start filter cap failure

Section 1R22: Surveillance Testing

OMM-015, Operations Surveillance Testing, Rev. 49
 WO 20124087, OST-252-2 (QL) RHR component test train 'B'
 NCR 02095259, Inadequate procedure use and adherence practices during surveillance testing
 NCR 02102973, Test rig impact on main steam safety valves during testing
 NCR 02102991, Safety valve SV1-3C slightly exceeded its acceptance criteria

Section 1EP6: Drill Evaluation

EPNOT-01, CR/EOF Emergency Communicator, Rev. 48
 EPCLA-01, Emergency Control, Rev. 45
 EPCLA-04, Emergency Action Level Technical Bases Document, Rev. 18
 OMM-001-7, Notifications, Rev. 24
 PLP-007, Robinson Emergency Plan, Rev. 87

Section 2RS1: Radiological Hazard Assessment and Exposure ControlsProcedures, Guidance Documents and Manuals

AD-PI-ALL-0100, Corrective Action Program, Rev. 7
 AD-RP-ALL-2001, Taking, Counting, and Recording Surveys, Rev. 2
 AD-RP-ALL-2005, Posting of Radiological Hazards, Rev. 2
 AD-RP-ALL-2009, Personnel Contamination Monitoring and Reporting, Rev. 2
 AD-RP-ALL-2011, Radiation Protection Briefings, Rev. 3
 AD-RP-ALL-2014, Work in Alpha Environments, Rev. 2
 AD-RP-ALL-2017, Access Controls for High, Locked High and Very High Radiation Areas, Rev. 2
 AD-RP-ALL-3001, Control of Radioactive Material and Use of Radioactive Material Labels, Rev. 1
 AD-RP-ALL-3002, Unconditional Release of Material, Rev. 1
 AD-RP-ALL-9003, Hot Spot Tracking and Control, Rev. 0
 HPP-001, Radiologically Controlled Area Surveillance Program, Rev. 130
 HPP-004, Radiological Control of Tools and Equipment, Rev. 71

Records and Data

AD-RP-ALL-2002 Attachment 1, RP Pre-Job Checklist for Radiography: Reactor Auxiliary Building 2nd level, 03/7/17
 AD-RP-ALL-2002 Attachment 2, RP Job Coverage Checklist for Radiography, Reactor Auxiliary Building 2nd level, 03/7/17
 AD-RP-ALL-2011 Attachment 2 High Risk Radiological Briefing
 AD-RP-ALL-2014 Attachment 4 Personal Air Sampler Results Analysis Form, Sample ID 004, 3/5/17
 AD-RP-ALL-2014 Attachment 4 Personal Air Sampler Results Analysis Form, Sample ID 005, 3/5/17
 Analysis Report of WBC, 03/07/2017 @ 3:23 pm
 Analysis Report of WBC, 03/08/2017 @ 6:23 am
 HPP-008, Attachment 10.1, Steam Generator Survey Record, 3/6/2017
 NSTS Annual Reconciliation Report 2017
 Radioactive Source Inventory Log
 RNP Radiological Surveys:
 RNP-M-20161219-2, Annual ISFSI 24/92, 12/19/2016
 RNP-M-20161220-1, ISFSI 7P/91, 12/20/16
 RNP-M-20161220-2, Quarterly Truck Bay Survey, 12/20/2016
 RNP-M-20170108-1, Demin Rm- Monthly, 1/8/2017
 RNP-M-20170124-7, CV Entrance/ Exit Area Quarterly, 1/24/2017
 RNP-M-20170225-9, Down Posting LHRA to HRA survey, 2/25/2017
 RNP-M-20170225-13, Transfer Canal Area, 2/25/2017
 RNP-M-20170226-23, "B" Bay, 02/26/2017
 RNP-M-20170227-2, Cavity- Alpha Classification, 02/27/2017
 RNP-M-20170227-4, Removal of Blind Flange, 02/26/2017
 RNP-M-20170304-14, Level 2 CV/ 62, 03/04/2017
 RNP-M-20170306-4, 03/6/2017
 RNP-M-20170306-6, 03/6/2017
 RNP-M-20170306-14, 03/06/2017
 RNP-M-20170307-1, Post SG Diaphragm removal, 03/6/2017
 RNP-M-20170307-2, "C" Pump bay/ Manway diaphragm removal, 03/7/2017
 RNP-M-20170307-3, 03/06/2017
 RNP-M-20170307-4, Post manway/diaphragm removal, 03/06/2017
 RNP-M-20170307-7, RO-30 CV First Level, 03/7/2017

Radiation Control Air Sample Analysis Form:

Sample AS-20170305-001 Containment Building, 03/4/2017
 Sample AS-20170305-002 Hot Machine Shop, 03/05/2017
 Sample AS-20170305-003 Containment Building 03/05/2017
 Sample AS-20170305-004 Containment Building, 03/05/2017
 Sample AS-20170306-001 Spent Fuel Building, 03/05/2017
 Sample AS-20170306-004 Containment Building- Lapel, 03/05/2017
 Sample AS-20170306-005 Containment Building- Lapel, 03/05/2017
 Sample AS-20170306-012 Containment Building, 03/06/2017
 Sample AS-20170306-015 Containment Building, 03/06/2017

