



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

July 29, 2016

Richard Michael Glover
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 05000261/2016002**

Dear Mr. Glover:

On June 30, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your H. B. Robinson Steam Electric Plant, Unit 2. On July 13, 2016, the NRC inspectors discussed the results of this inspection with Mr. John Krakuszeski and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

No NRC-identified or self-revealing findings were identified during this inspection. However, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the 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 Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II, the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at H.B. Robinson Steam Electric Plant, Unit 2.

R. Glover

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In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management 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/

George T. Hopper, Chief
Reactor Projects Branch 4
Division of Reactor Projects

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

Enclosure:
IR 05000261/2016002
w/Attachment: Supplemental Information

cc Distribution via Listserv

R. Glover

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Letter to Richard Michael Glover from George T. Hopper dated July 29, 2016.

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REPORT 05000261/2016002

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No: 50-261

License No: DPR-23

Report No: 005000261/2016002

Licensee: Duke Energy Progress, Inc.

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

Location: 3581 West Entrance Road
Hartsville, SC 29550

Dates: April 1, 2016 through June 30, 2016

Inspectors: K. Ellis, Senior Resident Inspector
S. Herrick, Reactor Inspector
C. Rapp, Senior Project Engineer
J. Dodson, Senior Project Engineer
C. Dykes, Health Physics Inspector
A. Beasten, Resident Inspector (Training)
S. Sanchez, Senior Emergency Preparedness Inspector
C. Fontana, Emergency Preparedness Inspector
J. Hickman, Emergency Preparedness Inspector (Training)

Approved by: George T. Hopper, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000261/2016002, April 1, 2016, through June 30, 2016; Duke Energy Progress, Inc., H. B. Robinson Steam Electric Plant, Unit 2, Integrated Inspection Report.

The report covered a three-month period of inspection by resident inspectors and regional inspectors. 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. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Licensee-Identified Violations

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 100 percent rated thermal power (RTP). The unit was downpowered to 50 percent RTP on May 20, 2016, for turbine valve testing and returned to 100 percent RTP on May 21, 2016, and remained there for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 2 samples)

a. Inspection Scope

.1 Summer Readiness of Offsite and Alternate AC Power System

The licensee did not implement equipment or procedure changes that potentially affect operation or reliability of offsite and alternate AC power systems since the last time the inspectors assessed grid reliability. The inspectors reviewed the material condition of offsite and onsite alternate AC power systems (including switchyard and transformers) by performing a walkdown of the switchyard. Documents reviewed are listed in the Attachment.

.2 Seasonal Extreme Weather Conditions

The inspectors conducted a detailed review of the station's adverse weather procedures and compensatory measures, including operator staffing, before the onset of extreme high temperatures. The inspectors verified that weather-related equipment deficiencies identified during the previous year had been placed into the work control process and/or corrected before the onset of seasonal extremes. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures before the onset of seasonal extreme weather conditions. The inspectors verified that plant features and procedures for operation and continued availability of the ultimate heat sink during adverse weather are appropriate. Documents reviewed are listed in the attachment. The inspectors evaluated the following risk-significant systems:

- Service Water System
- Containment Ventilation System

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:

- Component Cooling Water Pump (CCW) 'B' while CCW 'A' was out of service (OOS) for maintenance
- Motor-Driven Auxiliary Feedwater (MDAFW) Pump 'B' while the MDAFW pump 'A' was OOS for maintenance
- Auxiliary Feedwater (AFW) Pump 'C' while the Steam-Driven Auxiliary Feedwater Pump was OOS for maintenance
- Safety Injection (SI) Pump 'A' while the 'C' SI Pump was OOS for maintenance

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 corrective action program

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

- Pipe Alley, fire zone 1
- 1st Floor Turbine Building, fire zone 25A/25B
- 115KV/230KV Switchyard
- E1/E2 Switchgear Room, fire zone 20
- 'B' Diesel Generator Room, fire zone 1
- 'A' and 'B' Battery Room, fire zone 16

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (71111.11 – 2 samples)

a. Inspection Scope

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification

The inspectors observed a simulator scenario administered to an operating crew conducted in accordance with the licensee's accredited regualification training program. The scenario on June 14, 2016, evaluated the operators' ability to respond to a steam generator tube leak and rupture, and various equipment malfunctions which resulted in a reactor trip. 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

The inspectors observed licensed operator performance in the main control room during a scheduled downpower from 100 percent power to less than 50 percent power for turbine valve testing. The inspectors reviewed the operator performance and adherence to the operating procedures. 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.

