



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, ILLINOIS 60532-4352

October 31, 2019

Mr. Bryan C. Hanson  
Senior VP, Exelon Generation Company, LLC  
President and CNO, Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 – INTEGRATED  
INSPECTION REPORT 05000254/2019003 AND 05000265/2019003

Dear Mr. Hanson:

On September 30, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Quad Cities Nuclear Power Station, Units 1 and 2. On October 1, 2019, the NRC inspectors discussed the results of this inspection with Mr. P. Boyle, Acting Plant Manager, and other members of your staff. The results of this inspection are documented in the enclosed report.

No NRC-identified or self-revealing findings were identified during this inspection.

A licensee-identified violation which was determined to be of very low safety significance is documented in this report. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

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/

Kenneth R. Riemer, Chief  
Branch 1  
Division of Reactor Projects

Docket Nos. 05000254 and 05000265  
License Nos. DPR-29 and DPR-30

Enclosure:  
As stated

cc: Distribution via LISTSERV®

Letter to Bryan Hanson from Kenneth Riemer dated October 31, 2019.

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 – INTEGRATED  
INSPECTION REPORT 05000254/2019003 AND 05000265/2019003

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Numbers: 05000254 and 05000265

License Numbers: DPR-29 and DPR-30

Report Numbers: 05000254/2019003 and 05000265/2019003

Enterprise Identifier: I-2019-003-0061

Licensee: Exelon Generation Company, LLC

Facility: Quad Cities Nuclear Power Station, Units 1 and 2

Location: Cordova, IL

Inspection Dates: July 01, 2019 to September 30, 2019

Inspectors: J. Cassidy, Senior Health Physicist  
M. Garza, Emergency Preparedness Inspector  
C. Mathews, Illinois Emergency Management Agency  
R. Murray, Senior Resident Inspector  
C. Norton, Senior Resident Inspector  
D. Tesar, Resident Inspector

Approved By: Kenneth R. Riemer, Chief  
Branch 1  
Division of Reactor Projects

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Quad Cities Nuclear Power Station, Units 1 and 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. A licensee-identified non-cited violation is documented in report section: 71124.05.

### **List of Findings and Violations**

No findings or violations of more than minor significance were identified.

### **Additional Tracking Items**

None.

## **PLANT STATUS**

### **Unit 1**

The unit began the inspection period at full rated thermal power, where it remained until August 25, 2019, with the exception of short term power reductions as requested by the transmission system operator. On August 25, 2019, the unit experienced an automatic SCRAM following the actuation of the Unit 1 main generator ground fault detection relay. The licensee entered Mode 2 on August 29, 2019, and commenced startup. The unit entered Mode 1 on August 30, 2019. Following replacement of several insulators on the 'A' phase of the isophase bus duct leading to the unit auxiliary transformer, the licensee synchronized to the grid and achieved full power on September 1, 2019. The unit remained at or near full power for the remainder of the inspection period.

### **Unit 2**

The unit began the inspection period at full rated thermal power, where it remained for the entire inspection period, with the exception of short term power reductions as requested by the transmission system operator.

## **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 Sample (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated readiness for impending adverse weather conditions for extreme hot temperatures expected for the week of July 15, 2019.

### 71111.04Q - Equipment Alignment

#### Partial Walkdown Sample (IP Section 03.01) (3 Samples)

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

- (1) Unit 2 emergency diesel generator during 1/2 emergency diesel generator surveillance test on July 22, 2019

- (2) Unit 1/2 and Unit 2 emergency diesel generator during extended maintenance on Unit 1 emergency diesel generator on September 9, 2019
- (3) Unit 2A, 'B', and 'D' residual heat removal service water loops during planned maintenance on Unit 2C residual heat removal service water loop on September 17, 2019

#### 71111.04S - Equipment Alignment

##### Complete Walkdown Sample (IP Section 03.02) (2 Samples)

- (1) The inspectors evaluated system configurations during a complete walkdown of the Unit 1/2 emergency diesel generator and Unit 2 emergency diesel generator during residual heat removal outage on June 16, 2019.
- (2) The inspectors evaluated system configurations during a complete walkdown of the Unit 1 standby liquid control system following air sparge for chemistry sample on August 1, 2019.

