



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

November 7, 2018

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

**SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT – NUCLEAR REGULATORY  
COMMISSION INTEGRATED INSPECTION REPORT 05000261/2018003**

Dear Mr. Kapopoulos:

On September 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your H. B. Robinson Steam Electric Plant, Unit 2. On October 16, 2018, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance.

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

Sincerely,

**/RA/**

Randall A. Musser, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Docket Nos.: 50-261  
License Nos.: DPR-23

Enclosure:  
IR 05000261/2018003

cc Distribution via ListSer

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 COMMISSION INTEGRATED INSPECTION REPORT 05000261/2018003  
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**ADAMS Accession No. ML#####**

OFFICE	RII:DRP	RII:DRP	RII:DRS	RII:DRS	RII:DRS	RII:DRS
NAME	JRotton	ABeasten	RKellner	ANielson	WLoo	JRivera
DATE	10/30/18	JR for AB 10/30/18	10/29/18	10/29/18	10/26/18	10/29/18
OFFICE	RII:DRP	RII:DRP	RII:DRP			
NAME	AWilson	LPressley	RMusser			
DATE	10/30/18	10/31/18	11/7/2018			

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos: 50-261

License Nos: DPR-23

Report Nos: 05000261/2018003

Enterprise Identifier: I-2018-003-0049

Licensee: Duke Energy Progress, LLC

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

Location: 3581 West Entrance Road  
Hartsville, SC 29550

Dates: July 1, 2018 through September 30, 2018

Inspectors: J. Rotton, Senior Resident Inspector  
A. Beasten, Resident Inspector  
R. Kellner, Sr. Health Physicist (Sections 71124.03 and 71124.04)  
J. Rivera, Health Physicist (Sections 71124.05 and 71151(PR01))  
A. Nielsen, Sr. Health Physicist (Sections 71124.01 and 71124.03)  
W. Loo, Sr. Health Physicist (Sections 71124.02, 71124.03 and 71151  
(OR01))

Approved by: Randall A. Musser, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Enclosure

## SUMMARY

The NRC continued monitoring licensee's performance by conducting a baseline inspection at H. B. Robinson Steam Electric Plant, Unit 2, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

### List of Findings and Violations

None

### Additional Tracking Items

None

## PLANT STATUS

Unit 2 began the inspection period at rated thermal power. On September 21, 2018, the unit reduced power to 89 percent to conduct main steam safety valve testing and during the evening of September 21, 2018, a unit shutdown to Mode 4 was initiated to conduct a planned refueling outage. The unit was taken offline in the early morning of September 22, 2018, and reached Mode 5 later that day. The unit entered Mode 6 on September 27, 2018, and remained in Mode 6 for the remainder of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515 Appendix D, "Plant Status" and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.01 - Adverse Weather Protection

#### Impending Severe Weather (1 Sample)

The inspectors evaluated readiness for impending severe weather related to Hurricane Florence on September 14-16, 2018.

### 71111.04 - Equipment Alignment

#### Partial Walkdown (4 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) 'A' emergency diesel generator (EDG) during 'B' EDG out of service for scheduled maintenance on July 17, 2018
- (2) 'B' motor driven auxiliary feedwater (MDAFW) pump and steam driven auxiliary feedwater pump while 'A' MDAFW pump was out of service for planned maintenance on August 7, 2018
- (3) 'A,' 'B' and 'D' instrument air compressors after failure of the primary air compressor on August 28, 2018
- (4) 'B' and 'C' component cooling water pumps while 480 V Bus 3 and dedicated shutdown bus de-energized for outage work on September 24, 2018

### Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the Service Water system on August 11, 2018.

### 71111.05AQ - Fire Protection Annual/Quarterly

#### Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Fire Zone 8 – Boron injection tank room on July 6, 2018
- (2) Fire Zone 2 – ‘A’ EDG room on July 17, 2018
- (3) Fire Zone 18 – Old Unit 1 cable spread room on July 25, 2018
- (4) Fire Zone 17 – HVAC equipment room for control room on July 25, 2018
- (5) Fire Zone 19 – Unit 2 cable spreading room on August 8, 2018

### 71111.06 - Flood Protection Measures

#### Internal Flooding (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the reactor auxiliary building 2<sup>nd</sup> floor hallway, boric acid batch tank, and diverse and flexible coping strategies (FLEX) EDG rooms (FLC 130, 140, and 150) on August 3, 2018.

### 71111.07 - Heat Sink Performance

#### Heat Sink (1 Sample)

The inspectors observed the ‘A’ EDG jacket water, lube oil, and aftercooler heat exchangers during completion of the 24 month maintenance outage during the period of August 27-30, 2018. The inspectors observed performance during post maintenance runs and surveillance tests on August 30, 2018.

