



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

October 30, 2013

Mr. William R. Gideon  
Vice President – Robinson Plant  
Carolina Power and Light Company  
H. B. Robinson Steam Electric Plant  
Unit 2  
3581 West Entrance Road  
Hartsville, South Carolina 29550

**SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000261/2013004**

Dear Mr. Gideon,

On September 30, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your H. B. Robinson Steam Electric Plant, Unit 2. On October 17, 2013, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

One NRC identified finding of very low safety significance (Green) was identified during this inspection. The finding was determined to involve a violation of NRC requirements. The NRC is treating this violation as 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, U.S. 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.

W. Gideon

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In accordance with 10 CFR 2.790 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 Publicly 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: Inspection Report 05000261/2013004  
w/Attachment: Supplemental Information

cc Distribution Via ListServ

W. Gideon

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W. Gideon

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Letter to William R. Gideon from George T. Hopper dated October 30, 2013

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000261/2013004

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**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket No: 50-261

License No: DPR-23

Report No: 005000261/2013004

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

Location: 3581 West Entrance Road  
Hartsville, SC 29550

Dates: July 1, 2013 through September 30, 2013

Inspectors: K. Ellis, Senior Resident Inspector  
C. Scott, Resident Inspector  
M. Bates, Senior Operations Engineer (1R11)  
R. Williams, Reactor Inspector (4OA5)

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

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## SUMMARY OF FINDINGS

IR 05000261/2013004, Carolina Power and Light Company; on 07/01/2013-09/30/2013; H.B. Robinson Steam Electric Plant, Unit 2; IR Maintenance Effectiveness.

The report covered a three month period of inspection by resident inspectors and announced inspections by reactor inspectors. One finding of very low safety significance (Green) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP) dated June 02, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross-Cutting Areas" dated October 28, 2011. Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review.

### **Cornerstone: Mitigating Systems**

- Green. The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.65(a)(2) for the licensee's failure to demonstrate that the performance of the "B" Emergency Diesel Generator (EDG) ventilation recirculation damper was effectively controlled through appropriate preventive maintenance (PM) or monitored as specified in 10 CFR 50.65(a)(1), such that the ventilation system remained capable of performing its intended function. The lack of PM on the "B" EDG recirculation damper led to its failure and resulted in the "B" EDG being declared inoperable on May 1, 2013. Following the discovery of this issue, operations declared the "B" EDG inoperable and took immediate corrective actions to close the damper. This issue was entered in the licensee's corrective action program as NCR 60433.

The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform appropriate preventive maintenance on the "B" EDG ventilation recirculation damper resulted in its failure and on May 1, 2013, the "B" EDG was declared inoperable. Failure of the "B" EDG ventilation recirculation damper could allow the EDG room design limit temperature of 130F to be exceeded. Using IMC 0609, Appendix A, issued June 19, 2012, The SDP for Findings At-Power, the inspectors determined that this finding is of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more non-Tech Spec Trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding had a cross-cutting aspect in the Operating Experience component of the Problem Identification and Resolution area, because the licensee failed to incorporate lessons learned from a similar event, which occurred in 2012 at the Clinton Power Station, into the preventive maintenance program. [P.2(b)] (1R12)

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## REPORT DETAILS

### Summary of Plant Status

The unit began the inspection period at approximately 100 percent rated thermal power. The unit was shutdown for a planned refueling outage on September 14, 2012. The unit remained shutdown for the remainder of the inspection period.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R04 Equipment Alignment

##### a. Inspection Scope

##### Partial System Walkdowns:

The inspectors performed the following three partial system walkdowns, while the indicated structures, systems, and/or components (SSCs) were out-of-service for maintenance and testing or following surveillance testing:

- "A" Emergency Diesel Generator while "B" EDG out of service for OST-409-2, Rev. 58
- "B" EDG while the "A" EDG out of service for OST-401-1, Rev. 60
- "A" Residual Heat Removal (RHR) System prior to being placed in shutdown cooling mode

To evaluate the operability of the selected trains or systems under these conditions, the inspectors compared observed positions of valves, switches, and electrical power breakers to the procedures and drawings listed in the Attachment.

