



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, ILLINOIS 60532-4352

May 6, 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—NRC  
INTEGRATED INSPECTION REPORT 05000254/2019001 AND  
05000265/2019001

Dear Mr. Hanson:

On March 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Quad Cities Nuclear Power Station, Units 1 and 2. On April 2, 2019, the NRC inspectors discussed the results of this inspection with Mr. K. Ohr 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/*

Kenneth Riemer, Chief  
Branch 1  
Division of Reactor Projects

Docket Nos.: 05000254; 05000265  
License Nos.: DPR-29; DPR-30

Enclosure:  
IR 05000254/2019001; 05000265/2019001

cc: Distribution via LISTSERV®

Letter to Bryan Hanson from Kenneth Riemer dated May 6, 2019

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2—NRC  
INTEGRATED INSPECTION REPORT 05000254/2019001 AND  
05000265/2019001

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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: 05000254/2019001 and 05000265/2019001

Enterprise Identifier: I-2019-001-0054

Licensee: Exelon Generation Company, LLC

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

Location: Cordova, IL

Inspection Dates: January 01, 2019 to March 31, 2019

Inspectors: J. Beavers, Resident Inspector  
S. Bell, Health Physicist  
J. Cassidy, Senior Health Physicist  
C. Mathews, Illinois Emergency Management Agency  
R. Murray, Senior Resident Inspector  
J. Neurauter, Senior Reactor Inspector  
R. Ng, Project Engineer  
A. Nguyen, Senior Resident Inspector  
J. Park, Reactor Inspector  
D. Tesar, Resident Inspector

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

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a quarterly 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. Findings and violations being considered in the NRC's assessment are summarized in the table below.

### List of Findings and Violations

No findings or violations were identified.

### Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000254,05000265/2018-004-00	LER 2018-004-00 For Quad Cities Nuclear Power Station, Unit 1, Reactor Scram Due to Turbine-Generator Load Reject.	71153	Closed
LER	05000254,05000265/2018-004-01	LER 2018-004-01 for Quad Cities Nuclear Power Station, Unit 1, Reactor Scram Due to Turbine-Generator Load Reject.	71153	Closed
LER	05000254,05000265/2018-005-00	LER 2018-005-00 for Quad Cities Nuclear Power Station, Unit 1, Loss of Safety Bus and Automatic Actuation of a Safety System During Undervoltage Relay Surveillance.	71153	Closed
URI	05000254/2019001-01	Insulation Not Removed Prior to General Visual Examination of Containment Surface Areas	71111.08G	Open

## **PLANT STATUS**

### **Unit 1**

The unit began the operating period at full rated thermal power. The unit was operated at full rated thermal power with the exception of planned power reductions for turbine testing and control rod pattern adjustments until February 15, 2019, when the unit began its end-of-cycle coastdown period. The unit was shutdown on March 18, 2019, for refuel outage Q1R25. The unit remained in a shutdown condition through the end of the inspection period.

### **Unit 2**

The unit began the operating period at full rated thermal power, where it remained for the entire inspection period, with the exception of planned power reductions for turbine testing, control rod pattern adjustments, and other 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

#### External Flooding Sample (IP Section 03.04) (1 Partial)

The inspectors evaluated readiness to cope with external flooding for the following areas:

- Units 1 and 2 turbine building

#### Impending Severe Weather Sample (IP Section 03.03) (1 Sample)

The inspectors evaluated readiness for impending adverse weather conditions for extreme cold temperatures expected from January 29 - 31, 2019

#### Summer Readiness Sample (IP Section 03.01) (1 Sample)

The inspectors evaluated summer readiness of offsite and alternate alternating current (AC) power systems

#### 71111.04 - Equipment Alignment

##### Partial Walkdown (IP Section 02.01) (5 Samples)

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

- (1) Unit 1 high pressure coolant injection during Unit 1 reactor core isolation cooling planned maintenance on January 8, 2019
- (2) Unit 1 reactor core isolation cooling during Unit 1 high pressure coolant injection extended maintenance on February 6, 2019
- (3) Unit 1A core spray while 1B core spray planned maintenance on March 12, 2019
- (4) Units 1 and 2 fuel pool cooling systems on March 20, 2019
- (5) Unit 1A shutdown cooling subsystem on March 20, 2019