### 71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

#### Operator Requalification (1 Sample)

The inspectors observed and evaluated an operator simulator training scenario administered to an operating crew on August 14, 2018, involving system operation and failures leading into several abnormal operating procedures followed by emergency declaration procedures.

#### Operator Performance (2 Samples)

- (1) The inspectors observed and evaluated operator response to an unplanned loss of emergency response facility information system (ERFIS) / emergency response data system (ERDS) during planned work on the feedwater ultrasonic flow meter (FWUFM) on August 20, 2018
- (2) Reactor downpower and shutdown to support refueling outage R2R31 on September 22, 2018

### 71111.12 - Maintenance Effectiveness

#### Routine Maintenance Effectiveness (1 Sample)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) 'A' EDG 24 month maintenance and inspection outage during the period from August 27-30, 2018

### 71111.13 - Maintenance Risk Assessments and Emergent Work Control (4 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Green risk for MST-901, radiation monitoring system, OST-701-9, steam generator blowdown system inservice valve test, and OST-707-9, steam generator blowdown system valve position indicator verification, due to manipulation of steam generator blowdown on July 12, 2018
- (2) Green risk for SP-1656, LP turbine warranty test, due to increased trip risk, single point vulnerabilities, and infrequently performed evolution on August 8, 2018
- (3) Elevated Green risk for 230kV transformer upgrade project work (switchyard trip risk) and performance of LP-714, NIS power range channel N44 surveillance test, on August 23, 2018
- (4) Elevated Green risk for 230kV transformer upgrade project work in switchyard (trip risk), staging on turbine deck to support refueling outage (trip risk), and performance of EST-028, main steam safety valve testing, on September 21, 2018

### 71111.15 - Operability Determinations and Functionality Assessments (4 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) 'B' MDAFW pump lube oil cooler end bell installed incorrectly (NCR 02219288) causing restriction in service water cooling flow on July 17, 2018
- (2) 'D' Service water pump operability after failure of 'C' traveling screen (NCR 02230919) affecting intake flow to the 'C' intake bay and securing of the 'C' Circulating water pump on September 15, 2018
- (3) DA-25A, (DG A Lower Air Start Outlet Isolation) mispositioned (NCR 2228410) on September 5, 2018
- (4) Fire Dampers actuated during Troubleshooting FDAP-A1 ground (NCR 2231944) on September 27, 2018

### 71111.18 - Plant Modifications (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Engineering Change EC 413385, Rev. 1, Temporary storage of damaged fuel assembly, LL50, in spent fuel pool low density rack storage location M-7

- (2) Engineering Change EC 413383, Rev. 0, Temporary storage of damaged fuel assembly, LL50, in fuel storage stand located in cask load area for fuel assembly reconstitution

#### 71111.19 - Post Maintenance Testing (6 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) WO 13531895, Response SW-C switch replacement, Reactor Turbine Gauge Board (RTGB) annunciator alarm test following replacement of SW-C switch on RTGB on August 3, 2018
- (2) WR 20117181, Restore backup ERFIS following failover during FWUFM transducer replacement on August 20, 2018
- (3) OST-933-11, Penetration 29, steam space sample (PS-956A and PS-956B) leakage test (as required and every 18 Months), following replacement of IVSW-79 on September 27, 2018
- (4) OST-201-2, MDAFW system component test – Train ‘B’, after pump maintenance on July 17, 2018
- (5) OST-151-1, safety injection system components test – Pump ‘A’, after motor operated valve lubrication preventative maintenance on SI-870A, ‘A’ BIT outlet valve
- (6) OP-604, EDG’s ‘A’ and ‘B’ after 24 month maintenance outage performed on the ‘A’ EDG on August 30, 2018

#### 71111.20 - Refueling and Other Outage Activities (Partial Sample)

The inspectors evaluated refueling outage (R2R31) activities from September 21, 2018 through September 30, 2018. The inspectors observed activities related to sections 03.01a, 03.01c, 03.01d.1 through 03.01d.9, during this period. The inspectors partially completed the remaining inspection procedure sections. These inspection procedure sections will be completed during the fourth quarter of 2018.

#### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

##### Routine (3 Samples)

- (1) OST-707-9, Steam generator blowdown system valve position indicator verification, on July 12, 2018
- (2) OST-409-1, EDG “A” fast speed start, on August 30, 2018
- (3) EST-124, Response time testing of reactor coolant system resistance temperature detectors (RTDs) (Refueling Interval), on September 5, 2018

##### In-service (1 Sample)

- (1) OST-701-9, Steam generator blowdown system inservice valve test, on July 12, 2018

##### Reactor Coolant System Leak Detection (1 Sample)



(1) OST-051, Reactor coolant system leakage evaluation, on September 12, 2018

#### 71114.06 – Emergency Preparedness

##### Emergency Planning Drill (1 Sample)

The inspectors observed and evaluated the Emergency Preparedness drill performed on August 22, 2018.