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. The inspectors also interviewed system engineers and the maintenance rule coordinator to assess the accuracy of performance deficiencies and extent of condition. Documents reviewed are listed in the Attachment.

- CR 2016522, Investigate/Repair DSDG Soak Back Pump Delayed Start
- CR 5888746, 'A' AFW Outboard Packing Gland Channel Clogged

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 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 corrective action program. 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.

- June 14, 2016, 'A' Train Work Week, Steam Driven Auxiliary Feedwater Pump OOS for maintenance with Circulation Water Pump 'C' OOS for Maintenance
- Review of Critical Activity Plan for 'A' EDG 2 Year Outage
- May 17, 2016, Yellow for MDAFW Pumps OOS for valve maintenance
- Review of mitigation actions while 'A' MDAFW OOS for cooling channel maintenance

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 6 samples)

a. Inspection Scope

The inspectors selected the operability determinations or functionality evaluations listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determinations to ensure that technical specification (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 TSs and Updated Final Safety Analysis Report to the licensee's evaluations. 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.

- CR 2034208, RADTRAD Error Affecting RNP SRW and LR Dose Calculations
- CR 1992738, FSL-1633B, AFW PMP-B Not Indicating Properly
- CR 2012658, [Main Stem Line Break (MSLB)] Unanalyzed Condition
- CR 2033744, Investigate/Repair DSD Ventilation Fan 'B' Overload
- EC 402270, Evaluation of South Carolina Rainfall event October 2-5, 2015
- CR 2031851, Spray Additive Tank level calibration does not meet SR frequency

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.

- WO 20077722, OST-603-1, Engine Driven Pump Test following maintenance
- WO 13339012, PM-402, Inspection and testing of inertial latch bushing for breaker 52/19B
- WO 13514555, PIC-002, Calibration of D/P Electronic Transmitter LT-969
- WO 13389858, OST-603-2, Motor Driven Fire Pump Test following replacement of motor driven fire pump local control switch replacement
- WO 13462951, OST 409-1, EDG 'A' fast speed start following two-year maintenance outage

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.

1R22 Surveillance Testing (71111.22 – 6 samples)

a. Inspection Scope

The inspectors reviewed the surveillance tests listed below and either observed the test or reviewed test results to verify testing adequately demonstrated equipment operability and met TS and licensee procedural requirements. 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

- MST-021, Reactor Protection Logic Train 'B' at Power
- MST-005, Pressurizer Water Level Protection Channel Testing
- OST-551-1, Turbine Valve Test
- OST-011, Quarterly Rod Exercise

RCS Leakrate

- OST-051, Reactor Coolant System Leakage Evaluation

In-Service Tests

- OST-201-2, MDAFW System Component Test – Train B

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (711114.02 – 1 sample)

a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing and maintaining the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, Alert and Notification System Evaluation. The applicable planning standard, 10 CFR Part 50.47 (b) (5), and its related 10 CFR Part 50, Appendix E requirements were used as reference criteria. The criteria contained in NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Revision 1, were also used as a reference. The inspectors reviewed various documents which are listed in the Attachment, interviewed personnel responsible for system performance, and observed aspects of periodic siren maintenance and testing. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System (711114.03 – 1 sample)

a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, Emergency Response Organization Staffing and Augmentation System. The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR Part 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (711114.04 – 1 sample)

a. Inspection Scope

Since the last NRC inspection of this program area, two changes were made to the Radiological Emergency Plan and two changes were made to the emergency action levels (EALs), along with changes to several implementing procedures. The licensee determined that, in accordance with 10 CFR 50.54(q), the Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors reviewed these changes to evaluate for potential reductions in the effectiveness of the Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, Emergency Action Level and Emergency Plan Changes. The applicable planning standards of 10 CFR 50.47(b), and its related requirements in 10 CFR 50, Appendix E were used as reference criteria. The inspectors reviewed various documents that are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness (711114.05 – 1 sample)

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's post-event after action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. Inspectors reviewed the licensee's 10 CFR 50.54(q) change process, personnel training, and selected screenings and evaluations to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. The inspectors evaluated the capabilities of selected radiation monitoring instrumentation to adequately support EAL declarations. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, and Maintenance of Emergency Preparedness. The applicable planning standards, related 10 CFR 50, Appendix E requirements, and 10 CFR 50.54(q) and (t) were used as reference criteria. The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 2 samples)a. Inspection Scope

The inspectors observed the emergency preparedness drill conducted on April 6, 2016, and May 25, 2016. The inspectors observed licensee activities in the simulator to evaluate implementation of the emergency plan, including event classification, notification, and protective action recommendations. The inspectors evaluated the licensee's performance against criteria established in the licensee's procedures. Additionally, the inspectors reviewed 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.