#### 71111.05Q - Fire Protection

##### Quarterly Inspection (IP Section 03.01) (4 Samples)

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

- (1) Fire Zone 1.1.1.2, Unit 1 reactor building, elevation 595'-0", ground floor and Fire Zone 1.1.1.3, Unit 1 reactor building, elevation 623'-0", mezzanine level on March 13, 2019
- (2) Fire Zone 1.1.1.4, Unit 1 reactor building, elevation 647'-0", third floor and Fire Zone 1.1.1.5, Unit 1 reactor building, elevation 666'-0", fourth floor east and west on March 13, 2019
- (3) Fire Zone 8.2.6.B, Unit 1 turbine building, elevation 595'-0", low pressure heater bay and Fire Zone 8.2.6.A, Unit 1 turbine building, elevation 595', 'D' heater bay on March 29, 2019
- (4) Fire Zone 8.2.7.B, Unit 1 turbine building, elevation 615'-6", low pressure heater bay (east and west)/ 'D' heater bay on March 21, 2019

#### 71111.06 - Flood Protection Measures

##### Inspection Activities - Internal Flooding (IP Section 02.02a.) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

Unit 2 reactor building corner rooms for 2A and 2B core spray subsystems and 2A and 2B residual heat removal subsystems, elevation 554' 0" on February 7, 2019

#### 71111.07A - Heat Sink Performance

##### Annual Review (IP Section 02.01) (1 Sample)

The inspectors evaluated readiness and performance of:

Unit 1 emergency diesel generator and 1B residual heat removal heat exchanger eddy current testing during refueling outage Q1R25 on March 25, 2019

## 71111.08G - Inservice Inspection Activities (BWR)

### BWR Inservice Inspection Activities Sample - Nondestructive Examination and Welding Activities (IP Section 03.01) (1 Sample)

The inspectors verified that the reactor coolant system boundary, reactor vessel internals, risk-significant piping system boundaries, and containment boundary are appropriately monitored for degradation and that repairs and replacements were appropriately fabricated, examined and accepted by reviewing the following activities from March 18, 2019 to March 28, 2019:

#### 03.01.a - Nondestructive Examination and Welding Activities.

##### Nondestructive Examinations

- Ultrasonic Examination (UT) of Residual Heat Removal System Elbow-Elbow Weld Component 10BD-S12 and Valve-Elbow Weld Component 10BD-F5
- UT of Residual Heat Removal System Pipe-Elbow Weld Component 10AD-S10
- UT of Standby Liquid Control System Nozzle Safe End Weld Component N10-F1
- Liquid Penetrant Examination (PT) of Reactor Recirculation System Integral Attachment Weld Component 0200-W-127A to Pump 1B
- Magnetic Particle Examination (MT) of Emergency Core Cooling System Integral Attachment Weld Component 1025-W-211A to Torus Ring Header; Visual Examination (VT-3) of Mechanical Snubber Component 1025-W-211; and Visual Examination (VT-3) of Pipe Restraint M-1604-02
- General Visual Examination (GV) of IWE Containment Boundary Components: Containment Flued Head Piping Penetrations X-007A, X-007B, X-007C, X-007D, X-008, X-009A, X-009B, X-010, and X-012
- VT-3 of Residual Heat Removal Service Water System Box Guide Restraint Component 3967-G-302
- VT-3 of Residual Heat Removal Service Water System Variable Spring Can Support Component 3967-M-302.1

##### Examination Records with Relevant Indications Accepted for Continued Service

- No volumetric or surface examination was available from the previous outage with relevant indications that the licensee analytically evaluated and accepted for continued service

##### Pressure Boundary Welds

- Core Spray System, Keep-Fill Line 1-1432-2"-LX, Piping Integral Attachment Weld Installation, Weld-1 (Work Order 1623483-01)
- Containment System, Hardened Vent System Installation, Weld-1, Weld-2, Weld-3, Weld-4, Weld-5, Weld-6, and Weld-7 (Work Order 1801722)

## 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)

The inspectors observed and evaluated licensed operator performance in the control room during a controlled shutdown on Unit 1 for refuel outage Q1R25 on March 18, 2019

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

The inspectors observed and evaluated operators in the control room simulator during regualification training on March 4, 2019