The inspectors reviewed the documents listed in the Attachment to verify that the ability of the system to perform its functions could not be affected by outstanding design issues, temporary modifications, operator workarounds, adverse conditions, and other system-related issues tracked by the engineering department.

##### b. Findings

No findings were identified.

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## 1R05 Fire Protection

### Quarterly Resident Inspector Tours

#### a. Inspection Scope

For the four areas identified below, the inspectors reviewed the control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures to verify that those items were consistent with Updated Final Safety Analysis Report (UFSAR) Section 9.5.1, Fire Protection System, and UFSAR Appendix 9.5.A, Fire Hazards Analysis. The inspectors walked down accessible portions of each area and reviewed results from related surveillance tests to verify that conditions in these areas were consistent with descriptions of the areas in the UFSAR. Documents reviewed are listed in the Attachment.

The following areas were inspected:

- “A” Emergency Diesel Generator Room (fire zone 2)
- Spent Fuel Pit (fire zone (28A))
- Containment (fire zone 24)
- RHR Heat Exchanger Room (fire zone 12)

#### b. Findings

No findings were identified.

## 1R06 Flood Protection Measures

### Internal Flooding

#### a. Inspection Scope

The inspectors reviewed the following areas because they contain risk-significant SSCs which are susceptible to flooding from postulated pipe breaks. The inspectors walked down the areas to verify that the physical configuration, features, and equipment functions were consistent with the descriptions and assumptions used in Calculation RNP-F/PSA-0009, Assessment of Internally Initiated Flooding Events, and in the supporting basis documents listed in the Attachment. The inspectors reviewed the operator actions credited in the analysis to verify that the desired results could be achieved using the plant procedures listed in the Attachment.

- Charging Pump Room

#### b. Findings

No findings were identified.



1R11 Licensed Operator Requalification

a. Inspection Scope

Annual Review of Licensee Requalification Examination Results

On March 7, 2013, the licensee completed the comprehensive biennial requalification written examinations and the annual requalification operating examinations required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the written examinations, individual operating examinations and the crew simulator operating examinations in accordance with Inspection Procedure (IP) 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Appendix I, "Operator Requalification Human Performance Significance Determination Process."

Routine Operator Requalification Review

On July 23, 2013, the inspectors observed operators in the plant's simulator during licensed operator requalification training to verify that the operator performance was adequate, evaluators were identifying and documenting crew performance issues and training was being conducted in accordance with station procedures. The inspectors observed a shift crew's response to the scenario listed below. Documents reviewed are listed in the Attachment.

- This training tested the operators' ability to operate components from the control room and direct auxiliary operator actions, while starting a reactor coolant pump for reactor coolant system (RCS) fill and vent, drawing a bubble in the pressurizer and removing the residual heat removal system from service during plant heat up.

Observation of Operator Performance

The inspectors observed main control room crew performance during the Unit 2 reactor shutdown for a planned refueling outage on September 14, 2013. The inspectors reviewed the operator performance and adherence to the operating procedures for reducing power, removing a load from the unit's main turbine, and entering Mode 3. Operator response to main control room annunciators was evaluated during the observation to ensure the operators were referencing appropriate procedures. Communication among the crew was evaluated for conformance to the licensee's standard.

b. Findings

No findings were identified.

1R12 Maintenance Effectivenessa. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing the following two corrective maintenance activities. These reviews included an assessment of the licensee's practices pertaining to the identification, scoping, and handling of degraded equipment conditions, as well as common cause failure evaluations. For each activity selected, the inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, and reviewed the generic implications of the equipment and/or work practice problem. For those SSCs scoped in the Maintenance Rule per 10 CFR 50.65, the inspectors verified that reliability and unavailability were properly monitored and that 10 CFR 50.65(a)(1) and 10 CFR 50.65(a)(2) classifications were justified in light of the reviewed degraded equipment condition.

