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

January 28, 2015

Mr. Richard Michael Glover
Site Vice President
H. B. Robinson Steam Electric Plant
Duke Energy
3581 West Entrance Road
Hartsville, South Carolina 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT 05000261/2014005

Dear Mr. Glover:

On December 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your H. B. Robinson Steam Electric Plant, Unit 2. On January 15, 2015, the NRC inspectors discussed the results of this inspection with members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented one NRC identified finding of very low safety significance (Green). This finding involved a violation of NRC requirements. 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 violation or significance of the NCV, 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.

In addition, if you disagree with the cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at H.B. Robinson.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390 of the NRC's "Rules of Practice", a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publically Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website 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 05000261/2014005
w/Attachment: Supplemental Information

cc Distribution via ListServ

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Letter to Richard M. Glover from George T. Hopper dated January 28, 2015.

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT 05000261/2014005

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REGION II

Docket No:	50-261
License No:	DPR-23
Report No:	005000261/2014005
Facility:	H. B. Robinson Steam Electric Plant, Unit 2
Location:	3581 West Entrance Road Hartsville, SC 29550
Dates:	October 1, 2014 through December 31, 2014
Inspectors:	K. Ellis, Senior Resident Inspector C. Scott, Resident Inspector M. Riches, Resident Inspector (Acting) J. Dodson, Senior Project Engineer, 1R01, 40A2
Approved by:	George T. Hopper, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000261/2014005, October 1, 2014 through December 31, 2014; Duke Energy Progress, Inc., H.B. Robinson Steam Electric Plant, Unit 2, Adverse Weather Protection.

The report covered a 3-month period of inspection by resident inspectors. There was one NRC-identified violation 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 June 2, 2011. 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 January 28, 2013. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green non-cited violation (NCV) of Technical Specification (TS) 5.4.1, for failure to establish procedural guidance to protect diesel driven equipment important to safety from the effects of extreme cold temperatures. Specifically, the licensee's cold weather procedures failed to include actions to maintain fuel oil temperatures above the diesel fuel oil cloud point for the dedicated shutdown diesel generator (DSDG) and/or the engine driven fire pump (EDFP). The licensee entered this into the corrective action program (CAP) as AR 715032 and took immediate corrective actions to revise station procedures to protect the diesel driven equipment during periods of extreme low temperatures.

  The failure to establish procedural guidance to protect diesel-driven equipment important to safety from the effects of extreme cold temperatures was a performance deficiency. This issue was more than minor because if left uncorrected this finding would have the potential to lead to a more significant safety concern. Specifically, failure to maintain the fuel oil temperatures for the DSDG and/or the EDFP greater than the measured cloud point, may impact the operation of the equipment during extreme low temperature conditions, due to the associated fuel oil transfer system becoming non-functional. A detailed risk assessment was performed by a regional Senior Reactor Analyst in accordance with NRC IMC 0609 Appendices A and F. The latest NRC Robinson SPAR risk model was used to quantify the internal events risk and a calculation was performed to estimate the fire risk. The major analysis assumptions included: both the EDFP and the DSDG were simultaneously considered unavailable without recovery for a 1-day exposure interval, DSDG fire scenarios were considered for the emergency switchgear room (ESWGR), the cable spreading room, and the main control room, where fire could cause a loss of offsite power and the emergency diesel generators (EDGs), compartment total ignition frequency data from the Robinson NFPA 805 project was used and a bounding Conditional Core Damage Probability for the fire scenarios of 1.0. The dominant sequence was a fire in the ESWGR which remained unsuppressed long enough to cause a loss of offsite power and the EDGs requiring use of alternate shutdown which failed due to the performance deficiency impact on the DSDG resulting in station blackout, and core damage due to an unmitigated reactor coolant pump seal loss of cooling accident. The risk was mitigated by the low likelihood of

the initiators occurring during the specific cold weather vulnerability periods. The risk due to the performance deficiency was determined to be an increase in core damage frequency of <1E-6/year, a GREEN finding of very low safety significance. The performance deficiency had a cross-cutting aspect of Evaluation in the area of Problem Identification and Resolution because the licensee failed to thoroughly evaluate the effects of cold weather on the fuel system for diesel driven equipment to ensure that resolutions address the extent of conditions commensurate with their safety significance (P.2).(Section 1R01)