## 71111.12 - Maintenance Effectiveness

### Routine Maintenance Effectiveness Inspection (IP Section 02.01) (2 Samples)

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

- (1) Units 1 and 2 nuclear instruments: intermediate range monitors on March 4, 2019
- (2) Units 1 and 2 reactor core isolation cooling systems on March 14, 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 03-06-19 risk: Unit 1 125 Vdc battery charger load test, Unit 1C circulating water pump rising bearing temperatures, Unit 2 steam jet air ejector valve packing leak during week of January 16, 2019
- (2) Work Week 19-06-09: Planned Unit 1 high pressure coolant injection system maintenance and unplanned failed high pressure coolant injection system post maintenance testing due to a failed motor speed changer motor and gearbox during the week of February 4, 2019
- (3) Unit 1 Shutdown Safety during refuel outage Q1R25 and Unit 2 online risk during week of March 18, 2019
- (4) Unit 1 Shutdown Safety during refuel outage Q1R25 and Unit 2 online risk during week of March 25, 2019

## 71111.15 - Operability Determinations and Functionality Assessments

### Sample Selection (IP Section 02.01) (4 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Issue Report 4213355, "1A RHRSW [residual heat removal service water] Pump in IST [inservice test] Alert Range" on February 5, 2019



- (2) Issue Report 4217557, "Unit 1 HPCI [high pressure coolant injection] Unplanned Inoperability Identified During Planned Maintenance PMT [post maintenance test] - failed MSC [motor speed changer]" on February 6, 2019
- (3) Issue Report 4198785, "1/2 EDG [emergency diesel generator] O/P [operating] Breaker Failed to Close to Bus 23-1" on February 19, 2019
- (4) Issue Report 4229670, "MCC [motor control center] 18/19-5 Auto Transfer Logic Operability" on March 20, 2019

#### 71111.18 - Plant Modifications

##### Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Partial)

The inspectors evaluated the following temporary or permanent modifications:

core spray nozzle modification on March 4, 2019

#### 71111.19 - Post Maintenance Testing

##### Post Maintenance Test Sample (IP Section 03.01) (2 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Unit 1 high pressure coolant injection system following motor speed changer motor replacement and gearbox overhaul on February 7, 2019
- (2) Unit 1B residual heat removal pump seal cooler on February 27, 2019

#### 71111.20 - Refueling and Other Outage Activities

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

The inspectors evaluated the Unit 1 refueling outage, Q1R25, activities from March 18 to March 31. The inspectors observed shutdown and cooldown activities, performed a containment walkdown, and reviewed the licensee's shutdown safety plan. Refueling activities continued into the next inspection period.

#### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

##### In Service Testing (IST) (IP Section 03.01) (1 Sample)

QCOS 6600-06, "U1 DGCWP [diesel generator cooling water pump] Flow Rate Test" on March 21, 2019

##### Surveillance Testing (IP Section 03.01) (3 Samples)

- (1) QCIS 0200-46, "Unit 2A Loop Reactor Water Level Transmitter Cal and Trip Point Verification" on March 1, 2019
- (2) QCOS 0201-02, "Primary System Boundary Thermal Limitations" on March 18, 2019

- (3) QCOS 6700-01, "MCC [motor control center] 18/19-5 Auto Transfer Logic Operability Surveillance" on March 25, 2019

## **RADIATION SAFETY**

### 71124.01 - Radiological Hazard Assessment and Exposure Controls

#### Contamination and Radioactive Material Control (IP Section 02.03) (1 Sample)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material. The inspectors verified the following sealed sources are accounted for and are intact:

- 09-18515; Ni-63; Instrument Maintenance Repair Shop
- S-467; Sr-90; 690' RP Gangbox
- Gen-AmBe-16; TW-1 Behind Tool Crib

#### High Radiation Area and Very High Radiation Area Controls (IP Section 02.05) (1 Sample)

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

#### Instructions to Workers (IP Section 02.02) (1 Sample)

The inspectors evaluated instructions to workers including radiation work permits used to access high radiation areas:

##### Radiation work packages

- QC-01-19-701; Torus Diving
- QC-01-19-513; Control Rod Drive Exchange
- QC-01-19-903; Platform IVVI (In-Vessel Verification Inspection) and Associated Activities
- QC-01-19-805; Sand Blasting Activities