RWP 2503 RO-30 CV/AUX Building Inspection Activities

RWP 2525 RO-30 S/G Primary Manways and Diaphragms

RWP 2529 RO-30 Reactor Head Lift/Set Activities

RWP 2616 Rev 08, RO-30 S/G Eddy Current Activities

Work Order Package 20015599 02, EST-153-01 Radiography Check Valve CVC-239A

Corrective Action Program (CAP) Documents

NCRs 02055138, 02065476, 02077040, 02077792, and 02106960

Quick Cause Evaluation 02022040-01

Section 40A1: Performance Indicator Verification

AD-LS-ALL-0004, NRC Performance Indicators and Monthly Operating Report, Rev. 1

AD-BO-ALL-0002, Performance Measures Program, Rev. 3

RNP-M/MECH-1904, RNP NRC Mitigating System Performance Index (MSPI) Basis Document, Rev. 2

NCR 002042986 - AD-HU-ALL-0001 Human Performance Evaluation

ED Dose and dose rate alarm table, 01/01/2016 – 03/9/2017

Section 40A2: Problem Identification and Resolution

AD-PI-ALL-0100, Corrective Action Program, Rev. 6

AD-PI-ALL-0101, Root Cause Evaluation, Rev. 2

AD-PI-ALL-0102, Apparent Cause Evaluation, Rev. 2

AD-PI-ALL-0103, Quick Cause Evaluation, Rev. 2

AD-PI-ALL-0104, Prompt Investigation Response Team, Rev. 2

AD-LS-ALL-0006, Notification/Reportability Evaluation, Rev. 1

AD-EG-ALL-1311, Failure Investigation Process (FIP), Rev. 0

Section 40A3: Follow-up of Events and Notices of Enforcement Discretion

NCR 02068392, Reactor trip loss of offsite power event

NCR 02068297, Service water pump A failed to start on Blackout Sequencer

NCR 02068442, 480 volt Bus 5 failed to trip during undervoltage event

NCR 02112597, Lack of evaluation for scram PI determination

NCR 02088492, Deficiencies in Processing service water A failure to start AR

Misoperation Investigation Report for Event Reference No. 59534

ARs 02073558, 02086234, 02086244, and 02086247

EOP-ECA-0.0, Loss of All AC Power, Rev. 5

OP-603, Electrical Distribution, Rev. 125

Section 40A5: Other Activities

Operation of an Independent Spent Fuel Storage Installation (ISFSI)

ISFS-101, ISFSI Equipment Receipt, Setup and Checkout, Rev. 1

ISFS-102, ISFS DSC Loading and Storage, Rev. 3

ISFS-103, ISFSI HSM Temperature Monitoring, Rev. 1

ISFS-105, NUHOMS 24PTH Dry Storage Canister Welding, Rev. 1
 ISFS-009, 7P-ISFSI High Radiation, Rev. 6
 ISFS-022, Cask Preparation Area HVAC and HEPA Filter Operation, Rev. 6
 AD-EG-ALL-1005, Conduct of Dry Storage, Rev. 1
 Certificate of Compliance for Spent Fuel Storage Cask #1004, Amendment 13

TI 2515/192, Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerability in Electric Power Systems

NRC Bulletin 2012-01: Design Vulnerability in Electric Power System, dated July 27, 2012
 Licensee Letter RNP-RA/12-0105, Response to NRC Bulletin 2012-01: Design Vulnerability in Electric Power System, dated October 25, 2012
 Licensee Letter RNP-RA/14-0004, Response to Request for Additional Information for Bulletin 2012-01, Design Vulnerability in Electric Power System, dated February 3, 2014
 Licensee Self-Assessment Number 02072048, NRC Inspection of Interim Open Phase Corrective Actions (Readiness Assessment)
 AR 517818, IER L2-12-14, Automatic Reactor Scram Resulting from Design Vulnerability AOP-026, Grid Instability, Rev. 17
 APP-001, Miscellaneous NSSS (alarms), Rev. 64
 APP-002, Engineered Safeguards, Rev. 70
 APP-003, RCS & Makeup System, Rev. 54
 APP-007, Condensate & Feedwater, Rev. 45
 APP-036, Auxiliary Annunciators, Rev. 91
 AD-WC-ALL-0200, On-Line Work Management, Rev. 7
 AD-OP-ALL-0201, Protected Equipment, Rev. 3
 NGGM-IA-0003, Transmission Interface Agreement for Operations, Maintenance, and Engineering Activities at Nuclear Plants, Rev. 11
 OMM-048, Work Coordination and Risk Assessment, Rev. 64
 OMA-NGGC-0203, Shutdown Risk Management, Rev. 5
 OMP-003, Shutdown Safety Function Guidelines, Rev. 57
 OP-604, Diesel Generators 'A' and 'B', Rev. 115
 OST-013, Weekly Checks and Operations (Weekly), Rev. 132
 OST-022, Weekly Surveillances, Rev. 20
 R0016, Robinson Outside Auxiliary Operator Logs, Rev. 108
 TE-MN-ALL-0211, Performing Thermographic Inspections, Rev. 0
 WOs 20109368, 20063645, 20017949, 13498724, 134289995, 13364573, and 12278713 (for conducting semiannual thermography of switchyard components)