The problems/conditions and their corresponding ARs were:

- AR 618508, PM-447C, Main Steam Dump Control Output Spiking Led To Spurious Arming of Steam Dump System
- AR 604323, 'B' EDG Room HVS-5 Recirculation- Appears bent, Damper is Open

b. Findings

(Closed) URI 05000261/2013003-01, Failure of "B" EDG Recirculation Damper in the Open Position Results in EDG Inoperability

Introduction: The inspectors identified a Green NCV of 10 CFR 50.65(a)(2) for the licensee's failure to demonstrate that the performance of the "B" Emergency Diesel Generator (EDG) ventilation recirculation damper was effectively controlled through appropriate preventive maintenance (PM) or monitored as specified in 10 CFR 50.65(a)(1), such that the ventilation system remained capable of performing its intended function. The lack of PM on the "B" EDG recirculation damper led to its failure and resulted in the "B" EDG being declared inoperable on May 1, 2013.

Description: During an engineering walkdown on May 1, 2013, the "B" EDG Heating and Ventilation System recirculation damper was found failed in the open position. The recirculation damper linkage was bent and contacting adjacent ductwork such that damper movement was restricted. Following the discovery of this issue, operations declared the "B" EDG inoperable and took immediate corrective actions to close the damper.

The EDG recirculation damper is designed to open when the "B" EDG is in operation and outside ambient temperature is below approximately 55 degrees Fahrenheit. When outside ambient temperature is above 55 degrees Fahrenheit, with the EDG in service, the damper is closed to prevent air circulation back to the "B" EDG room supply fan to ensure the diesel room design limit temperature of 130 degrees Fahrenheit, is not exceeded. When the failure was discovered on May 1, 2013, outside ambient

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temperature was 72 degrees Fahrenheit. Engineering performed a past operability evaluation and determined that, based on the open damper position and a historical review of outside ambient temperatures between the last time the damper was verified to be functional, on April 22, 2013, and May 1, 2013, the "B" EDG room temperature would have remained less than the design limit temperature.

The licensee's apparent cause evaluation determined that the damper lever arm, attached to the driving arm of the air motor by two set screws, rotated and became misaligned. From the original design to the event date, no formal PM existed to maintain the damper, although operating experience (OE) existed from a failure of an EDG ventilation actuator at Clinton Station in March 2012, showed that set screws for damper linkages could loosen over time and result in damper failure. The associated OE was evaluated, however, the licensee failed to generate an adequate PM for the recirculation damper, even though failure of the damper linkages could affect the equipment's function and EDG operability. The inspectors determined that the recirculation dampers are components of the EDG ventilation system which is scoped in the maintenance rule program.

Analysis: The failure to demonstrate that the performance of the "B" EDG ventilation recirculation damper was effectively controlled through appropriate preventive maintenance in accordance with 10 CFR 50.65(a)(2) or monitored as specified in 10 CFR 50.65(a)(1) was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform appropriate preventive maintenance on the "B" EDG ventilation recirculation damper resulted in its failure and on May 1, 2013, the "B" EDG was declared inoperable. Failure of the "B" EDG ventilation recirculation damper could allow the EDG room design limit temperature of 130 degrees Fahrenheit to be exceeded. Using IMC 0609, Appendix A, issued June 19, 2012, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors determined that this finding is of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more non-Tech Spec Trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding had a cross-cutting aspect in the Operating Experience component of the Problem Identification and Resolution area, because the licensee failed to incorporate lessons learned from a similar event, which occurred in 2012 at the Clinton Power Station, into the preventive maintenance program. [P.2(b)]

Enforcement: Title 10 CFR 50.65(a)(1) requires, in part, that holders of an operating license shall monitor the performance or condition of structures, systems, or components within the scope of the monitoring program against licensee established goals in a manner sufficient to provide reasonable assurance that such structures, systems, or components are capable of fulfilling their intended safety functions. Title 10 CFR 50.65(a)(2) states, in part, that monitoring as specified in paragraph (a)(1) is not required where it has been demonstrated that the performance or condition of a structure, system, or component is being effectively controlled through performance of

Enclosure

appropriate preventive maintenance, such that the structure, system, or component remains capable of performing its intended function.