REPORT DETAILS

Summary of Plant Status

The unit began the inspection period at 100 percent power. On October 29, 2014, power was reduced to 84 percent following a heater drain pump trip. The unit returned to 100 percent power on October 30, 2014. On October 31, 2014, power was reduced to 50 percent to perform turbine valve testing. The unit returned to 100 percent power on November 1, 2014, and remained there through the end 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 Readiness to Cope with External Flooding

The inspectors evaluated the licensee's implementation of flood protection procedures and compensatory measures during impending conditions of flooding or heavy rains. The inspectors reviewed the updated final safety analysis report and related flood analysis documents to identify those areas containing safety related equipment that could be affected by external flooding and their design flood levels. The inspectors walked down flood protection barriers, reviewed procedures for coping with external flooding, and reviewed corrective actions for past flooding events. The inspectors verified that the procedures for coping with flooding could reasonably be used to achieve the desired results. For those areas where operator actions are credited, the inspectors assessed whether the flooding event could limit or preclude the required actions. Documents reviewed are listed in the Attachment.

- The inspectors conducted a walkdown of the site boundary to assess the adequacy of the flood protection measures relied upon to mitigate the effects of external flooding.

.2 Seasonal Extreme Weather Conditions

The inspectors conducted a detailed review of the station's adverse weather procedures written for extreme low 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 and during seasonal extreme weather conditions. Documents reviewed are listed in the Attachment. The inspectors evaluated the following risk-significant systems:

- Engine Driven Fire Pump
- Dedicated Shutdown Diesel Generator

b. Findings

Introduction: The inspectors identified a Green non-cited violation (NCV) of Technical Specification (TS) 5.4.1, for failure to establish procedural guidance to protect diesel driven equipment important to safety from the effects of extreme cold temperatures. Specifically, the licensee's cold weather procedures failed to include actions to maintain fuel oil temperatures above the diesel fuel oil cloud point for the dedicated shutdown diesel generator (DSDG) and/or the engine driven fire pump (EDFP).

Description: Licensee procedure OP-925, "Cold Weather Operations," provided instructions for periodic compensatory measures to be taken during cold weather to ensure that important plant equipment is protected from the effects of extreme low temperatures. Procedure OP-925 failed to provide compensatory measures to protect the fuel oil storage tanks, transfer pumps and portions of the fuel lines of the DSDG and EDFP which are located above ground and outside. The cloud point for the associated fuel in these systems is approximately 10 degrees Fahrenheit. Since temperatures on site can be experienced far below the cloud point temperature the licensee determined that compensatory measures were required to ensure the functionality of the DSDG and EDFP during cold weather and initiated EC 97151 to protect the fuel lines. The licensee entered this issue in the CAP as AR 715032.

IR 05000261/2014002 documented an NRC-identified NCV after the licensee failed to ensure that the diesel fuel oil (DFO) temperature remained above the cloud point. Similarly, the diesel fuel oil (DFO) storage tank, transfer pumps, and portions of the fuel lines to the EDGs were located above ground and outside and it was determined that the operation of the transfer pumps could be adversely affected during periods of cold weather which required the system to be protected. In response to this issue, the licensee failed to thoroughly evaluate the effects of cold weather on the fuel system for all diesel driven equipment, including the EDFP and DSDG, to ensure that the resolution addressed the extent of conditions commensurate with their safety significance.

Analysis: The failure to establish procedural guidance to protect diesel-driven equipment important to safety from the effects of extreme cold temperatures was a performance deficiency. This issue was more than minor because if left uncorrected this finding would have the potential to lead to a more significant safety concern. Specifically, failure to maintain the fuel oil temperatures for the DSDG and/or the EDFP greater than the measured cloud point, may impact the operation of the equipment during extreme low temperature conditions, due to the associated fuel oil transfer system becoming non-functional.