##### Electronic alarming dosimeter alarms

- IR 04127351: "Q2R24 LL (Lessons Learned): Dose Rate Alarm," 04/16/2018
- IR 04231163: "Unplanned Dose Rate Alarm In Reactor Cavity," 03/18/2019

##### Labeling of containers

- LPRM (Local Power Range Monitoring) Box (outside)
- Hoses (Refuel Floor)
- Tools and Equipment (Drywell)

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 02.06) (1 Sample)

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

Radiological Hazard Assessment (IP Section 02.01) (1 Sample)

The inspectors evaluated radiological hazards assessments and controls. The inspectors reviewed the following:

Radiological surveys

- Refuel Floor
- Drywell (DW)
- Torus

Risk significant radiological work activities

- Torus Diving
- Control Rod Drive Exchange
- In-Vessel Verification Inspection
- Turbine Building Sand Blasting Activities

Air sample survey records

- Drywell Under Vessel; 0455 03/20/2019
- Turbine Building 639' 'C' Hood Removal; 1000 03/19/2019
- Reactor Water Clean Up Regen Heat Exchanger; 0355 03/21/2019

Radiological Hazards Control and Work Coverage (IP Section 02.04) (1 Sample)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities.

Radiological work package for areas with airborne radioactivity

- QC-01-19-805; Sand Blasting Activities

71124.02 - Occupational ALARA Planning and Controls

Radiation Worker Performance (IP Section 02.04) (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance during preparations for Control Rod Drive Exchange and In-Vessel Verification Inspection.

## 71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

### Engineering Controls (IP Section 02.01) (1 Sample)

The inspectors evaluated airborne controls and radioactive monitoring. The inspectors reviewed the following

Installed ventilation systems

- 'A' Standby Gas Treatment System
- 'B' Standby Gas Treatment System

Temporary ventilation system setups

- HEPA (High Efficiency Particulate Airborne) U1 Turbine; 639' Turbine Building

Portable or installed monitoring systems

- Portable AMS-4 on Refuel Floor
- Portable AMS-4 on 639' Reactor Building

### Self-Contained Breathing Apparatus for Emergency Use (IP Section 02.03) (1 Sample)

The inspectors evaluated Self-Contained Breathing Apparatus (SCBA) program implementation.

Status and surveillance records for SCBAs

- MSA SCBA Firehawk; S/N CBAI352067
- MSA SCBA Firehawk; S/N CBAI355109
- MSA SCBA Firehawk; S/N CBAI349993

SCBA fit for on-shift operators

- SCBA Qualification Records; on-duty licensed reactor operator 03/18/2019 dayshift

SCBA maintenance check

- SCBA S/N CBAI349971; Maintenance and Test Document; 12/12/2018
- SCBA S/N CBAI349994; Maintenance and Test Document; 12/12/2018
- SCBA S/N CBAI349995; Maintenance and Test Document; 12/12/2018

### Use of Respiratory Protection Devices (IP Section 02.02) (1 Sample)

The inspectors evaluated respiratory protection. The inspectors reviewed the following:

Evaluations for the use of respiratory protection

- TEDE (Total Effective Dose Equivalent) ALARA Evaluation Screening Worksheet; DW Control Rod Drive (CRD) Exchange; 02/27/2019

- TEDE ALARA Evaluation Screening Worksheet; DW Main Steam Safety Relief Valve Activities; 02/28/2019

Respiratory protection use during work activities

- RWP QC-01-19-00513; DW Control Rod (CRD) Exchange; Revision 1

Medical fitness for use of respiratory protection devices

- Versaflo PAPR (Powered Air Purifying Respirator) Qualification Records; Under Vessel Work; 03/18/2019

Observation of donning, doffing and functional test

- Not available during this inspection

Respiratory protection device evaluation

- Three Versaflo Respirators
- Three MSA Rubber UltraElite Full-Face Respirators
- Two MSA Silicone UltraElite Full Face Respirators

#### 71124.04 - Occupational Dose Assessment

##### External Dosimetry (IP Section 02.02) (1 Sample)

The inspectors evaluated the external dosimetry program implementation.

##### Internal Dosimetry (IP Section 02.03) (1 Sample)

The inspectors evaluated the internal dosimetry program implementation.