Contrary to the above, from initial operation until May 1, 2013, the licensee failed to demonstrate that the performance of the "B" EDG Ventilation Recirculation damper was being effectively controlled through appropriate preventive maintenance in accordance with 10 CFR 50.65(a)(2) or monitored as specified in 10 CFR 50.65(a)(1) such that the damper remained capable of performing its function. Following the discovery of this issue, operations declared the "B" EDG inoperable and took immediate corrective actions to close the damper. Because this violation was of very low safety significance (Green) and it was entered into the licensee's corrective action program (CAP) as AR 604323, this violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. (NCV 05000261/2013004-01, Lack of Preventive Maintenance Results in "B" EDG Recirculation Damper Failure.)

#### 1R13 Maintenance Risk Assessments and Emergent Work Evaluation

##### a. Inspection Scope

For the five samples listed below, the inspectors reviewed risk assessments and related activities to verify that the licensee performed adequate risk assessments and implemented appropriate risk-management actions when required by 10 CFR 50.65(a)(4). For emergent work, the inspectors also verified that any increase in risk was promptly assessed, and that appropriate risk-management actions were promptly implemented. Documents reviewed are listed in the Attachment. Those periods included the following:

- Dedicated Shutdown Diesel Generator (DSDG) out-of-service for Emergent Work to repair Radiator Fan Motor Mount
- Yellow Risk Condition for Replacement of PC-447, Main Steam Dump Control
- "A" EDG out-of-service for surveillance testing with OST-352-1 Containment Spray Component Test-Train A, Scheduled Switchyard Work and LT-948, Refueling Water Storage Tank Level Transmitter calibrations
- Review of the Unit 2 refueling outage Risk Assessment Report
- Review of the risk assessment for a planned DSDG annual outage in conjunction with "B" EDG surveillance testing

##### b. Findings

No findings were identified.

#### 1R15 Operability Evaluations

##### a. Inspection Scope

The inspectors reviewed the following five operability evaluations or functionality assessments affecting risk significant systems to assess: 1) the technical adequacy of the evaluations; 2) whether continued system operability was warranted; 3) whether

other existing degraded conditions were considered; 4) if compensatory measures were involved, whether the compensatory measures were in place, would work as intended, and were appropriately controlled; and 5) where continued operability was considered unjustified, the impact on Technical Specifications (TS) limiting condition for operations.

- AR 619173, Leak From Discharge Flange of Fire Jockey Pump;
- AR 619208, HVE-7, Auxiliary Building Exhaust Fan was found with broken belt;
- AR 616743, Breaker for SI-869 Loops "B" and "C" Hot Leg Injection Shutoff has dual indication;
- AR 621378, Breaker for Jacket Water Heater Found Tripped on EOF/TSC Diesel; and
- AR 621796, Degraded Bolt Found on "B" Service Water Pump Base.

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following six post-maintenance test procedures and/or test activities to assess if: 1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; 2) testing was adequate for the maintenance performed; 3) acceptance criteria were clear and demonstrated operational readiness consistent with design and licensing basis documents; 4) test instrumentation had current calibrations, range, and accuracy consistent with the application; 5) tests were performed as written with applicable prerequisites satisfied; 6) jumpers installed or leads lifted were properly controlled; 7) test equipment was removed following testing; and 8) equipment was returned to the status required to perform its safety function. Documents reviewed are listed in the Attachment.