The EDFP and the DSDG each performed multiple safety functions all of which impacted the Mitigating Systems Cornerstone. The fire suppression function of the EDFP screened to GREEN per NRC IMC 0609 Appendix F phase 1 because the motor driven fire pump was available during the periods where temperature was less than the fuel oil cloud point. The remaining functions which consisted of: the external events fire safe shutdown (SSD) function for the DSDG and the internal events functions; SBO mitigation for the DSDG, charging pump backup cooling and auxiliary feedwater pump backup suction supply for the EDFP, were evaluated with a detailed risk assessment as the

performance deficiency did not represent low degradation per NRC IMC 0609 Appendix F attachment 2 as it impacted a component required for SSD and affected the ability to reach and maintain stable conditions within 24 hours of a potential fire event. A detailed risk assessment was performed by a regional Senior Reactor Analyst in accordance with NRC IMC 0609 Appendices A and F. The latest NRC Robinson SPAR risk model was used to quantify the internal events risk and a calculation was performed to estimate the fire risk. The major analysis assumptions included: both the EDFP and the DSDG were simultaneously considered unavailable without recovery for a 1 day exposure interval, DSDG fire scenarios were considered for the emergency switchgear room (ESWGR), the cable spreading room, and the main control room, where fire could cause a loss of offsite power and the emergency diesel generators (EDGs), compartment total ignition frequency data from the Robinson NFPA 805 project was used and a bounding Conditional Core Damage Probability for the fire scenarios of 1.0. The dominant sequence was a fire in the ESWGR which remained unsuppressed long enough to cause a loss of offsite power and the EDGs requiring use of alternate shutdown which failed due to the performance deficiency impact on the DSDG resulting in station blackout, and core damage due to an unmitigated reactor coolant pump seal loss of cooling accident. The risk was mitigated by the low likelihood of the initiators occurring during the specific cold weather vulnerability periods. The risk due to the performance deficiency was determined to be an increase in core damage frequency of <1E-6/year, a GREEN finding of very low safety significance.

The performance deficiency had a cross-cutting aspect of Evaluation in the area of Problem Identification and Resolution because the licensee failed to thoroughly evaluate the effects of cold weather on the fuel system for diesel driven equipment to ensure that resolutions address the extent of conditions commensurate with their safety significance (P.2).

Enforcement: TS 5.4.1.a requires, in part, that written procedures be established, implemented, and maintained covering the activities specified in Appendix A, “Typical Procedures for Pressurized Water Reactors and Boiling Water Reactors,” of Regulatory Guide (RG) 1.33, “Quality Assurance Program Requirements (Operations),” Revision 2, dated February 1978. RG 1.33, Appendix A, Section 6, “Procedures for Combating Emergencies and Other Significant Events,” required procedures for acts of nature, including extreme low temperatures. The licensee relies upon OP-925, “Cold Weather Operation,” to protect plant equipment from extreme low temperatures.

Contrary to the above, prior to December 31, 2014, the licensee failed to establish a written procedure containing guidance to ensure that diesel driven equipment was protected against the effects of extreme low temperatures. Specifically, station procedures failed to include compensatory actions to keep fuel oil temperatures for the DSDG and/or the EDFP above the diesel fuel oil cloud point. The licensee took immediate corrective actions to revise station procedures to protect the diesel driven equipment during periods of extreme low temperatures. Because this violation was of very low safety significance (Green) and was entered into the corrective action program as AR 715032, this violation is being treated as an NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy. (NCV 05000261/2014005-01 Failure to Protect Diesel Driven Equipment from Effects of Extreme Cold Temperatures)

1R04 Equipment Alignment (71111.04 – 3 samples)

a. Inspection Scope

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 three systems or trains to inspect:

- Steam-driven Auxiliary Feedwater (AFW) Pump with the 'C' AFW Pump Out of Service
- Component Cooling Water (CCW) Pump A and B while 'C' CCW Pump Out of Service
- EDFP after extended maintenance outage

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – 4 samples)

a. Inspection Scope

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

- Component Cooling Pump Room, fire zone 5
- Emergency Switchgear (E-1/E-2) Room, fire zone 20
- 'A' Emergency Diesel Generator Room, fire zone 2
- Charging Pump Room, fire zone 4

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

a. Inspection Scope

.1 Internal Flooding

The inspectors reviewed related flood analysis documents and walked down the area listed below containing risk-significant structures, systems, and components susceptible to flooding. The inspectors verified that plant design features and plant procedures for flood mitigation were consistent with design requirements and internal flooding analysis assumptions. The inspectors also assessed the condition of flood protection barriers and drain systems. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the corrective action program. Documents reviewed are listed in the Attachment.

- Emergency Switchgear (E-1/E-2) Room

b. Findings

No findings were identified.

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

a. Inspection Scope

.1 Resident Inspector Quarterly Review of Licensed Operator Requalification

The inspectors observed an evaluated simulator scenario administered to an operating crew conducted in accordance with the licensee's accredited requalification training program. The scenario evaluated the operators' ability to respond to a tube leak on the 'C' steam generator, turbine trip due to a sudden break in the electric hydraulic control system and a faulted steam generator followed by a tube rupture.

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

The inspectors observed licensed operator performance in the main control room during an emergent reduction in power to 84 percent following a heater drain pump trip. The inspectors also observed licensed operator performance in the main control room during a planned reduction in power to 50 percent for turbine valve testing.

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 two 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.

- LT-108A Boric Acid Storage Tank (BAST) failed to 94 percent with corresponding level alarm
- 'C' AFW Diesel Generator Tripped on Pump Start

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 3 samples)

a. Inspection Scope

The inspectors reviewed the three 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.

- 10/27-11/02, 'B' Train Work Week – Engine Driven Fire Pump OOS, Switchyard maintenance 'C' AFW Pumps OOS
- 10/03/14, Critical Activity Plan – 14W40-44 Dry Cask Fuel Transfer/Storage
- Complex Activity Plan challenges associated with the EDFP Extended Outage

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 2 samples)

a. Inspection Scope

The inspectors selected the two 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 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 technical specification 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.

- Part 21 Report Defect in C&D Technologies Inc LCR-25 Standby Batteries, AR715731

- Revision to OST-020, Shiftly Surveillances, Resulted in Missed Surveillance of R-11, Containment and Plant Vent Air Particulate Monitor, AR 723261

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 1 sample)

a. Inspection Scope

The inspectors verified that the plant modification 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. The inspectors also verified modifications performed during plant configurations involving increased risk 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.

- EC 97151, Reconciliation of the EDG Fuel Oil Cloud Point with Current Licensing Basis, Rev. 0

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 3 samples)

a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the three 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 # 2288491, Replace Diesel Driven Fire Pump Engine for EC 91633, November 27, 2014
- WO #13423763, Dedicated Shutdown Diesel – Replace Motor-operated Potentiometer
- WO#13379554, Containment Spray Pump A – Disassemble, Inspect, Repair and Reassemble

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 – 4 samples)

a. Inspection Scope

The inspectors reviewed the four surveillance tests listed below and either observed the test or reviewed test results to verify testing adequately demonstrated equipment operability and met technical specification 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

- EST-003, Incore/Excore Detector Calibration (Quarterly Interval), Rev. 15
- MST-014, Steam Generator Pressure Protection Channel Testing, Rev. 38
- OST-201-1, MDAFW System Component Test – Train A, Rev. 36

In-Service Tests (IST)

- OST-101-3, Chemical Volume Control System (CVCS) Component Test Charging Pump ‘C’, Rev. 50

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 – 1 sample)

a. Inspection Scope

The inspectors observed the emergency preparedness drill conducted on October 1, 2014. The inspectors observed licensee activities in the simulator, technical support center and the emergency operations facility 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 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.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 1 sample)

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 October 2013 and September 2014 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.