#### 71111.05Q - Fire Protection

##### Quarterly Inspection (IP Section 03.01) (5 Samples)

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

- (1) Fire Zone 8.2.6.E; Unit 2 turbine building, elevation 595'-0", hallway on June 25, 2019
- (2) Fire Zones 8.2.7.A, 6.1.A, 6.1.B, and 7.1; Unit 2 turbine building, elevation 615' and 628', battery charger rooms, hydrogen seal oil areas, and battery room on September 17, 2019
- (3) Fire Zones 8.2.7.E, 6.2.A, 6.2.B, and 7.2; Unit 1 turbine building, elevation 615' and 628', battery charger rooms, hydrogen seal oil areas, and battery room on September 18, 2019
- (4) Fire Zone 11.2.1; Unit 1 reactor building, elevation 554'-0", southwest corner room, 1B core spray on September 19, 2019
- (5) Fire Zone 11.2.3; Unit 1 reactor building, elevation 554'-0", northwest corner room, 1A core spray on September 19, 2019

#### 71111.11Q - Licensed Operator Regualification Program and Licensed Operator Performance

##### Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during the Unit 1 startup from Forced Outage Q1F67 on August 29, 2019.

##### Licensed Operator Regualification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated cycle 5 training on September 23, 2019.

### 71111.13 - Maintenance Risk Assessments and Emergent Work Control

#### Risk Assessment and Management Sample (IP Section 03.01) (4 Samples)

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

- (1) work week risk and impending extreme hot temperatures for week of July 15, 2019
- (2) emergent work and operational risk activity for the failure of the Unit 2 250 Vdc battery charger on July 30, 2019
- (3) emergent work and work week risk following Unit 1 SCRAM and ground on Unit 1 main generator on August 26, 2019
- (4) work week risk during week of September 9, 2019 (Unit 1 emergency diesel generator work risk)

### 71111.15 - Operability Determinations and Functionality Assessments

#### Operability Determination or Functionality Assessment (IP Section 02.02) (3 Samples 2 Partials)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) (Partial)  
Issue Report 4254547, "Unit 1 HPCI [high pressure coolant injection] Did Not Trip Locally During QCOS 2300-13" on June 5, 2019
- (2) Issue Report 4263259, "Unit 2 DWEDS [drywell equipment drain sump pump] Level Switch Issues Prevent Accurate Trending" on July 9, 2019
- (3) Issue Report 4267234, "Failure of [Unit]1B 24/48 Volt Battery Charger" on July 11, 2019
- (4) Issue Report 4267593, "Received 902-10 A10, [Unit 2] 250V Battery Charger 2 Trip," on July 29, 2019
- (5) (Partial)  
Issue Report 4278317, "[Unit] 2A RHRSW [residual heat removal service water] Vault Door Found Not Dogged Closed with Unit 1 EDG [emergency diesel generator] OOS [out-of-service] for Maintenance" on September 12, 2019

### 71111.19 - Post-Maintenance Testing

#### Post-Maintenance Test Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) QCOS 1000-4, "Unit 1 Residual Heat Removal Service Water Pump Operability Test" on July 25, 2019
- (2) Work Order 4945512, "Unit 2 250 Vdc Battery Charger #2 Trip Alarm 902-8 A10 (2-8350)" on July 30, 2019
- (3) testing and synchronization to the grid following repairs to the Unit 1A phase of the isophase bus on August 31, 2019
- (4) Unit 2C residual heat removal service water post-maintenance testing following discharge elbow replacement on September 16, 2019

#### 71111.20 - Refueling and Other Outage Activities

##### Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated Forced Outage Q1F67 from Unit 1 reactor SCRAM due to generator ground fault on August 28, 2019.

#### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

##### Surveillance Tests (other) (IP Section 03.01) (2 Samples)

- (1) QCOS 6620-01, "[Unit 1] SBO [station blackout] DG [diesel generator] Quarterly Load Test" on July 29, 2019
- (2) QCOS 1100-07, "[Unit 1A] SBLC [standby liquid control] Pump Flow Rate Test" on July 22, 2019

##### Inservice Testing (IP Section 03.01) (2 Samples)

- (1) QCOS 1000-31, "[Unit 1A] RHR [residual heat removal] Logic Test" on May 22, 2019
- (2) QCOS 2300-06, "[Unit 2] HPCI System Air Operated Valve Test" on July 30, 2019

#### 71114.04 - Emergency Action Level and Emergency Plan Changes

##### Inspection Review (IP Section 02.01-02.03) (1 Sample)

- (1) The inspectors evaluated the following submitted Emergency Action Level and Emergency Plan changes:
  - Evaluation 18-45, "Exelon Nuclear Standardized Radiological Emergency Plan," Revision 30

This evaluation does not constitute NRC approval.