- Work Order (WO) #1833268, Regulator Replacement for FCV-1931B Steam Generator (SG) "B" Blowdown Flow Control Valve, PMT in accordance with OST-701-9
- WO #2127214-40, Replace Molded Case Circuit Breaker 52/MCC-5(14J) SI-880A, Containment Spray Pump "A" Discharge, 480VAC, PMT in accordance with OST-352-1, Containment Spray Component Test - Train A
- WO #226877-04, Repair /Replace MCC-6(2D)-42/0 MDAFW Pump Room Recirculation Fan, HVH-7A Starter, PMT in accordance with OP-402, Auxiliary Feedwater System
- WO #2274240, Replace the Service Water Pump "B" For High Vibes, PMT in accordance with OST-302-1, Service Water Pumps A & B In-service Test

- WO #226504, Install New Motor Support Frame for Dedicated Shutdown Diesel Radiator Per EC 92954, PMT in accordance with OST-910 Dedicated Shutdown Diesel Generator (Monthly)
- Tan Delta Testing on the DSDG 4kV power output cable following a cable splice to repair the damaged cable

b. Findings

No findings were identified.

1R20 Refueling and Outage Activities

For the outage that began on September 14, 2013, the inspectors evaluated licensee outage activities as described below to verify that the licensee considered risk in developing outage schedules, adhered to administrative risk reduction methodologies they developed to control plant configuration, and adhered to operating license and technical specification requirements that maintained defense-in-depth. The inspectors also verified that the licensee developed mitigation strategies for losses of key safety functions. Documents reviewed are listed in the Attachment.

.1 Review of Outage Plan

a. Inspection Scope

The inspectors attended the pre-outage schedule and risk assessment meetings for the refueling outage. The inspectors reviewed the outage risk control plan to verify that the licensee had performed adequate risk assessments, and had implemented appropriate risk-management strategies when required by 10 CFR 50.65(a)(4).

b. Findings

No findings were identified.

.2 Monitoring of Shutdown Activities

a. Inspection Scope

The inspectors observed power reduction process, removing the reactor from service and portions of the cooldown to ensure that the requirements in the TS and Selected Licensee Commitments were followed. The inspectors conducted a containment entry once Mode 3 had been reached to observe the condition of major, normally-inaccessible equipment and check for indications of previously unidentified leakage from the reactor coolant system.

b. Findings

No findings were identified.

### .3 Licensee Control of Outage Activities

#### a. Inspection Scope

During the outage, the inspectors observed the items or activities described below to verify that the licensee maintained defense-in-depth commensurate with the outage risk-control plan for key safety functions and applicable TS when taking equipment out of service.

- Clearance Activities
- Reactor Coolant System Instrumentation
- Electrical Power
- Decay Heat Removal (DHR)
- Spent Fuel Pool Cooling
- Inventory Control
- Reactivity Control
- Containment Closure

The inspectors also reviewed responses to emergent work and unexpected conditions to verify that resulting configuration changes were controlled in accordance with the outage risk control plan, and to verify that control-room operators were kept cognizant of the plant configuration.

#### b. Findings

No findings were identified.

### .4 Reduced-Inventory Conditions

#### a. Inspection Scope

The inspectors reviewed commitments from Generic Letter 88-17, Loss of Decay Heat Removal, and confirmed by sampling that those commitments are still in place and adequate. Periodically, during the reduced-inventory conditions, the inspectors reviewed system lineups to verify that the configuration of the plant systems are in accordance with those commitments. During reduced-inventory operations, the inspectors observed operator activities to verify that unexpected conditions or emergent activities did not degrade the operators' ability to maintain required reactor vessel level.

#### b. Findings

No findings were identified.

.5 Refueling Activities

a. Inspection Scope

The inspectors observed fuel handling operations (removal, inspection, and insertion) and other ongoing activities to verify that those operations and activities were being performed in accordance with Technical Specifications (TS) and approved procedures. Also, the inspectors observed refueling activities to verify that the location of the fuel assemblies were tracked during core offload.