Cornerstone: Mitigating Systems

- high pressure injection system

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 2 samples)

.1 Routine Review

The inspectors screened items entered into the licensee's corrective action program in order 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 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 July 2014 through December 2014, 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.

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of condition report AR 645333, Requirements of OP-925 for Construction of Equipment Enclosures and Verification of Acceptable Freeze Protection System Performance.

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 condition reports
- completion of corrective actions in a timely manner

Documents reviewed are listed in the Attachment.

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 monitored the activities associated with the dry fuel storage campaign completed on October 10, 2014, including fuel loading into a dry shielded canister (DSC) and transfer of the DSC from the spent fuel pool to the cask preparation area, as well as transportation of the DSC to the horizontal storage module. The inspectors reviewed changes made to the onsite 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 observed the loading activities to verify that the licensee recorded and maintained the location of each fuel assembly placed in the ISFSI. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2 Temporary Instruction 2515/190 – Inspection of the Proposed Interim Actions Associated with Near-Term Task Force Recommendation 2.1 Flooding Hazard Evaluations

The inspectors independently verified that the licensee's proposed interim actions would perform their intended function for flooding mitigation. Specifically the inspectors performed the following items:

- Visual inspection of the flood protection features if the flood protection feature was relevant. External visual inspection for indications of degradation that would prevent its credited function from being performed.
- Reasonable simulation
- Flood protection feature functionality assessment using either visual observation or by review of other documents.

The inspectors verified that issues identified were entered into the licensee's corrective action program.

4OA6 Meetings, Including Exit

On January 15, 2015, the resident inspectors presented the inspection results to Mr. Glover and other members of the licensee's staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection period.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

T. Cosgrove, Plant General Manager
S. Connelly, Licensing
H. Curry, Training Manager
M. Glover, Vice President
R. Hightower, Licensing/Reg. Programs Supervisor
D. Hoffman, Nuclear Oversight Manager
K. Holbrook, Operations Manager
J. Kammer, Engineering Director
M. Pastva, Jr., Nuclear Regulatory Affairs
T. Pilo, Emergency Preparedness Supervisor
C. Sherman, Radiation Protection Superintendent
K. Moser, Outage & Scheduling Manager

NRC personnel

G. Hopper, Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened & Closed

05000261/2014005-01	NCV	Failure to Protect Diesel Driven Equipment from Effects of Extreme Cold Temperatures (Section 1R01)

Attachment

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

OP-925, Cold Weather Operation, Revision 60
AP-058, Seasonal Readiness, Revision 0
PM-059, Freeze Protection for Safety Related or Fire Protection Circuits, Revision 6
PM-060, Freeze Protection for Non-Safety Related Circuits, Revision 7

Work Orders

02297508-01, October Freeze Protection Check, PM-059
02297508-01, October Freeze Protection Check, PM-060

Action Requests

645333
646931
652737
654173
716458
719086

Other documents

PMR 650851
System Health Report (7/1/2014 – 9/30/2014), System 5265/5266, Heat Tracing / Freeze Protection

Section 1R04: Equipment Alignment

Procedures

OP-402, Auxiliary Feedwater System, Rev. 89
OP-801, Fire Water System, Rev. 67
OP-306, CCW System, Rev. 73

Section 1R05: Fire Protection

Drawings

HBR2-11937, Fire Pre-Plan Emergency Switchgear (E-1/E-2) Room, Rev. 3
HBR2-11937, Fire Pre-Plan Charging Pump Room, Rev. 2
HBR2-11937, Fire Pre-Plan Component Cooling Pump Room, Rev. 3
HBR2-11937, Fire Pre-Plan 'A' Emergency Diesel Generator Room, Rev. 4

Section 1R06: Flood Protection Measures

Other documents

RNP-F/PSA-0009, Assessment of Internally Initiated Flood Events, Rev. 2
EMDC141R, Robinson Internal Flood Design Basis and Considerations (Presentation)