4. OTHER ACTIVITIES4OA1 Performance Indicator Verification (71151 – 6 samples)a. Inspection Scope

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for Unit 2 PIs listed below. The inspectors reviewed plant records compiled between April 1, 2015, and March 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: Initiating Events

- unplanned power changes

Cornerstone: Mitigating Systems

- emergency ac
- safety system functional failures

Emergency Preparedness Cornerstone

- Drill/Exercise Performance (DEP)
- Emergency Response Organization (ERO) Readiness
- Alert and Notification System (ANS) Reliability

For the specified review period, the inspectors examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO

drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the Attachment.

b. Findings

No findings were identified.

40A2 Problem Identification and Resolution (71152 – 2 samples)

.1 Routine Review

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

.2 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of CR 682160, Indicated Battery Fault for ELS-113 (DS/SBO Light).

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 any additional condition reports
- completion of corrective actions in a timely manner

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors reviewed issues entered in the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more

significant safety issue. The inspectors focused their review on repetitive equipment issues and human performance trends but also considered the results of inspector daily condition report screenings, licensee trending efforts, and licensee human performance results. The review nominally considered the 6-month period of January 2016 through June 2016, although some examples extended beyond those dates when the scope of the trend warranted. The inspectors compared their results with the licensee's analysis of trends. Additionally, the inspectors reviewed the adequacy of corrective actions associated with a sample of the issues identified in the licensee's trend reports. The inspectors also reviewed corrective action documents that were processed by the licensee to identify potential adverse trends in the condition of structures, systems, and/or components as evidenced by acceptance of long-standing non-conforming or degraded conditions. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion

a. Inspection Scope

(Closed) Licensee Event Report 2016-002-00, Unanalyzed Condition Related to Main Steam Line Break Inside Containment

On April 13, 2016, it was determined that the source document for the mass and energy release parameters used to determine the containment pressure and temperature response to a main steam line break inside containment does not adequately account for all possible single active failure scenarios in the steam or feedwater line provisions. The document does not address the failure of a feedwater regulating bypass valve (FRBV) to close in the feedline of a faulted steam generator. An active failure of a FRBV to close will increase the secondary mass available for release into containment and result in higher peak containment pressure that could challenge containment design pressure. This condition is a concern while the bypass valves are in the open position in Modes 1, 2, or 3. The licensee determined that the postulated single failure of the FRBV to close following a MSLB inside containment was not considered during the establishment of the plants current licensing basis. The licensee entered this issue into the CAP as 2012658 and implemented a standing instruction relating to the use of the FRBVs. The inspectors reviewed the licensee event report, appropriateness of corrective actions, violations of requirements, and generic issues.

b. Findings

The enforcement aspects of this violation are documented in Section 4OA7. This LER is closed.

40A5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (IP 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 surveillance requirements were performed as required by TSs. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

40A6 Meetings, Including Exit

On July 13, 2016, the inspectors presented the inspection results to Mr. John Krakuszeski and other members of the licensee's staff. The inspectors confirmed that proprietary information was not retained by the inspectors or documented in this report.

40A7 Licensee-Identified Violations

The following licensee-identified violation of NRC requirements was determined to be of very low safety significance and met the NRC Enforcement Policy criteria for being dispositioned as a non-cited violation.

Section 50.55a(h)(2) of 10 CFR states in part, for nuclear power plants with construction permits issued before January 1, 1971, protection systems must be consistent with their licensing basis or may meet the requirements of Institute of Electrical and Electronic Engineers (IEEE) Std. 603-1991 and the correction sheet dated January 30, 1995. The Robinson FSAR (current licensing basis) Section 3.1.2.20, states in part that, reactor protection is designed to meet all presently defined reactor protection criteria and is in accordance with the proposed Institute of Electrical and Electronic Engineers (IEEE) 279 "Standard for Nuclear Plant Protection Systems," August 1968. IEEE-279, Section 4.2, requires that any single failure within the protection system shall not prevent proper protection system action when required. Contrary to this requirement, from initial startup, until April 13, 2016, when using a FRBV (i.e., FRBV in the open position in Modes 1, 2, and 3), and a MSLB occurred, the protection system would not provide the proper system protection action. Specifically, with a single failure of the FRBV to close, the protective system action to isolate feedwater could not be accomplished. This would cause an increase in secondary mass available for release in containment structure, resulting in a higher peak containment pressure that would challenge the containment design pressure.