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the four surveillance tests listed below, the inspectors witnessed testing and/or reviewed the test data to verify that the systems, structures, and components involved in these tests satisfied the requirements described in the TS, the UFSAR, and applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

Routine Surveillances

- OST-401-1, EDG "A" Slow Speed Start
- OST-409-2, EDG "B" Fast Speed Start
- OST-201-2, Motor Driven Auxiliary Feedwater (MDAFW) System Component Test-Train B

In-Service Tests

- OST-908-4, Component Cooling Water Pump "C" Test

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness



#### 1EP6 Drill Evaluation

##### a. Inspection Scope

On July 11, 2013, and August 21, 2013, the inspectors observed the licensee's performance during two emergency preparedness drills. The inspectors observed licensee activities occurring in the Emergency Operations Facility (EOF), Technical Support Center (TSC), and simulator. The NRC's assessment focused on the timeliness of classification, offsite agency notification, and protective action recommendation development in accordance with 10 CFR Part 50, Appendix E. The performance of the emergency response organization was evaluated against applicable licensee procedures and regulatory requirements. The inspectors also attended the post-drill critique to verify that the licensee properly identified failures in classification, notification and protective action recommendation development activities. Documents reviewed are listed in the Attachment.

##### b. Findings

No findings were identified.

#### 4. OTHER ACTIVITIES

#### 4OA1 Performance Indicator (PI) Verification

##### a. Inspection Scope

The inspectors verified the PIs identified below. For each PI, the inspectors verified the accuracy of the PI data that had been previously reported to the NRC by comparing those data to the actual data, as described below. The inspectors also compared the licensee's basis in reporting each data element to the PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Rev. 6. In addition, the inspectors interviewed licensee personnel associated with collecting, evaluating, and distributing these data.

##### Initiating Events Cornerstone

- Unplanned Scrams with Complications
- Unplanned Power Changes per 7000 critical hours

For the period from July 2012 through June 2013, the inspectors reviewed a selection of licensee event reports, operator log entries, daily reports (including the daily condition report (CR) descriptions), monthly operating reports, and PI data sheets to verify that the licensee had accurately identified the number of scrams and unplanned power changes greater than 20 percent that occurred during the subject period. The inspectors compared those numbers to the numbers reported by the licensee for the PI. The inspectors also reviewed the accuracy of the number of critical hours reported, and the licensee's basis for crediting normal heat removal capability for each of the reported reactor scrams.

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### Mitigating Systems Cornerstone

- Mitigating Systems Performance Index (MSPI), Heat Removal System

For the period from July 2012 through June 2013, the inspectors reviewed Licensee Event Reports (LERs), records of inoperable equipment, and Maintenance Rule records, CR's, Consolidated Derivation Entry Reports, and System Health Reports to verify that the licensee had accurately accounted for unavailability hours that the subject systems had experienced during the subject period. The inspectors also reviewed the number of hours those systems were required to be available and the licensee's basis for identifying unavailability hours.

b. Findings

No findings were identified.

### 4OA2 Identification and Resolution of Problems

a. Inspection Scope

#### Routine Review of Action Requests (ARs)

To aid in the identification of repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed frequent screenings of items entered into the CAP. The review was accomplished by reviewing daily AR reports.

b. Findings

No findings were identified.

### 4OA5 Other Activities

#### .1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors observed Security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

.2 (Closed) Temporary Instruction (TI)-2515/182 – Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks

a. Inspection Scope

The inspectors conducted a review of records and procedures related to the licensee's program for buried piping and underground piping and tanks in accordance with Phase II of the TI to confirm that the licensee's program contained attributes consistent with Sections 3.3.A and 3.3.B of Nuclear Energy Institute (NEI) 09-14, "Guideline for the Management of Buried Piping Integrity," Revision 3, and to confirm that these attributes were scheduled and/or completed by the NEI 09-14 Revision 3 deadlines. The inspectors interviewed licensee staff responsible for the buried piping program and reviewed buried piping program related activities to determine if the program attributes were accomplished in a manner which reflected good or poor practices in program management.