## **RADIATION SAFETY**

#### 71124.05 - Radiation Monitoring Instrumentation

##### Walk Downs and Observations (IP Section 02.01) (1 Sample)

The inspectors evaluated radiation monitoring instrumentation during plant walkdowns.

- (1) The inspectors reviewed the following:

##### Portable Survey Instruments

- RO20 - 0014095
- RO20 - 0020433
- RO20 - 0018385
- RO20 - 0014093
- RO20 - 0012237



- RAMGAM - 0010619
- Model 3 - 0020028
- Model 3 - 0021709
- Telepole - 00141189

#### Source Check Demonstration

- RO20 - 0014095
- RO20 - 0020433
- Model 3 - 0021709
- Telepole - 00141189

#### Area Radiation Monitors and Continuous Air Monitors

- Area Radiation Monitor, Low Range, Unit 1 Refuel Floor, 690'
- Area Radiation Monitor, High Range, Unit 1 Refuel Floor, 690'
- Area Radiation Monitor, Low Range, Unit 2 Refuel Floor, 690'
- Area Radiation Monitor, High Range, Unit 2 Refuel Floor, 690'
- Area Radiation Monitor, Low Range, Unit 1 Spent Fuel Pool, 690'
- Area Radiation Monitor, High Range, Unit 1 Spent Fuel Pool, 690'
- Area Radiation Monitor, Low Range, Unit 2 Spent Fuel Pool, 690'
- Area Radiation Monitor, High Range, Unit 2 Spent Fuel Pool, 690'
- Area Radiation Monitor, Outside Unit TIP Room, 595'
- Continuous Air Monitor, Unit 1 Refuel Floor, 690'
- Continuous Air Monitor, Unit 1 13-Line, 595'

#### Personnel Contamination Monitors, Portal Monitors and Small Article Monitors

- IPM 9, Instrument Number I350
- SAM 12, Instrument Number 12205
- PM 12, Instrument Number 12047
- SAM 11, Instrument Number LAM1

#### Calibration and Testing Program (IP Section 02.02) (1 Sample)

The inspectors evaluated the calibration and testing program implementation.

(1) The inspectors reviewed the following:

#### Alarm Setpoint and Calibration Method Check of Personnel Contamination Monitors, Portal Monitors and Small Article Monitors

- PM 9, Instrument Number I350
- SAM 12, Instrument Number 12205
- PM 12, Instrument Number 12047

#### Failure to Meet Calibration or Source Check Acceptance Criteria

- RO20 - 0018385
- RO20 - 0014093
- RO20 - 0012237

## OTHER ACTIVITIES – BASELINE

### 71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

#### MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (2 Samples)

- (1) Unit 1 (07/01/2018 - 06/30/2019)
- (2) Unit 2 (07/01/2018 - 06/30/2019)

#### MS06: Emergency AC Power Systems (IP Section 02.05) (2 Samples)

- (1) Unit 1 (07/01/2018 - 06/30/2019)
- (2) Unit 2 (07/01/2018 - 06/30/2019)

### 71152 - Problem Identification and Resolution

#### Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) Issue Report (IR) 4238831, "[Unit] 1C RHRSW High Pressure Outboard Seal Leak During Run"

### 71153 – Follow-up of Events and Notices of Enforcement Discretion

#### Event Follow-up (IP Section 03.01) (1 Sample)

- (1) Unit 1 reactor SCRAM event follow-up activities on August 25, 2019

## INSPECTION RESULTS

Licensee-Identified Non-Cited Violation	71124.05
This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.	
Violation: Technical Specification 5.5.1 states, in part, that the Offsite Dose Calculation Manual shall be established, implemented, and maintained.	
Section 12.2.1, "Radioactive Liquid Effluent Monitoring Instrumentation," of the Offsite Dose Calculation Manual (Revision 13) includes Radiological Effluent Surveillance Requirement 12.2.1.3, which requires channel functional tests of the Unit 1 and Unit 2 service water effluent gross activity monitors to be performed on a 92 day frequency.	
Contrary to the above, between December 19, 2018 and August 6, 2019, the licensee failed to implement radiological effluent surveillance requirements contained within the Offsite Dose Calculation Manual. Specifically, the licensee did not perform channel functional tests on Unit 1 or Unit 2 service water effluent gross activity monitors.	