### **RADIATION SAFETY**

#### 71124.01 - Radiological Hazard Assessment and Exposure Controls

##### Radiological Hazard Assessment (1 Sample)

The inspectors evaluated radiological hazards assessments and controls.

##### Instructions to Workers (1 Sample)

The inspectors evaluated worker instructions.

##### Contamination and Radioactive Material Control (1 Sample)

The inspectors evaluated contamination and radioactive material controls.

##### Radiological Hazards Control and Work Coverage (1 Sample)

The inspectors evaluated radiological hazards control and work coverage.

##### High Radiation Area and Very High Radiation Area Controls (1 Sample)

The inspectors evaluated risk-significant high radiation area and very high radiation area controls.

##### Radiation Worker Performance and Radiation Protection Technician Proficiency (1 Sample)

The inspectors evaluated radiation worker performance and radiation protection technician proficiency.

#### 71124.02 - Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

##### Radiological Work Planning (1 Sample)

The inspectors evaluated the licensee's radiological work planning by reviewing the following activities:

- (1) Detensioning of Reactor Head Studs Activities, RWP No. 2508, Detension/Re-tension Reactor Head Studs & Place Studs in Cavity – Medium Radiological Risk – Alpha Level II (>3,000:1), Rev. 35
- (2) Regenerative Heat Exchanger Activities, RWP No. 2654, Install Shield Wall (Inside

- Regenerative Hx) to Support CV Liner Activities, Rev. 0  
(3) Seal Table Thimble Retraction, RWP No. 2509, Seal Table Activities with High Radiological Risk – Retract Thimbles, Rev. 18

Verification of Dose Estimates and Exposure Tracking Systems (1 Sample)

The inspectors evaluated dose estimates and exposure tracking.

Implementation of ALARA and Radiological Work Controls (1 Sample)

The inspectors reviewed ALARA practices and radiological work controls by reviewing the following activities:

- (1) ALARA Plan No. 2018RNP2RO1001, RO-31, Refueling/RX Head, Rev. 0
- (2) ALARA Plan No. 2018RNP2RO3102, RO-31, Reactor Coolant Pumps, Rev. 1
- (3) ALARA Plan No. 2018RNP2RO3104, RO-31, CV Liner Activities, Rev. 1

Radiation Worker Performance (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance.

71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

Engineering Controls (1 Sample)

The inspectors evaluated airborne controls and monitoring.

Use of Respiratory Protection Devices (1 sample)

The inspectors evaluated respiratory protection.

Self-Contained Breathing Apparatus for Emergency Use (1 Sample)

The inspectors evaluated the licensee's self-contained breathing apparatus program.

71124.04 - Occupational Dose Assessment

Source Term Characterization (1 Sample)

The inspectors evaluated the licensee's source term characterization.

External Dosimetry (1 Sample)

The inspectors evaluated the licensee's external dosimetry program.

Internal Dosimetry (1 Sample)

The inspectors evaluated the licensee's internal dosimetry program.

Special Dosimetric Situations (1 Sample)

The inspectors evaluated the licensee's performance for special dosimetric situations.

#### 71124.05 - Radiation Monitoring Instrumentation

##### Walk Downs and Observations (1 Sample)

The inspectors evaluated radiation monitoring instrumentation during plant walkdowns.

##### Calibration and Testing Program (1 Sample)

The inspectors evaluated the licensee's calibration and testing program.

### **OTHER ACTIVITIES – BASELINE**

#### 71151 - Performance Indicator Verification (6 Samples)

The inspectors verified licensee performance indicators submittals listed below for the period from July 01, 2017, through June 30, 2018.

- (1) Unplanned power changes per 7000 critical hours
- (2) Unplanned Scrams with complications
- (3) Heat removal system
- (4) RCS specific activity
- (5) Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual  
Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences,  
(PR01)
- (6) Occupational Exposure Control Effectiveness, (OR01)

#### 71152 - Problem Identification and Resolution

##### In-Depth Reviews (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issue. The issue was selected due to its potential repetitive nature.

- (1) NCR 02005141, which detailed actions taken to address deficiencies in implementation on the site's adverse weather procedure, OMM-021, during a Tornado Watch.

## **INSPECTION RESULTS**

None

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

On October 16, 2018, the inspectors presented the quarterly resident inspector inspection results to Mr. Ernie Kapopoulos, Site Vice President, and other members of the licensee staff.

On August 9, 2018, the radiation safety inspectors presented the radiation protection inspection results to J. Krakuszeski, Plant Manager, and other members of the licensee staff.

On September 28, 2018, the radiation safety inspectors presented their radiation protection inspection results to Mr. Ernie Kapopoulos, Site Vice President, and other members of the licensee staff.