The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraph 03.02.a of the TI and it was confirmed that activities which correspond to completion dates specified in the program which have passed since the Phase I inspection was conducted, have been completed. The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraph 03.02.b of the TI and responses to specific questions found in <http://www.nrc.gov/reactors/operating/ops-experience/buried-pipe-ti-phase-2-insp-req-2011-11-16.pdf> were submitted to the NRC headquarters staff.

Based upon the scope of the review described above, Phase II of TI-2515/182 was completed.

b. Findings

No findings were identified.

40A6 Meetings, Including Exit

On October 17, 2013, the resident inspectors presented the inspection results to Mr. R. Gideon and other members of licensee management. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee personnel

T. Cosgrove, Plant General Manager  
S. Connelly, Licensing  
H. Curry, Training Manager  
D. Douglas, Maintenance Manager  
R. Gideon, Vice President  
M. Glover, Director – Site Operations  
R. Hightower, Licensing/Reg. Programs Supervisor  
D. Hoffman, Nuclear Oversight Manager  
K. Holbrook, Operations Manager  
B. Houston, Radiation Protection Superintendent  
L. Martin, Engineering Director  
K. Moser, Outage & Scheduling Manager  
S. Williams, Chemistry Manager  
S. Wheeler, Organizational Effectiveness Manager

#### NRC personnel

G. Hopper, Chief, Reactor Projects Branch 4

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened & Closed

05000261/2013004-01	NCV	Lack of Preventive Maintenance Results in “B” EDG Recirculation Damper Failure (Section 1R12)
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#### Closed

05000261/2013003-02	URI	Failure of “B” EDG Recirculation Damper in the Open Position Results in EDG Inoperability (Section 1R12)
2515/182	TI	Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks (Phase II) (Section 4OA5.2)

## LIST OF DOCUMENTS REVIEWED

### **Section 1R04: Equipment Alignment**

#### Procedures

OP-604, Emergency Diesel Generator, Rev. 100  
OP-201, Residual Heat Removal system, Rev.69

### **Section 1R05: Fire Protection**

#### Procedures

OMM-003, Fire Pre-Plans, Rev. 61

#### Drawings

HBR2-11937, Fire Pre-Pan Spent Fuel Pool, Rev.0

### **Section 1R11: Licensed Operator Requalification**

#### Other documents

LOCT Simulator Exercise Guide: LOCT 1328-2, Rev.0  
AD-OP-ALL-1000, Conduct of Operations, Rev. 0

### **Section 1R12: Maintenance Effectiveness**

#### Work Orders

2264944, APP-006-F5, Steam Dump Armed, Received Spuriously  
1999508-06, Install New HVS-5 Recirc Damper Air Motor IAW EC 82844 R14

#### Action Requests

620937, MREV of CR 618508 Determination Incorrect  
612498, Evaluate Air Motors on Dampers Without Gags.  
610474, Inspect and Tighten Setscrews  
610341, OPS Unable to Identify Positions of HVS-5 Recirc Damper  
610344, Opportunity Missed to Utilize OE for HVS-5 and 6 Recirc Damper

#### Other documents

Maintenance Rule Scoping and Performance Criteria, Main Steam  
PMR 532595, Enhance Existing PMs for EDG HVAC  
EC 82844, Install New Air Motors for EDG HVAC  
EC 92937, HVS-5 & HVS-6 Recirc Damper Air Motor Gagged Installation  
RNP-M/HVAC-1064, 'A' and 'B' EDG Room Steady State Temperature, Rev. 1