Section 1R11: Licensed Operator Requalification

Action Requests
715987
716003
716005
716770

Other documents
License Operator Continuing Training, 2014 Exam 11, Revision 0

Section 1R12: Maintenance Effectiveness

Action Requests
715696
711295

Other documents
Maintenance Rule Expert Panel, July 16, 2014, Meeting Minutes
Maintenance Rule System A(1) Action Plan, Auxiliary Feedwater Pump
EC 98702, Installation of Trips Defeat Circuit for the 'C' AFW Diesel Generator, Rev. 2

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Procedures
OMM-048, Work Coordination and Risk Assessment, Rev. 58

Action Requests
709240
711696
715263

Other documents
AD-WC-ALL-0410, Critical Activity Plan – 14W40-44 Dry Cask Fuel Transfer/Storage, Rev. 0
ACE Evaluation Report, Complex Activity Challenge Process for EC91633, Rev. 0

Section 1R15: Operability Evaluations

Procedures
OPS-NGGC-1305, Operability Determinations, Rev. 11

Section 1R18: Plant Modifications

Other documents
EC 96659, Support Basis for Low Ambient Temperatures Stated in UFSAR, Rev. 0
EC 950207, EDG Diesel Fuel Oil Cloud point Evaluation with Respect to Low Ambient Temperature, Rev. 02

Section 1R19: Post Maintenance Testing

Procedures
EST-159, Dedicated Shutdown Diesel Generator Automatic Voltage Regulator (AVR) or Motor Operated Potentiometer (MOP) Set-up and Testing, Revision 6
OST-910, Dedicated Shutdown Diesel Generator (Monthly), Revision 56

OST-352-3, Comprehensive Flow Test for Containment Spray Pump A, Revision 23
OST-655, Engine Driven Fire Pump Controller and Alarms Test, Rev. 20
OST-603-1, Engine Driven Fire Pump Test, Rev. 4

Work Orders
WO #13423763, Dedicated Shutdown Diesel – Replace Motor-operated Potentiometer
WO#13379554, Containment Spray Pump A – Disassemble, Inspect, Repair and Reassemble

Action Requests
00711428, Unable to Perform OST-910 for the DSDG

Section 1R22: Surveillance Testing
Procedures
EST-003, Incore/Excore Detector Calibration (Quarterly Interval), Revision 15
PIC-112, F Delta I Calibration, Revision 13
MMM-056, Documentation of Hagan Rack Potentiometer Settings, Revision 9
MST-014, Steam Generator Pressure Protection Channel Testing, Revision 38

Other documents
WO# 13393259, EST-003, Incore/Excore Detector

Section 1EP6 Drill Evaluation
Procedures
EPTSC-00, Activation and Operation of the Technical Support Center, Revision 16
EPEOF-00, Activation and Operation of the Emergency Operations Facility, Revision 20

Other documents
10/01/2014 Emergency Response Drill Scenario
Robinson Nuclear Plant Emergency Action Level Matrix, Revision 4
Emergency Response Organization Integrated Drill Report, October 1, 2014

Action Requests
711377, Automatic Computer Update Shutting Down TSC Computer
711388, Evaluate TSC Communications Improvements
711429, Two Drill Objectives not Met
712015, Gaps in Habitability Controls During EP Drill
715966, Drill Participant and Evaluator Scheduling

Section 4OA2: Identification and Resolution of Problems
Procedures
OP-925, Cold Weather Operation, Revision 60
AP-058, Seasonal Readiness, Revision 0
PM-059, Freeze Protection for Safety Related or Fire Protection Circuits, Revision 6
PM-060, Freeze Protection for Non-Safety Related Circuits, Revision 7

Work Orders
02297508-01, October Freeze Protection Check, PM-059
02297508-01, October Freeze Protection Check, PM-060