Whole Body Counts

- Not available during this inspection

In-vitro internal monitoring

- Not available during this inspection

Dose assessments performed using air sampling and Derived Air Concentration monitoring

- Not available during this inspection

##### Source Term Categorization (IP Section 02.01) (1 Sample)

The inspectors evaluated the licensee's characterization of the source term and use of scaling factors for the use of hard-to-detect radionuclide activity.

Special Dosimetric Situations (IP Section 02.04) (1 Sample)

The inspectors evaluated special dosimetric situations.

Declared pregnant workers

- Declared Pregnant Worker Record; Date of Declaration 08/27/2018
- Declared Pregnant Worker Record; Date of Declaration 09/25/2018

Effective Dose Equivalent for External Exposures

- Not available during this inspection

Shallow Dose Equivalent

- Not available during this inspection

Neutron Dose Assessment

- Not available during this inspection

**OTHER ACTIVITIES – BASELINE**

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (2 Samples)

- (1) Unit 1 (01/01/2018 - 12/31/2018)
- (2) Unit 2 (01/01/2018 - 12/31/2018)

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (2 Samples)

- (1) Unit 1 (01/01/2018 - 12/31/2018)
- (2) Unit 2 (01/01/2018 - 12/31/2018)

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (2 Samples)

- (1) Unit 1 (01/01/2018 - 12/31/2018)
- (2) Unit 2 (01/01/2018 - 12/31/2018)

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:

IR 4213355, "1A RHR [residual heat removal] SW [service water] pump in IST [inservice test] Alert Range," 01/23/2019

71153 – Follow-Up of Events and Notices of Enforcement Discretion

Event Follow-Up (IP Section 03.01) (1 Sample)

The inspectors evaluated plant conditions and the licensee's response to a break in a fire protection pipe on Unit 1 that caused water to leak onto 4.16 kV Bus 11, which actuated several Annunciations in the control room and caused 125 Vdc grounds on both units, on February 1, 2019.

Event Report (IP Section 03.02) (2 Samples)

The inspectors evaluated the following licensee event reports which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) LER 2018-004-00 and LER 2018-004-01 (Revisions 0 and 1) for Quad Cities Nuclear Power Station, Unit 1, Reactor Scram Due to Turbine-Generator Load Reject.(ADAMS Accession: ML19059A037)

The circumstances surrounding this LER were documented in the results section for IP 71152 – Problem Identification and Resolution in Inspection Report 05000254/2018004; 05000265/2018004.

- (2) LER 2018-005-00 for Quad Cities Nuclear Power Station, Unit 1, Loss of Safety Bus and Automatic Actuation of a Safety System During Undervoltage Relay Surveillance. (ADAMS Accession: ML18355A350)

The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER; therefore, no performance deficiency was identified. The inspectors also concluded that no violation of NRC requirements occurred.

**INSPECTION RESULTS**

Unresolved Item (Open)	Insulation Not Removed Prior to General Visual Examination of Containment Surface Areas 05000254/2019001-01	71111.08G
<p><u>Description:</u></p> <p>The inspector identified an unresolved item (URI) regarding the licensee's general visual (GV) examination of surface areas covered by insulation. Specifically, on March 20, 2019, the inspector observed the licensee's IWE-GV examination of containment boundary flued head components for piping penetrations X-007A, X-007B, X-007C, X-007D, X-008, X-009A, X-009B, X-010, and X-012. The inspector noted that the licensee had not removed thermal insulation covering these components, and the licensee's examiners could only displace a relatively small portion of blanket type insulation to visually examine containment surface area under the insulation. For metallic type insulation, the licensee's examiners could not examine any portion of containment surface area covered by the insulation. The licensee documented these components as insulated in visual examination NDE Report Q1R25-IWE-01 with no</p>		

recordable/relevant indications identified for any of the 23 examination attributes listed in the report.

The inspector inquired why the insulation was not removed prior to the examinations similar to other observed nondestructive examinations (NDE). Specifically, the insulation appeared to be similar to and no more difficult to remove than insulation removed prior to other observed NDE examinations. Therefore, the inspector questioned if the licensee examinations were in accordance with provisions of American Society of Mechanical Engineers (ASME) Subsection IWE, "Requirements for Class MC and Metallic Liners of Class CC Components of Light-Water-Cooled Plants," of the 2013 Edition of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the ASME Boiler and Pressure Vessel Code and if the licensee could credit an IWE-GV examination of Class MC surface areas covered by insulation.