## **THIRD PARTY REVIEWS**

The inspectors reviewed Institute of Nuclear Power Operations reactor evaluation report that was issued in July 2018.

## LIST OF DOCUMENTS REVIEWED

### **71111.01: Adverse Weather Protection**

#### Impending Severe Weather

AOP-026, Grid Instability, Rev. 17  
AOP-031, Operation with High Switchyard Voltage, Rev. 17  
OMM-021, Operation During Adverse Weather Conditions, Rev. 51  
AP-053, Severe Weather Response, Rev. 9

### **71111.04: Equipment Alignment**

#### Partial Walkdown

OMM-009, Locked Valve List, Rev. 106  
Clearance OPS-2-18-3065-FCV-1424&PMP-0615  
G-190197, Feedwater, Condensate, and Air Evacuation System Flow Diagram, SH 4, Rev. 73  
5379-376, Component Cooling Water System Flow Diagram, Sheet 1, Rev. 44  
OP-306, Component Cooling Water System, Rev. 75  
G-190200, Instrument & Station Air System Flow Diagram, sheet 2, Rev. 36  
G-190200, Instrument & Station Air System Flow Diagram, sheet 4, Rev. 25  
G-190200, Instrument & Station Air System Flow Diagram, sheet 10, Rev. 13  
G-190204A, Emergency Diesel Generator System Flow Diagram, sheet 1, Rev. 39  
G-190204A, Emergency Diesel Generator System Flow Diagram, sheet 2, Rev. 20

#### Complete Walkdown

OP-903, Service Water System, Rev. 146  
G-190199, Service & Cooling Water System Flow Diagram, SH 5, Rev. 50  
G-190199, Service & Cooling Water System Flow Diagram, SH 6, Rev. 51  
G-190199, Service & Cooling Water System Flow Diagram, SH 7, Rev. 40  
G-190199, Service & Cooling Water System Flow Diagram, SH 8, Rev. 34  
G-190199, Service & Cooling Water System Flow Diagram, SH 9, Rev. 60  
G-190199, Service & Cooling Water System Flow Diagram, SH 10, Rev. 47

### **71111.05: Fire Protection**

#### Quarterly Inspection

AD-EG-ALL-1520, Transient Combustible Control, Rev. 9  
OMM-002, Fire Protection Manual, Rev. 51  
OMM-20, Fire Protection List, Rev. 11  
CSD-RNP-PFP-AB2-0226-001, Auxiliary Building Elev 226 Pre-Fire Plan, Rev. 0  
CSD-RNP-PFP-AB2-0246-001, Auxiliary Building Elev 246 Pre-Fire Plan, Rev. 0  
OST-611-2, Low Voltage Fire Detection and Actuation System Detection Zone 2, EDG 'A' Room, Rev. 4  
OST-611-19, Low Voltage Fire Detection and Actuation System Detection Zone 19, Unit 2 Cable Spread Room, Rev. 4

### **71111.06: Flood Protection**

#### Internal

AOP-032, Response to Flooding from the Fire Protection System, Rev. 10  
RNP-M/MECH-1881, Internal Flooding Pipe Breaks for Reactor Auxiliary Building, Rev. 0  
RNP-M/MECH-1882, Internal Flooding Displacement Evaluation for Reactor Auxiliary Building, Rev. 1  
RNP-M/MECH-1883, Internal Flooding Pipe Analysis Reactor Auxiliary Building, Rev. 0

RNP-F/PSA-0009, Assessment of Internally Initiated Flood Events, Rev. 2  
RNP-F/PSA-0105, Robinson Nuclear Plant Internal Flooding Analysis, Rev. 1  
P-F/PSA-0113, Robinson Nuclear Plant Internal Flooding PRA Quantification and Results Analysis, Rev. 2

**71111.07: Heat Sink Performance**

PM-007, Emergency Diesel Generator Inspection Number 1, Rev. 40  
PM-008, Emergency Diesel Generator Inspection Number 2 (24 Months), Rev. 75  
CM-362, EDG Heat Exchanger Maintenance, Rev. 23  
OP-604, Diesel Generators 'A' and 'B', Rev. 120  
OST-409-1, EDG 'A' Fast Speed Start, Rev. 63

**71111.11: Licensed Operator Requalification**

Resident Inspector Quarterly Review of Licensed Operator Requalification  
LOCT Simulator Exercise Guide: RNLOC1809R-S3, Rev. 0

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

AD-OP-ALL-1000, Conduct of Operations, Rev. 12  
NCR 2225780, Unplanned LCO entry due to a loss of ERFIS in Control Room, 08/20/2018  
GP-005, Power Operation, Rev. 135  
GP-006-1, Normal Plant Shutdown from Power Operation to Hot Standby, Rev. 17  
GP-007, Plant Cooldown from Mode 3 to Mode 5, Rev. 108