Significance/Severity: Green. The finding was determined to be of very low safety significance (Green) because the issue involved a radioactive effluent release, but did not: (1) represent a substantial failure to implement the radioactive effluent release program; or (2) result in public exposure that exceeded the dose values in Appendix I to 10 CFR Part 50 and/or 10 CFR 20.1301(e) limits.

Corrective Action References: Issue Report 4268906

Observation: 1C Residual Heat Removal Service Water Outboard Seal Leak	71152
<p>The inspectors reviewed Issue Report 4238831, "1C RHRSW High Pressure Outboard Seal Leak During Run," dated April 12, 2019. The condition report documented a large amount of water leaking and spraying from the outboard seal of the 1C residual heat removal service water pump shortly after pump start in support of a surveillance test. Once the report was received in the control room, operators secured the pump. The licensee declared the pump inoperable and entered the appropriate Technical Specification. After the pump was secured, operators reported that the seal was continuing to leak approximately 3 gallons per minute. The licensee had been tracking the leaking seal on this pump since it was first reported on March 18, 2019, which was documented in Issue Report 4230672, "1C RHRSW HP [high pressure] O/B [outboard] Seal Leaking." Following the seal leak identified in Issue Report 4230672, the licensee determined that seal replacement would be required, and planned the repair for a future residual heat removal work window. The licensee completed all necessary repairs on April 15, 2019, and the pump was restored to an operable status. The inspectors determined that the licensee's corrective action for this issue was appropriate and in accordance with the significance of the issue. The licensee identified that the cause of the seal failure was inadequate pump seal cooling water flow due to a small pebble getting stuck in a flow-restricting orifice, which blocked flow in the seal cooling line. The inspectors reviewed the licensee's responses to Issue Reports 4230672 and 4238831, the design of the RHRSW system, prior RHRSW bay inspections, and internal operating experience. The inspectors determined that the cause of the pump failure and seal leak was not within the licensee's ability to foresee and correct, and no performance deficiency was identified.</p>	