As corrective actions, the licensee implemented a standing instruction and placed caution tags on the FRBVs to ensure the valves remain closed/isolated while operating in Modes 1, 2, and 3. Additionally, the licensee completed an engineering change to update the containment analysis and licensing basis. The licensee entered this issue into the CAP as CRs 2012658, 2020495, and 2018710.

The failure to meet the single failure criterion for feedwater isolation following a main steam line break inside containment was a performance deficiency (PD). Significance Determination Process (SDP) screening in accordance with NRC IMC 0609.04 determined that the PD affected the secondary short term heat removal safety function of the mitigating systems cornerstone. The finding was determined to represent a loss of function and a detailed risk assessment was performed per NRC IMC 0609 Appendix A. The bounding analysis assumed a conditional core damage probability of 1.0, a 14 day exposure period estimated from surveillance and outage schedules, and main steam line break inside containment (MSLBIC) initiating event probability and main feedwater regulating valve bypass (MFWRVBV) failure to close probabilities from the NRC SPAR model data. The dominant sequence was an MSLBIC with a failure to close of the MFWRVBV which was assumed to lead to core damage and large early release. The risk was mitigated by short exposure period and the low likelihood of the MSLBIC and the failure to close of the MFWRVBV. The bounding analysis determined that the PD represented a risk increase of $< 1.0E-7$ /year, a GREEN finding of very low safety significance for both core damage frequency and large early release frequency.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

M. Austin, Emergency Preparedness Corporate Functional Area Manager
N. Baker, Emergency Preparedness Specialist
L. Basta, Assistant Operations Manager
C. Caudell, Regulatory Affairs
J. Conder, Assistant Operations Training Manager
S. Connelly, Regulatory Affairs Manager
P. Fagan, Director, Engineering
F. Giannone, Training Manager
M. Glover, Site Vice President
T. Giese, Manager, Operations Training
D. Hall, Nuclear Oversight Manager
E. Hedderman, Chemistry Manager
D. Hoffman, Organizational Effectiveness Director
K. Holbrook, Operations Manager
L. Jackson, Emergency Preparedness Specialist
J. Kammer, General Manager, Engineering
T. Kirwin, Manager, Maintenance
J. Krakuszeski, Plant General Manager
B. Nanney, Manager, Nuclear Emergency Preparedness
C. Orr, Manager, Operations and Support
M. Pastva, Jr., Nuclear Regulatory Affairs
T. Pilo, Manager, Emergency Preparedness
D. Pitsley, Manager, Operations
J. Rackley, Training Supervisor
C. Sherman, Radiation Protection Superintendent
N. Tart, Emergency Preparedness Specialist
D. Thompson, Corporate Functional Area Manager – Radiation Protection
J. Wild, Regulatory Affairs

NRC personnel

G. Hopper, Chief, Reactor Projects Branch 4
K. Ellis, Sr. Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000261/2016-002	LER	Unanalyzed Condition Related to Main Steam Line Break Inside Containment (Section 4OA3)
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LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

OMM-021, Operations During Adverse Weather Conditions, Revision 50

PLP-118, Hot Weather Operations, Revision 12

OST-021, Daily Surveillances, Revision 45, for June 14, 2016

Other documents

eMail from Switchyard Coordinator/PTAC to RNP Plant Manager dated April 25, 2016, Verifying completion of 2016 Hot Weather Checks of the Switchyard per Procedure PLP-118
Work Order 20048447-02

Action Requests

01977719

02037063

Section 1R04: Equipment Alignment

Procedures

OP-402, Auxiliary Feedwater System, Rev. 97

APP-006, S/G Systems, Rev. 35

APP-007, Condensate & Feedwater, Rev. 44

AOP-010, Main Feedwater/Condensate Malfunction, Rev. 35

Drawings

G-190197, Feedwater Condensate and Air Evacuation System Flow Diagram, Revision 73,
Sheet 4 of 5