Other documents
PMR 650851
Clearance Order Report 10/20/2014
System Health Report (7/1/2014 – 9/30/2014), System 5265/5266, Heat Tracing / Freeze Protection
National Weather Service three day histories for zip code 29550, October 18 – 21, 2014

Action Requests
645333
646931
652737
654173
719772

Section 4OA5: Other Activities

Procedures
ISFI-012, 24P-ISFSI Transfer Cask Handling Operations for Fuel Loading, Revision 14
ISFI-015, 24P-ISFSI Transfer Cask and Dry Transfer to HSM, Revision 17
OP-218, Lake Robinson Spillway Equipment, Rev. 3
OST-013, Weekly Check and Operations, Rev. 118
EOP-ECA-0.0, Loss of All AC Power, Rev. 0
EDMG-010, Emergency Diesel Make-up Pump Setup and Operation, Rev. 6
AP-053, Severe Weather Response, Rev. 1
EDMG-004, Steam Generators, Rev. 11
APP-11, Waste Disposal Boron Recycle Panel, Rev. 18
EDMG -11, Spent Fuel Pool Casualty, Rev. 14

Other Documents
PLP-130, 24P-ISFSI 10 CFR 72.212 Report, Rev. 04
Dry Fuel Storage Campaign Activity Plan
RNP ISFSI/Dry Fuel Storage Facility Evaluation – ISFS-011, 24P-ISFSI Transfer Cask and Dry Shielded Canister Preparation for Loading, Revision 12
RNP ISFSI/Dry Fuel Storage Facility Evaluation – ISFS-012, 24P-ISFSI Transfer Cask Handling Operations for Fuel Loading, Revision 14
RNP ISFSI/Dry Fuel Storage Facility Evaluation – ISFS-013, 24P-ISFSI Dry Shielded Canister Fuel Loading, Revision 7
RNP ISFSI/Dry Fuel Storage Facility Evaluation – ISFS-014, 24P-ISFSI DSC Sealing Operations, Revision 12
RNP ISFSI/Dry Fuel Storage Facility Evaluation – ISFS-015, 24P-ISFSI Transfer Cask and Dry Transfer to HSM, Revision 17
RNP ISFSI/Dry Fuel Storage Facility Evaluation –ISFS-016, 24P-ISFSI Retrieval of the Loaded Dry Shielded Canister from the HSM, Revision 6
RNP ISFSI/Dry Fuel Storage Facility Evaluation – ISFS-017, 24P-ISFSI DSC Lid Removal, Revision 5

RNP ISFSI/Dry Fuel Storage Facility Evaluation – ISFS-018, 24P-ISFSI Transfer Cask Handling Operations for Fuel Unloading, Revision 6
RNP ISFSI/Dry Fuel Storage Facility Evaluation – ISFS-019, 24P Dry Shielded Canister Fuel Unloading, Revision 4
RNP ISFSI/Dry Fuel Storage Facility Evaluation – ISFS-022, Cask Preparation Area HVAC and HEPA Filter Operation, Revision 5
RNP ISFSI/Dry Fuel Storage Facility Evaluation – IFS-NGGC-0004, DSC Fit-up and Inspection, Rev. 7
RNP ISFSI/Dry Fuel Storage Facility Evaluation – NFP-NGGC-0023, Selection of Fuel for Storage in Independent Spent Fuel Storage Installations, Rev. 5
EC 95162, Interim Measures to mitigate flooding on plant site, Rev. 1
EC 95216, Implementation of Boron Injection Strategy, Rev. 3
EC 95217, Protection for 'C' AFW train during a beyond design basis LIP event, Rev. 2
RNP-RA/14-0012, Enclosure 2, Flooding Interim Actions for HB Robinson

Action Requests
711632, DSC Spacer Installation in Transfer Cask
711443, Dry Fuel Storage Transfer Trailer Level Issues
713884, Aquadam Level Low
723734, Water in 'C' AFW Diesel Generator and Pump Control Panel
719467, Blankets for Aquadam not readily available
722328, Aquadam Leaking