## EXIT MEETINGS AND DEBRIEFS

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

- On October 1, 2019, the inspectors presented the integrated inspection results to Mr. P. Boyle, Acting Plant Manager, and other members of the licensee staff.
- On September 20, 2019, the inspectors presented the radiation protection inspection results to Mr. K. Ohr, Site Vice President, and other members of the licensee staff.
- On October 3, 2019, the inspectors presented the Exit Meeting for EP Inspection per IP 71114, Attachment inspection results to Mr. L. Baker, EP Fleet Programs Manager and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04Q	Procedures	QCOP 1000-04	RHR Service Water System Operation	22
		QCOP 6600-04	Diesel Generator 1/2 Preparation for Standby Operation	34
		QCOP 6600-24	Unit 2 Diesel Generator Preparation for Standby Operation	3
71111.04S	Corrective Action Documents	IR 4025834	Replace Unit 1 SBLC Heat Trace and Insulation	06/26/2017
	Procedures	M-40	Diagram of Standby Liquid Control Piping	
		QOM 1-1100-01	Unit 1 Standby Liquid Control Valve Checklist	10
	Work Orders	WO 4657736	EM Replace/Upgrade 1-1101 U1 SBLC Heat Trace & Insulation	09/06/2018
71111.05Q	Fire Plans	FZ 11.2.1	Unit 1 RB 554'-0" Elev. SW Corner Room - 1B Core Spray	July 2009
		FZ 11.2.3	Unit 1 RB 554'-0" Elev. NW Corner Room - 1A Core Spray	November 2011
		FZ 6.1.A	Unit 1 TB 615'-6" Elev. 'A' Battery Charger Room U-1	October 2013
		FZ 6.1.B	Unit 1 TB 615'-6" Elev. 'B' Battery Charger Room U-1	October 2013
		FZ 6.2.A	Unit 2 TB 615'-6" Elev. 'A' Battery Charger Room U-2	July 2009
		FZ 6.2.B	Unit 2 TB 615'-6" Elev. 'B' Battery Charger Room U-2	October 2013
		FZ 7.1	Unit 1 TB 628'-6" Elev. 250V Battery Room	October 2013
		FZ 7.2	Unit 2 TB 628'-6" Elev. 250V Battery Room	July 2009
		FZ 8.2.6.E	Unit 2 TB 595'-0" Elev. Hallway	November 2018
		FZ 8.2.7.A	Unit 1 TB 615'-6" Elev. Hydrogen Seal Oil Area and MCC's	October 2015
		FZ 8.2.7.E	Unit 2 TB 615'-6" Elev. North Mezzanine Floor	November 2018
71111.12	Miscellaneous	Unavailability Report		July 2018 - June 2019
71111.13	Corrective Action Documents	IR 4267593	Received 902-10 A10, 250V Battery Charger 2 Trip	07/28/2019
		IR 4268103	250 Vdc Drawing Enhancement	07/30/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		IR 4268124	250 Vdc Charger Require Updates	07/30/2019
71111.15	Corrective Action Documents	IR 4262214	7/6/19 DWEDS Pumping had Step Change in Total Gallons Pumped	07/06/2019
		IR 4262426	U2 DWED Sump Level Switch Fails to Stop 2A Pump at Low Level	07/07/2019
		IR 4263259	U2 DWEDS Level Switch Issues Prevent Accurate Trending	07/11/2019
		IR 4263286	EO ID: Water Leak from 0-2007-22 AOV FDF Backwash Inlet	07/11/2019
		IR 4264763	NRC ID: U2 DWFDS Leakage Increase Above NRC Threshold	07/17/2019
		IR 4267593	Received 902-10 A10, 250V Battery Charger 2 Trip	07/28/2019
	Drawings	Drawing 4E-1319	Key Diagram and Elevations 48-24 Vdc Distribution Centers	N
	Miscellaneous	Alarm 902-8 A10	250V Battery Charger 2 Trip	
		OP-AA-108-111	Adverse Condition Monitoring and Contingency Plan (ACMP) U2 Drywell Equipment Drain Sump (DWEDS) Pump Degraded Flow (Rev. 1)	07/18/2019
	Procedures	QOM 1-6300-T01	48/24 Vdc Distribution Panel + 1A Bus 4E-1319	4
		QOM 1-6300-T02	48/24 Vdc Distribution Panel + 1B Bus 4E-1319	5
		UFSAR Table 11.1-4	Drywell Equipment Drain Sump Sources for Radioactive Material	
71111.19	Procedures	QCOS 1000-04	RHR Service Water Pump Operability Test	63
	Work Orders	WO 4916933	QCOS 1000-4 'A' RHR Serv Wtr Pump Flow Group 'A' Test (IST)	07/23/2019
		WO 4916934	QCOS 1000-6 'A' RHR Pump Flow Rate Group 'A' Test (IST)	07/23/2019
		WO 4916935	QCOS 1000-6 'B' RHR Pump Flow Rate Group 'A' Test (IST)	07/23/2019
		WO 4916936	QCOS 1000-4 'B' RHR Serv Wtr Pump Flow Group 'A' Test (IST)	07/23/2019
		WO 4916937	QCOS 1000-06 'A' Loop LPCI Mode RHR Flow Rate	07/23/2019
		WO 4945512	250 Vdc Battery Charger 2 Trip Alarm 902-8 A10 (2-8350)	07/30/2019
71111.20	Corrective Action Documents	IR 4274286	U-1 Reactor Scram Gen Trip from Ground Relay (GIX 104)	08/25/2019
71111.22	Procedures	ER-AA-310	Maintenance Rule	12
		OP-AA-108-115	Operability Determinations	22