B-190628, Steam Driven Feedwater Pump Control Wiring Diagram, Revision 24

Other documents

RNP Posting Protected Equipment Logs, 06/14/2016

eSoms Clearance, Clearance: OPS-2-16-3020-SDAFWTRAPS-0091

Action Requests

02037860

02037894

Section 1R05: Fire Protection

Procedures

OMM-003, Fire Pre-Plans, Rev.71

Drawings

HBR2-11937, Fire Pre-Plan B Diesel Generator Room, Rev. 4

HBR2-11937, Fire Pre-Plan Emergency Switchgear (E-1/E-2) Room, Rev. 3

HBR2-11937, Fire Pre-Plan 115KV/230KV Switchyard, Rev. 1

HBR2-11937, Fire Pre-Plan Pipe Alley, Rev. 0

HBR2-11937, Fire Pre-Plan Turbine Building Building 350 – West End Ground Level, Rev. 4

HBR2-11937, Fire Pre-Plan Turbine Building Building 350 – East End Ground Level, Rev. 4

HBR2-11937, Fire Pre-Plan Turbine Building Building 350 – Central Ground Level, Rev. 1

HBR2-11937, Fire Pre-Plan Turbine Building/Ground Level, Rev. 4

HBR2-11937, Fire Pre-Plan "A" and "B" Battery Room, Rev. 1

Section 1R11: Licensed Operator RequalificationProcedures

AD-TQ-ALL-1000, Conduct of Training, Revision 9
 AD-TQ-ALL-0420, Conduct of Simulator Training and Evaluation, Revision 0
 OMM-001, RNP Conduct of Operations, Revision 68
 TPP-200, Licensed Operator Continuing Training Program, Revision 26
 TPP-206, Simulator Program, Revision 22
 TAP-411, Simulator Setup, Revision 40
 TAP-416, Simulator Maintenance, Testing and Operation, Revision 4

Scenarion Packages

LOCT DSS-044, 2016 Exam 05, Revision 0 / 1

Action Requests

02031221

Section 1R12: Maintenance EffectivenessAction Requests

2020446 2016522 2016542

Procedures

OP-602, Dedicated Shutdown System, Rev. 73

Section 1R13: Maintenance Risk Assessments and Emergent Work EvaluationProcedures

AD-WC-ALL-0200, On-Line Work Management, Revision 5
 16W24-02 RNP Risk Profile, Rev.1
 OMM-48, Work Coordination and Risk Assessment, Rev. 62

Action Requests

02037860 02037894 02028173

Other documents

EC 403608, DSDG Soak Back Pump Troubleshooting, Rev. 0

Section 1R15: Operability EvaluationsProcedures

OPS-NGGC-1000, Fleet Conduct of Operations, Rev. 3
 AD-EG-ALL-1311, Failure Investigation Process(FIP), Rev. 0
 OST-201-2, MDAFW System Component Test-Train B, Rev. 32
 AD-OP-ALL-0105, Operability Determinations and Functionality Assessments, Rev. 2

Section 1R19: Post Maintenance TestingOther documents

RNP-M/MECH-1802, Safety Related Pump Minimum Performance Requirements, Rev. 4

Action Requests

02025056

Section 1EP2: Alert and Notification System Evaluation

Procedures and Reports

PLP-007, Robinson Emergency Plan, Rev. 85
 Safer Acoustic Study Addendum 376-00-032312-01, Rev. 3
 EPPRO-02, Maintenance and Testing, Rev. 45
 EPPRO-07, Operation and Maintenance of the Alert and Notification System, Rev. 11
 AD-EP-ALL-0406, Duke Emergency Management Network, Rev. 1

Records and Data

Annual siren maintenance records for 2015
 2016 Robinson Nuclear Plant Emergency Preparedness Calendar mailer to members of the public in the 10-mile EPZ