**71111.12: Maintenance Effectiveness**

AD-EG-ALL-1210, Maintenance Rule Program, Rev. 1  
AD-WC-ALL-0200, On-Line Work Management, Rev. 12  
AD-OP-ALL-0201, Protected Equipment, Rev. 4  
OMM-048, Work Coordination and Risk Assessment, Rev. 65  
AD-WC-ALL-0410, Work Activity Integrated Risk Management, Rev. 6  
PM-007, Emergency Diesel Generator Inspection Number 1, Rev. 40  
PM-008, Emergency Diesel Generator Inspection Number 2 (24 Months), Rev. 75  
CM-362, EDG Heat Exchanger Maintenance, Rev. 23

**71111.13: Maintenance Risk Assessments and Emergent Work Evaluation**

AD-WC-ALL-0200, On-Line Work Management, Rev. 12  
AD-WC-ALL-0260, Nuclear Generation Response to High or Low Grid System Load, Rev. 1  
AD-OP-ALL-1000, Conduct of Operations, Rev. 12  
AD-OP-ALL-0201, Protected Equipment, Rev. 4  
PD-EG-ALL-1620, Nuclear Welding Program, Rev. 1  
AD-EG-ALL-1521, Hot Work Permits, Rev. 6  
OMM-048, Work Coordination and Risk Assessment, Rev. 65

**71111.15: Operability Evaluations**

Operability and Functionality Review  
AD-OP-ALL-0102, Operational Decision Making, Rev. 2  
AD-OP-ALL-0105, Operability Determination and Functionality Assessments, Rev. 4

**71111.19: Post Maintenance Testing**

PLP-033, Post Maintenance Testing Program, Rev. 67

### **71111.20: Outage Activities**

GP-006-1, Normal Plant Shutdown from Power Operation to Hot Shutdown, Rev. 17  
GP-007, Plant Cooldown from Mode 3 to Mode 5, Rev. 108  
GP-008, Draining the Reactor Coolant System, Rev. 93  
AOP-007, Turbine Trip Below P-8, Rev. 17

### **71111.22: Surveillance Testing**

OMM-015, Operations Surveillance Testing, Rev. 9

### **71114.06: Emergency Preparedness**

Scenario Manual, RNP Drill #1807, August 22, 2018  
AD-EP-ALL-0304, State and County Notifications, Rev. 1  
AD-EP-ALL-0802, Conducting Drills and Exercises, Rev. 3  
AD-EP-ALL-0803, Evaluation and Critiques of Drills and Exercises, Rev. 3  
EPPRO-10, Emergency Preparedness Code of Conduct, Rev. 3

### **71124.01: Radiological Hazard Assessment and Exposure Controls**

#### **Procedures, Guidance Documents and Manuals**

AD-RP-ALL-2017, Access Controls to very High Radiation Areas and Supplemental Access Controls for HRA and LHRA, Rev. 6  
AD-RP-ALL-3002, Unconditional Release of Material, Rev. 1

#### **Records and Data**

Radiological Survey RNP-M-20180925-17, Blind flange removal, 9/25/18  
Radiological Survey RNP-M-20180404-1, Storage of RCS filters, 4/4/18  
Radiological Survey RNP-M-20180625-5, Truck bay LHRA downpost to HRA, 6/25/18  
Radiological Survey RNP-M-20180827-2, Truck bay, 8/27/18  
Radiological Survey RNP-M-20180925-6, CVC-310E in Regen HX, 9/25/18  
Airborne Radioactivity Calculation Worksheet, Upper cavity, 9/26/18  
RWP 2654, Task 15, Install shielding packages to support CV liner with high radiological risk, Rev. 2  
Test Data and Test Alignment Sealed Source leak Check, 6/7/18  
National Source Tracking System 2018 Annual Inventory Reconciliation

### **71124.02: Occupational ALARA Planning and Controls**

#### **Procedures, Guidance Documents and Manuals**

AD-CP-ALL-0012, Radiation Source Term, Rev. 1  
AD-RP-ALL-2000, Preparation and Management of Radiation Work Permits, Rev. 3  
AD-RP-ALL-9000, ALARA Program, Rev. 8  
AD-RP-ALL-9001, ALARA Planning, Rev. 4  
MNT-NGGC-0003, Radiation Shielding Use, Rev. 16