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		QCOS 1100-07	SBLC Pump Flow Rate Test	38
		QCOS 2300-06	HPCI System Air Operated Valve Test	44
		QCOS 6620-01	SBO DG 1(2) Quarterly Load Test	54
		WC-AA-101	On-line Work Control Process	28
		WC-AA-101-1006	On-line Risk Management and Assessment	2
	Work Orders	WO 4916523-01	HPCI Valve Timing Test (IST)	0
		WO 4918552-01	SBO Load Test	0
71114.04	Miscellaneous	Evaluation 18-45	Exelon Nuclear Standardized Radiological Emergency Plan, Revision 30	02/14/2019
71124.05	Calibration Records	Certificate #0011135270	Certificate of Calibration RO20AA	02/14/2019
		Certificate #0011138654	Certificate of Calibration Model 3	11/29/2018
		Certificate #0011150060	Certificate of Calibration Model 3	02/01/2019
		Certificate #0011173293	Certificate of Calibration RAM GAM 1	05/28/2019
		Certificate #0011173354	Certificate of Calibration BAK-2270	08/19/2019
		Certificate #001153485	Certificate of Calibration RO-20AA	02/26/2019
		RP-AA-232-1001 Attachment 1	ACCUSCAN II Calibration Acceptance Criteria	07/25/2018
		RP-AA-232-1001 Attachment 1	Calibration Acceptance Criteria FASTSCAN	07/24/2018
		RP-AA-700-1210 Attachment 1	IPM Calibration Data Sheet #1350	10/24/2018
		RP-AA-700-1235 Attachment 3	PM-12 Calibration Data Sheet #12047	08/30/2019
		RP-AA-700-1239 Attachment 2	SAM-12 Calibration Data Sheet #12205	12/18/2018
	Corrective Action Documents	AR 04157428	Out of Tolerance Instrumentation During Calibration	07/20/2018
		AR 04207695	Out of Tolerance Instrumentation During Calibration	01/03/2019
		AR 04264231	Instruments Not Marked "Information Only" As Required	07/15/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		AR 04268906	Request Re-establish SWRM Channel Functional Test Frequency to 92 Days	08/01/2019
	Corrective Action Documents Resulting from Inspection	AR 04280816	Portable Instrument Source Check Acceptance Criteria Exceeds Range of Scale	09/19/2019
		AR 04280821	Portable Instrument Source Check Acceptance Criteria Significant Figure Issue	09/19/2019
	Miscellaneous		C&C Irradiator Service LLC; Dose vs. Distance Curves	07/17/2019
		Ref No S125722	Radcal Corporation Service Report	04/15/2019
	Procedures	CY-AA-130-201	Radiochemistry Quality Control	7
		RP-AA-232-1001	Calibration Verification of Whole Body Counting Systems Using APEX In-Vivo	1
		RP-AA-700-1208 Attachment 1	Irradiator Reference Data Sheet	07/17/2019
		RP-AA-700-1210	Operation and Calibration of IPM Whole Body Frisking Monitor	2
		RP-AA-700-1235	Operation and Calibration of the PM-12 Gamma Portal Monitor	5
		RP-AA-700-1239	Operation and Calibration of the Model SAM-12 Small Articles Monitor	5
	Self-Assessments	AR 4207564	NRC: Rad Protection - Rad Monitoring Instrumentation Inspection	07/16/2019
	Work Orders	01949080-01	QCIS 2400-05 Division II Rad Monitor Calibration/Functional Test	04/19/2018
71152	Corrective Action Documents	ACE	1C Residual Heat Removal Service Water (RHRSW) High Pressure Pump Outboard (OB) Seal Failure	
		IR 4161140	1C RHRSW HP Pump O/B Seal Has Increased	08/02/2018
		IR 4230672	EO ID: 1C RHRSW HP O/B Seal Leaking	03/18/2019
		IR 4232246	EO ID: 1C RHRSW HP O/B Seal Leaking (Leak Template IR)	03/18/2019
		IR 4234945	Eoid: 1C RHRSW High Pressure Pump Outboard Seal Leak Increase	03/31/2019
		IR 4238831	1C RHRSW High Pressure Pump OB Seal Leak During Run	04/12/2019
		IR 4254019	Pump Failed to Start During QCOS 1000-04	06/03/2019
		IR 4272141	Eoid - 1C RHRSW High Pressure Pump Inboard Seal Leak	08/15/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		IR 4272309	1C RHRSW HP Pump 1B Seal Leak Follow-up to IR 4272141	08/15/2019
		IR 490375	PSU Q1M19 1C RHRSW Pump Seal Leak	05/16/2006
		IR 580419	Gap Below RHRSW Separation Screen	01/18/2007
	Drawings	Drawing B-35	Crib House Plan El. 595'-0" South Area	P
		Drawing B-36	Crib House Plan El. 595'-0" North Area	N
		Drawing B-37	Crib House Plan El. 559'-8"	F
		Drawing M-11	General Arrangement Crib House	E
		Drawing M-79, Sheet 1	Diagram of RHR Service Water Piping	BJ
	Miscellaneous	UCC Job #02-14-233.296 Letter	RHR Service Water Bay Inspection Report	02/07/2018
		UCC Job #02-14-233.327 Letter	RHR Service Water Bay Inspection Report	08/07/2018
		UCC Job #02-14-233.367	RHR Service Water Bay Inspection Report	02/07/2019
71153	Corrective Action Documents	IR 4274286	U-1 Reactor Scram Gen Trip from Ground Relay (GIX 104)	08/25/2019