Corrective Action Documents

AR 694521, Sirens C-13 and C-18 Weather-head needs replaced
 AR 694707, 2014 NRC EP Inspection – Incorrect description listed in COE
 AR 697041, Siren D-07 driver #3 failure
 AR 710644, Siren C-16 driver # 7 failure
 AR 718103, Siren C-03 driver # 9 failure, Siren D-10 driver # 3 failure, Siren D-11 driver #7 failure, and Siren D-20 driver # 8 failure
 AR 757758, Siren D-11 partial activation
 AR 759054, Concerned citizen contact NRC about siren test
 AR 795995, Darlington County siren MODBUS error
 AR 759996, EP member tested sirens during NRC graded exercise
 AR 1965806, Partial activations of sirens D-11 and L-5
 AR 1975403, Siren D-21 partial activation
 AR 1977859, Siren C-05 partial activation
 AR 1978340, Partial activation of sirens trend
 AR 1994328, Siren C-16 Partial Activation
 AR 2011853, MOSCAD Failure
 AR 2039346, ANS post-maintenance test deficiencies
 AR 2039684, 2016 NRC EP Inspection – Annual preventive maintenance deficiencies not documented as corrected or in CAP for trending

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

Procedures

PLP-007, Robinson Emergency Plan, Rev. 85
 PLP-007, Robinson Emergency Plan, Rev. 86
 AD-PI-ALL-0100, Corrective Action Program, Rev. 5
 AD-EP-ALL-0501, Emergency Preparedness Staff Training and Qualifications, Rev. 0
 AD-EP-ALL-0830, Augmentation Drill, Memo and Objectives Evaluation Worksheet, Rev. 0
 EMG-NGGC-1000, Fleet Conduct of Emergency Preparedness, Nuclear Generation Group Standard Procedure, Volume 99, Rev. 8
 EPPRO-01, Program and Responsibilities, Rev. 30
 EPPRO-03, Training and Qualification, Rev. 32
 OMM-001-2, Shift Routines and Operation Practices, Rev. 99

Records and Data

Selected Qualification Records for Key Position ERO Personnel
2014 and 2015 ERO Augmentation Testing Results

NEI 10-05, On-Shift Staffing Analysis for H.B. Robinson Nuclear Plant, Rev. 1 dated 5/15
Robinson Nuclear Plant ERO Augmentation Drill Critique Reports, dated 10/11/14, 10/15/14,
10/29/14, and 12/7/15

Corrective Action Documents

AR 00691469, ENF Recommending KI Exceeded Time Requirement in 5/21 Drill
AR 00694658, 2014 NRC EP Inspection – Memo for Dual ERO Positions
AR 00741376, Chem. Techs in 4/1 Drill not qualified for PASS
AR 00744007, Lack of Timeliness and Follow through on ERO Drill Critique
AR 00759459, 7/16/15 Drill, 2 positions not filled
AR 00759964, Dose Assessment did not Reflect Correct Release Pathway
AR 00759987, NRC DEP KPI PAR Failure during 7/21/15 RNP Graded Exercise
AR 00759996, EP Member Tested Sirens during NRC Exercise
AR 1951588, RNP ERO Technical Analysis Director below minimum staffing
AR 01953990, Training Human Performance KPI "Red" for August
AR 01982043, EP Muster Drill Response
AR 01988866, NTM not created to track ERO Qualification
AR 01994564, Everbridge Notification System
AR 02004471, WEBEOC limitation causes EP response issues
AR 02004732, ERO Drill - Delay in Press Release Issuance from the JIC
AR 02024170, NOS ID: ERO Drill Participation Data Discrepancy

Section 1EP4: Emergency Action Level and Emergency Plan ChangesProcedures

PLP-007, Robinson Emergency Plan, Rev. 85
PLP-007, Robinson Emergency Plan, Rev. 86
EMG-NGGC-1000, Fleet Conduct of Emergency Preparedness, Rev. 7
AD-EP-ALL-0602, Emergency Plan Change Screening & Effectiveness Evaluations 10 CFR
50.54(q), Rev, 1

Change Packages

10 CFR 50.54(q) Screening Evaluation Form for EPCLA-04, Emergency Action Level Technical
Bases Document, Rev. 13, dated 9/3/15
10 CFR 50.54(q) Effectiveness Evaluation Form for EPCLA-04, Emergency Action Level
Technical Bases Document, Rev. 13, dated 9/3/15
10 CFR 50.54(q) Screening Evaluation Form for EPCLA-04, Emergency Action Level Technical
Bases Document, Rev. 14, dated 12/10/15
10 CFR 50.54(q) Effectiveness Evaluation Form for EPCLA-04, Emergency Action Level
Technical Bases Document, Rev. 14, dated 12/10/15
10 CFR 50.54(q) Screening Evaluation Form for EPTSC-00, Activation and Operation of the
Technical Support Center, Rev. 17, dated 10/27/14
10 CFR 50.54(q) Effectiveness Evaluation Form for EPTSC-00, Activation and Operation of the
Technical Support Center, Rev. 17, dated 11/1/14
10 CFR 50.54(q) Screening Evaluation Form for PLP-007, Robinson Emergency Plan, Rev. 85,
dated 9/3/15
10 CFR 50.54(q) Effectiveness Evaluation Form for PLP-007, Robinson Emergency Plan,
Rev. 85, dated 9/3/15