#### **Records and Data**

ALARA Work Plan No. 2018RNP2RO3109, RO-31 Seal Table Activities, Rev. 0  
Crudburst Cleanup Summary, 09/26/18  
Duke Energy Progress, Long Range ALARA Plan, 2018 – 2022, H B Robinson Nuclear Plant, 07/25/18  
H. B. Robinson, Site ALARA Committee, Meeting Minutes, 07/23/18 and 08/27/18  
Radiation Work Permit No. 2648, RO-31 RCS Filter Change and Associated Activities, Rev. 3  
Robinson Nuclear Plant, Refueling Outage 30, ALARA Report, 07/12/17  
Temporary Shielding Request (TSR) Nos. 18-037, RO-31 Refueling Activities: Reactor Head,

General Area Dose Rate Background Shield, Rev. 0; and 18-057, RO-31 Refueling Activities: Regenerative Heat Exchangers, Containment Vessel 1<sup>st</sup> Level Outside and Inside Regen Door, Rev. 0

CAP Documents  
NCR 02216505

**71124.03: In-Plant Airborne Radioactivity Control and Mitigation**

Procedures, Guidance Documents and Manuals:

AD-RP-ALL-0003, Radiological Air Sampling, Revision 0  
AD-RP-ALL-0008 Use and Control of HEPA Filtration & Vacuum Equipment, Revision 0  
AD-RP-ALL-4013 Area TLD Monitoring, Revision 1  
AD-RP-ALL-6000, Respiratory Protective Equipment Approval and Issue, Revision 2  
AD-RP-ALL-6002 Inspections of SCBAs & Associated Equipment, Revision 0  
AD-RP-ALL-6005 Powered Air Purifying Respirators, Revision 0  
HPP-RESP-001, Control and Use of Respiratory Protection Equipment, Revision 2  
HPP-RESP-005, Sampling of Breathing Air Supplies, Revision 2  
HPP-RWT-002 Use of HEPA Filtration Units & Vacuum Cleaners  
PD-RP-ALL-6000 Radiological Respiratory Program, Revision 0  
PLP-066, Respiratory Protection Program, Revision 11  
RST-023, Respirator Inspection and Inventory, Revision 33  
SIC-034, Calibration of Portable Air Sampling Equipment, Revision 14  
TE-RP-ALL-4005 Investigation of Unusual Dosimetry Occurrence or Possible Overexposure, Revision 0

Records and Data:

AD-RP-ALL-5002, Attachment 6, 10 CFR 61 Radioactive Waste Classification, Station Report for HB Robinson Nuclear Plant, Change 83, October 31, 2017  
Certificate of Calibration; PortaCount Pro Model 8030, S/N 8030114821, S/N 8030154406, and S/N 8030114901, July 13, 2018  
Fusion Record ID Number 018131534, EST-014, EOF Emergency Ventilation System Fan HVAC-203 [Flow rate, DOP Test, and Charcoal Sample], May 23, 2016  
Fusion Record ID Number 018133166, EST-020, Hot Machine Shop Exhaust System Fan HVE-14 [in field HEPA DOP test], August 11, 2016  
Laboratory Report Compressed Air Gas Quality Testing, FIRE PROTECTION SCBA CASCADE #1, December 12, 2017, January 23, 2018, and April 9 2018  
Laboratory Report Compressed Air Gas Quality Testing, FIRE BRIGADE SCBA COMPRESSOR, January 23, 2018  
Laboratory Report Compressed Air Gas Quality Testing, PRIMARY AIR COMPRESSOR, December 12, 2017  
Laboratory Report Compressed Air Gas Quality Testing, "A" INSTRUMENT AIR COMPRESSOR, November 29, 2017  
Observation: Respirator fit testing Scott AV3000 [SCBA] and MSA UltraTwin, August 8, 2018  
RD-0-B-5000-19\_Primary to Secondary Device Correlation Report and Investigation Report AR3756, Robinson Respirator Maintenance Inspection History, April 23, 2018  
Report ST2117, Completed Learning Activity Report, TTC1680-N Advanced Basic Respiratory Refresher Training – SCOTT SCBA, May 2, 2018  
Report AR2813, Respirator Issue Log, 6/1/2017 to 4/24/2018, April 24, 2018  
RST-023, Routine Respirator Inspection / Inventory, conducted March and April 2018



SCBA Functional Test Certification; Regulator S/N NL0020112EZVQ, October 4, 2016;  
Regulator S/N 115R0000141986, January 8, 2018; Regulator S/N 115R0000141995,  
January 5, 2018; Regulator S/N 4821097, January 5, 2018  
Scott Air Supplied Products Technician Maintenance and Overhaul Certifications, Expiration  
dates August, 2018 and July 2019  
Verification of current SCBA/Respirator Qualification and Vision Correction of two operators,  
one I&C technician, one mechanic, and one RP technician on ERO roster, August 7, 2018  
Work Order (W/O) 20099927, EST-020, Hot Machine Shop Exhaust System Fan HVE-14  
[in field HEPA DOP test], August 8, 2017  
W/O 20165455 EST-014, EOF Emergency Ventilation System Fan HVAC-203 [in field carbon  
filter penetration and HEPA DOP test], March 13, 2018  
HPP-RWT-002, Attachment 1, HEPA Filter Integrity Test Results: HEPA # S13-0300-SOL-04,  
07/25/2018; HEPA # S13-0300-SOL-03, 07/25/2018  
Airborne Radioactivity Calculation Worksheet, Upper cavity, 9/26/18  
Airborne Radioactivity Calculation Worksheets, Containment (various locations), 9/24 thru  
9/27/2018