### **Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation**

#### Procedures

OMM-048, Work Coordination and Risk Assessment, Rev. 54  
WCP-NGGC-1000, Attachment 13, Risk Management Action Matrix, Rev. 11  
ADM-NGGC-0006, Online EOOS Models for Risk Assessment, Rev. 9

#### Other documents

RNP Risk Profile for 13W29, 07/15 to 07/07 Work Train A, Rev. 4

**Section 1R15: Operability Evaluations**Other documents

OP-801, Fire Water System, Rev. 59

EC 93206, Determine Acceptability of Degraded "B" SW Pump Foundation Anchor, Rev.2

Calc No. 52212-C-056, HCLPF Evaluation for the Service Water Pump A, B,C and D

EC 91818, Evaluate Lack of Full Thread Engagement on SW-PMP-A Hold down Bolt, Rev. 0

**Section 1R19: Post Maintenance Testing**Procedures

OP-906, Heating, Ventilation and Air Conditioning, Rev. 66

PM-493, E-023, MCC Inspection and Cleaning, Rev. 7

PM-409, Bridge and Insulation Resistance Testing of Electrical Equipment, Rev. 11

NGG-PMB-CBL-01, Medium Voltage Cable Equipment Reliability Template, Rev. 1

Work Orders

2268775-01, Investigate and Repair HVH-7A

2146434, DSD Radiator Motor/Fan Sheave Needs Replacing

2278892, DSDG 5kV Cable Found Degraded

Action Requests

617264, DS Radiator Fastener Broke

532744, Troubleshooting 480 Volt Ground on Cable

Other documents

EC 92954, Redesign DSD-RAD-FAN-MTR Support Frame, Rev.0

EC 93391, Evaluation of cable Test Results Following Cable Splice

**Section 1R20: Refueling and Outage Activities**Procedures

GP-006-1, Normal Plant Shutdown from Power Operation to Hot Shutdown, Rev. 8

AD-OP-ALL-1000, Conduct of Operations, Rev. 0

FMP-013, New Fuel Assemblies and Shipping Containers Receipt Inspection, Rev. 16

FMP-0019, Fuel and Insert Shuffle, Rev. 41

PRO-NGGC-0200, Procedure and Work Instruction Use and Adherence, Rev. 16

OST-053, Inspection for Reactor Coolant System Leakage (Refueling Interval),  
Rev. 17

**Section 1R22: Surveillance Testing**Action Requests

NCR 607601, Hanger on Pipe is Loose

**Section 1EP6: Drill Evaluation**Action Requests

624700, Incorrect RX Shutdown Time on ENFS During ERO Drill

624870, Drill/Exercise Objective #30 Not Demonstrated During Drill

625742, UNSAT ERO DEP Opportunity Due To Notification Error

625102, EOF Computers Not Able to Access WEBEOC Following ERO Drill

623881, Unplanned Alarm on Seismic Monitor "A"

Other documents

H.B. Robinson Emergency Response EOF Critique Package, July 10, 2013  
Emergency Response Organization Integrated Drill, July 10, 2013  
Crew 4.0 Evaluation- The 4.0 Response, Training July 10, 2013

**Section 40A5 Other Activities**

Action Request Documents Generated

CR 625164, Buried piping risk calculation update needed

Action Request Documents Reviewed

CR 576099, During UT inspection of fire protection piping several areas of pitting were identified  
CR 577975, Building floor drains were not originally classified correctly  
CR 581319, Hole discovered in RCP storm drain North of CB-53

Other Documents

EGR-NGGC-0209, Buried Piping Program, Rev. 5  
ESG0100N, Buried Piping Program Manager Training Guide, Rev. 1  
MNT-NGGC-0024, Excavation and Backfill, Rev. 4  
Buried Piping Program Health Report for: Q3-2012, Q4-2012, Q1-2013, Q2-2013  
Calculation No. 2603.100-01, H B Robinson Nuclear Plant Buried Piping Program Basis  
Document, Rev. 0  
RNP Buried Pipe Inspection Plan, Rev. 1