- 10 CFR 50.54(q) Screening Evaluation Form for PLP-007, Robinson Emergency Plan, Rev. 86, dated 6/21/16
- 10 CFR 50.54(q) Effectiveness Evaluation Form for PLP-007, Robinson Emergency Plan, Rev. 86, dated 6/21/16
- 10 CFR 50.54(q) Screening Evaluation Form for EPCLA-01, Emergency Control, Rev. 43, dated 9/17/15
- 10 CFR 50.54(q) Effectiveness Evaluation Form for EPCLA-01, Emergency Control, Rev. 43, dated 9/17/15
- 10 CFR 50.54(q) Screening Evaluation Form for EPEOF-00, Activation of the Emergency Operations Facility, Rev. 20, dated 12/18/13
- 10 CFR 50.54(q) Effectiveness Evaluation Form for EPEOF-00, Activation of the Emergency Operations Facility, Rev. 20, dated 12/18/13
- 10 CFR 50.54(q) Screening Evaluation Form for EPEOF-00, Activation of the Emergency Operations Facility, Rev. 21, dated 9/11/15
- 10 CFR 50.54(q) Effectiveness Evaluation Form for EPEOF-00, Activation of the Emergency Operations Facility, Rev. 21, dated 9/11/15
- 10 CFR 50.54(q) Screening Evaluation Form for Emergency Response Offsite Dose Assessment, Rev 0, dated 11/03/14
- 10 CFR 50.54(q) Effectiveness Evaluation Form for Emergency Response Offsite Dose Assessment, Rev 0, dated 11/03/14
- 10 CFR 50.54(q) Screening Evaluation Form for Emergency Response Offsite Dose Assessment, Rev 1, dated 1/12/16
- 10 CFR 50.54(q) Effectiveness Evaluation Form for Emergency Response Offsite Dose Assessment, Rev 1, dated 1/12/16

Corrective Action Documents

- AR 729297, NEI 99-01 EAL Conversion Project
- AR 733421, EAL Classification
- AR 1957216, Initial classification during E-Plan drill inconsistent with scenario guide
- AR 2040062, 2016 NRC EP inspection identified 50.54(q) discrepancy

Section 1EP5: Maintenance of Emergency Preparedness

Procedures

- PLP-007, Robinson Emergency Plan, Rev. 86
- AD-EP-ALL-0502, EP 10 CFR 50.54(q) Training Requirements, Rev. 1
- AD-PI-ALL-0100, Corrective Action Program, Rev. 5
- EMG-NGGC-1000, Fleet Conduct of Emergency Preparedness, Rev. 8
- EPCLA-01, Emergency Control, Rev. 43
- EPCLA-04, Emergency Action Level Technical Bases Document, Rev. 14
- EPEOF-00, Activation & Operation of the Emergency Operations Facility, Rev. 21
- EPNOT-01, CR/EOF Emergency Communicator, Rev. 47
- EPOSC-00, Activation & Operation of the Operations Support Center, Rev. 26
- EPPRO-02, Maintenance & Testing, Rev. 45
- EPRERF-00, Setup of the Remote Emergency Response Facility, Rev. 9
- EPTSC-00, Activation & Operation of the Technical Support Center, Rev. 17
- MST-904, Seismic Recorder Operation, Rev. 28

Records and Data

2015 Population Update Analysis performed November 9, 2015
 Calibration Report (RD-62) Post-Accident Monitoring System (PAMS) High- & Mid-Range Gas Detectors, dated 10/86
 ERO Integrated Drill Reports for July 9, 2014, through April 6, 2016 (12 total)
 Focused Self-Assessment Report, dated 4/29/15
 Quick Hitter Self-Assessment Report, dated 3/21/16
 Quick Hitter Self-Assessment Report, dated 6/119/16
 NOS Report 2015-RNP-EP-01, Robinson Emergency Preparedness Audit, dated 10/29/15
 NOS Report 2016-RNP-EP-01, Robinson Emergency Planning Audit, dated 5/5/16
 RST-001, Radiation Monitor Source Checks, Rev. 82, dated 5/16/16
 RST-009, Calibration of Radiation Monitor System, Monitors R-9, R-30, R-31A, B, C, & R-33, Rev. 38, dated 6/13/16
 MST-904, Seismic Recorder Operation component verification, 2/25/16