CAP Documents:

NCRs 02132025, 02136909, 02144903, 02164236, and 02194621

**71124.04: Occupational Dose Assessment**

Procedures, Guidance Documents and Manuals:

AD-PI-ALL-0100, Corrective Action Program, Revision 17  
AD-RP-ALL-2010, Skin Dose from Contamination, Revision 1  
AD-RP-ALL-2013 Beta Radiation Characterization, Revision 2  
AD-RP-ALL-2014, Work in Alpha Environments, Revision 6  
AD-RP-ALL-4003 DLR Changeout  
AD-RP-ALL-4010, Internal Dose Assessment, Revision 1  
AD-RP-ALL-4011, In Vitro Bioassay, Revision 1  
AD-RP-ALL-4014, Dosimetry Management, Revision 5  
AD-RP-ALL-4015, Dosimetry in Gradient Radiation Fields, Revision 0  
TE-RP-ALL-4001, Declared Pregnant Worker, Revision 3

Records and Data:

AD-RP-ALL-2013, Attachment 1, RNP2 Beta HVL, May 15, 2017  
CSD-RP-ALL-4006, Robinson Passive Whole Body Sensitivity Study Revision 1, May 31, 2018  
Dosimetry Technical Report, RNP DCS/ISFSI Neutron TLD Correction Factor Validation,  
December 11, 2014  
NVLAP Certificates of Accreditation to ISO/IEC 17025:2005: CY 2017/2018, Effective dates  
April 1, 2017 through March 31, 2018; CY 2018/2019, Effective dates April 1, 2018 through  
March 31, 2019  
Radiological Survey, RNP-M-20170803-1, Restricted Area Fence line - Monthly, August 3, 2018  
Radiological Survey, RNP-M-20171212-2, ISFSI 24P Annual Dose Rate Survey, December 12,  
2017  
RC-18-003, RNP Alpha Characterization, April 12, 2018  
RNP Area TLD Trending Results [includes ISFSI and PA fence line] May 4 2017 to February 1,  
2018  
Personnel Contamination Event Logs, June 2017 to August 2018  
Technical Information Document, RC-18-003, RNP Alpha Characterization, April 10, 2018

TE-RP-ALL-4001, Attachment 1, Pregnancy Exposure Agreement for six workers, 2017 and 2018

CAP Documents:

NCRs 02045939, 02128048, 02131850, 02136924, 02144334, and 02208667

Self-Assessment Number: 02171831, 2018 QHSA - External Dosimetry, May 14, 2018

**71124.05: Radiation Monitoring Instrumentation**

Procedures, Guidance Documents, and Manuals:

AD-CP-ALL-0013, Count Room Quality Assurance, Revision 1

AD-RP-ALL-0100, Corrective Action Program, Revision 17

AD-RP-ALL-7007, APEX In-Vivo Whole Body Counter Calibration, Revision 1

AD-RP-ALL-7008, APEX In-Vivo Whole Body Counter Operation, Quality Checks and Data Review, Revision 2

EPCLA-04, Emergency Action Level Technical Basis Document, Revision 19

OMM-014, Radiation Monitor Setpoints, Revision 54

RCP-115, Calibration and Operation of the iSOLO Alpha/Beta Counter, Revision 13

Records and Data:

Annual Verification of the Calibration of the Hopewell BX3 Calibrator at Robinson Nuclear Plant, EnRad 10039, 450 Ci and 1 Ci Cs-137, November 16, 2016 and November 9, 2017

Annual Verification of the RNP Shepherd Calibrator Spreadsheet, ENRAD 10043, 400 Ci and 130 mCi Cs-137, 6/27/16 and 6/14/17

Calibration Records, APEX In-Vivo Fastscan Counting System [Whole Body Counter], Counter Names: RNPFS1, April 19, 2018 and RNPFS2, April 20, 2018

Calibration and Background Checks, Whole Body Counters RNPFS1 and RNPFS2, August 9, 2018

Certificate of Calibration, Multi-line Gamma Source S/N 108554, February 7, 2018

Detector Efficiency Calibration Summary Report, High-Purity Germanium Detector No. 2, December 27, 2017

Efficiency Data Calibration Forms, Calibration Type Alpha, Tennelec No. 1, March 29, 2017 and April 17, 2018

Efficiency Data Calibration Forms, Calibration Type Beta, Tennelec No. 1, September 4, 2017 and April 17, 2018

EnRad Laboratories Certificates of Calibration, 01150, AMS-4, February 13, 2018 and July 23, 2018

EnRad Laboratories Certificates of Calibration, 07071, LUD-177, March 10, 2017 and April 12, 2018

EnRad Laboratories Certificates of Calibration, 10129, CRONOS-4, January 10, 2017 and December 5, 2017

EnRad Laboratories Certificates of Calibration, 10135, GEM-5, April 10, 2018 and June 13, 2018

EnRad Laboratories Certificates of Calibration, 12090, LUD-9-3, February 6, 2017 and October 30, 2017

EnRad Laboratories Certificates of Calibration, 12237, TELEPOLE, October 5, 2017 and February 6, 2018

EnRad Laboratories Certificates of Calibration, 12357, LUD-12-4 (Remball), February 21, 2017 and March 15, 2018

EnRad Laboratories Certificates of Calibration, 12459, RDS-31GM, March 30, 2016 and August 25, 2017

EnRad Laboratories Certificates of Calibration, 12906, ARGOS-5AB, December 29, 2016 and December 5, 2017  
Perkin Elmer 3110TR Calibration Data Form, LSC Instrument No. PE 8176, May 22, 2017 and May 21, 2018  
Quality Control Charts (Background and QC Response) for Liquid Scintillation Counter PE-8176, High-Purity Germanium Detector No. 2, and Tennelec No. 1, May 9, 2018 – August 8, 2018  
Quality Control Charts (Background and QC Response), iSOLO Alpha, May 3, 2018 – July 17, 2018  
Radiological Survey, RNP-M-20180420-1, Outage Storage Warehouse Quarterly, April 20, 2018  
Radiological Survey, RNP-M-20180424-2, Sealand Storage Building Quarterly, April 24, 2018  
Radiological Survey, RNP-M-20180720-1, Outage Storage Warehouse Quarterly, July 20, 2018  
Radiological Survey, RNP-M-20180725-1, Sealand Storage Building #473 Quarterly Survey, July 25, 2018  
RCP-115, Calibration and Operation of the iSOLO Alpha/Beta Counter, May 14, 2018  
RST-008, Calibration of Radiation Monitor System, Monitor R-1 – Control Room Area Radiation Monitor, November 6, 2016 and April 23, 2018  
RST-020, Verification of Electronic Calibration of Radiation Monitoring System Monitors R-32 A&B, June 5, 2015 and February 28, 2017  
Victoreen, Inc., Certificate of Calibration, 878-10 Field Calibrator, SN 128 December 13, 1991  
WO 13495388 02, RST-020 (YM) R-32B CV High Range Accident Monitor, March 11, 2017  
WO 13515897 02, RST-020 (YM) R-32A CV High Range Accident Monitor, March 18, 2017  
WO 20175825 01, Replace R-1 to R-9 Rad Mon Batteries on Main Board, June 24, 2018

CAP Documents:

NCRs 02135977, 02142672, 02143020, 02146807, 02146932, 02147562, 02160842, 02168175, 02176565, 02207310, and 02223878

**71151: Performance Indicator (PI) Verification**

AD-LS-ALL-0004, NRC Performance Indicators and Monthly Operating Report, Rev. 2  
AD-BO-ALL-0002, Performance Measures Program, Rev. 5  
RNP-M/MECH-1904, RNP NRC Mitigating System Performance Index (MSPI) Basis Document, Rev. 4

Procedures:

AD-RP-ALL-0100, Corrective Action Program, Revision 17  
AD-RP-ALL-1101, Performance Indicators (PI) for the Occupational and Public Radiation Safety Cornerstones, Revision 0

Records and Data:

2017 Annual Radioactive Effluent Release Report, H.B. Robinson Steam Electric Plant  
AD-PI-ALL-0300, Self-Assessment and Benchmark Programs, Assignment No. 02195756-05, R-11 Return to Service Post Job Critique, June 6, 2018  
OpenEMS App I Dose Assessment for Liquid, Airborne Noble Gas, and Airborne Iodine/Particulates/Tritium Doses, 1<sup>st</sup> Qtr – 4<sup>th</sup> Qtr 2017  
PI View Report, Robinson Unit 2, Public Radiation Safety, RETS/ODCM Effluent Occurrences, Monthly, June 2017 – July 2018  
Dose Rate Alarm Logs, 6/9/17 – 6/18/18

CAP Documents:

NCRs 02131400, 02143020, 02146582, 02185416, and 02194019

**71152: Problem Identification and Resolution**

AD-PI-ALL-0100, Corrective Action Program, Rev. 16