Corrective Action Documents

AR 0697161, Clarify definition of release “is occurring” vs “has occurred”
 AR 0697272, OSC ran out of SCBA cylinders during an EP drill
 AR 0711429, 2 drill Objectives not met
 AR 0715944, Technical support for Chemistry in OSC
 AR 0715966, Drill participant & evaluator scheduling
 AR 0741376, Chemistry Technicians in April 1 drill not qualified for PASS
 AR 0759950, Tracking of Operations from the OSC
 AR 0759961, Slow to announce GE during drill
 AR 0759964, Dose assessment did not reflect correct release pathway
 AR 0760349, Near miss on exercise evaluator prompting
 AR 1957216, Initial EAL was not made as expected by the scenario guide
 AR 1972103, Radiological release guidance in EPNOT-01
 AR 2004466, Environmental monitoring kit rad meter battery fail during 2/24/16 drill
 AR 2039898, 2016 NRC EP inspection identified minor issues during facility walk-downs
 AR 2040063, 2016 NRC EP inspection identified AR/PRR closeout discrepancy

Section 1EP6: Drill EvaluationOther Documents

Integrated Drill Critique Report May 25, 2016
 Integrated Drill Critique Report April 6, 2016
 Integrated Drill 04-06-2016 Scenario Manual
 Integrated Drill 16-05 Scenario Manual

Action Requests

02018138 0218245 0218633 0218634

Section 40A1: Performance Indicator (PI) VerificationProcedures and Guidance Documents

AD-LS-ALL-0004, NRC Performance Indicators and Monthly Operating Report, Rev. 1
 AD-BO-ALL-0002, Performance Measures Program, Rev. 3
 AD-EP-ALL-0001, Emergency Preparedness Key Performance Indicators, Rev. 1
 AD-EP-0002, NRC Regulatory Assessment Performance Indicator Guideline EP Cornerstone, Rev. 1

Records and Data

Documentation of Performance Indicator data April 1, 2015, to March 31, 2016, for DEP, ANS, and ERO

Corrective Action Documents

AR 697041, Partial activation of siren L-04 during weekly test
 AR 728325, Siren C-03 partial activation after a growl test
 AR 730754, Siren C-03 partial activation after a growl test
 AR 1964083, Partial activation of siren C-15 during quarterly test
 AR 0759987, NRC DEP KPI PAR failure during 7/21/15 RNP graded exercise
 AR 1972027, DEP failure during EP drill
 AR 2018037, NRC DEP error

Section 40A2: Problem Identification and ResolutionAction Requests

2024566	2035503	2030923	2030922	2030923	682160
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Other Documents

RNP M&TE OOT Rate Assessment

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

2020406	2020495
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Other Documents

DWG G-190197, Feedwater Condensate and Air Evacuation System Flow Diagram, Rev. 72
 EN 51864, MSLB Unanalyzed Condition

Section 40A5: Other ActivitiesAction Requests

02005798, ISFS- 102 R000
 02027914, 10 CFR 72.48 Screen
 02036669, 10 CFR 72.48 Screen
 02032951, ISFS-015 Sup

Other Documents

EC 296437, Installation of Phase III HSMs on the 24P ISFSI Pad
 ISFS-011 Rev SUP, 24P-ISFSI Transfer Cask and Dry Shielded Canister Prepration for Loading, Superseded by ISFS-102, ISFS DSC Loading and Storage
 ISFS-015 Rev SUP, 24P-ISFS Transfer Cask and Dry Shielded Canister to HSM, Superseded by ISFS-102 DSC Loading and Storage
 ISFS-102, ISFS DSC Loading and Storage, Rev 0
 RST-030, Surveillance of the 24P Independent Spent Fuel Storage Installation, Dates performed Rev8 06/06/16, 03/07/16, 12/07/15, 09/05/15, Rev 7 03/09/15,
 CoC 1004 amendment 13
 TE-NF-NGO-0601, Selection of Fuel for Storage in the NUHOMS® Dry Fuel Storage System, Revision 0