On March 22, 2019, the licensee entered the concern into its corrective action program as Issue Report 04231978, "NRC ISI Inspection – IWE Examination Accessibility Question." This report documented the licensee's position to follow ASME Code Interpretation XI-1-13-25, "Inquiry on IWE-2500 Related to Accessibility for Examination," issued on March 7, 2014, which stipulates:

- It is not a requirement of IWE-1230 that containment surface covered by thermal insulation be considered accessible for general visual examination in accordance with Table IWE-2500-1, Examination Category E-A.
- It is a requirement of IWE-1230 that containment surface covered by thermal insulation be considered accessible for augmented examination in accordance with Table IWE-2500-1, Examination Category E-C, if these surfaces are subject to accelerated degradation or aging.

In addition, the licensee cited paragraph IWE-1232(c) of Subsection IWE, to classify IWE Class MC surface areas covered by insulation as inaccessible: "surface areas are considered inaccessible if visual access by line of sight from permanent vantage points is obstructed by permanent plant structures, equipment, or components, provided these surface areas do not require examination in accordance with the inspection plan or IWE-1240." During the IWE-GV examination, the insulation was visually examined for indications of accelerated degradation or aging of the Class MC surface areas covered by insulation. However, the inspector could not identify acceptance criteria provisions in IWE-3500 to correlate accelerated degradation or aging of Class MC surface areas to the physical condition of the insulation.

The inspector compared ASME Code Interpretation XI-1-13-25 and the licensee's justification to not remove existing insulation to other provisions of Subsection IWE. In particular, paragraph IWE-1220(c) exempts components that become embedded or inaccessible as a result of vessel repair / replacements activities if the conditions of IWE-1232(a) and IWE-1232(b) and IWE-5220 are met. The inspector could not conclude that either ASME Code Interpretation XI-1-13-25 or paragraph IWE-1220(c) would exempt components covered by removable insulation. In addition, paragraph IWE-1231(a)(1) stipulates that openings and penetrations of Class MC containment vessels, parts, and appurtenances shall remain accessible for either direct or remote visual examination for the life of the plant. As previously noted, the insulation appeared to be similar to insulation removed prior to other observed NDE examinations making surface areas accessible for visual examination.



The inspector reviewed guidance in Subsection IWE Commentary, 4 Draft – dated April 15, 2012, (this Commentary is not part of the ASME Boiler and Pressure Vessel Code and not endorsed or published by ASME). Of note, IWE-1220 commentary states:

- IWE-1220 contains a list of components which are exempted from examination, including components which are inaccessible. No specific definition of inaccessibility is provided in these rules, but inaccessible areas should include those that are embedded or otherwise permanently obstructed from direct visual examination. An example of an area which should not be considered inaccessible is one which is covered by insulation, unless the insulated area is sealed to prevent intrusion of moisture against the covered containment surfaces. Please note that containment metallic surfaces that are accessible from at least one side should not be considered inaccessible (See IWE-1231 for more information).

Finally, the inspector also reviewed the 2017 Edition of Subsection IWE and verified that neither ASME Code Interpretation XI-1-13-25 nor the above IWE commentary has been incorporated into the ASME code.

Based on the above discussion, the inspector could not conclude that the licensee could classify IWE Class MC surface areas covered by permanent but removable insulation as inaccessible when performing IWE-GV examinations.

This issue is considered an unresolved item pending further review to ascertain the acceptability of considering equipment inaccessible for IWE-GV examination of IWE Class MC surface areas if covered by existing but removable insulation (URI 05000254/2019001-01, Insulation Not Removed Prior to General Visual Examination of Containment Surface Areas).

Planned Closure Action(s): The issue is considered an unresolved item pending further inspector review including consultation with Office of Nuclear Reactor Regulation (NRR) staff. This issue does not represent a current safety concern because the Quad Cities Unit 1 containment is subject to periodic pressure tests and additional examinations from the inside surface which would identify potential degradation. Additionally, the inspector did not identify site or industry operating experience that would indicate the subject penetration locations were affected by an active degradation mechanism.

Licensee Action(s): The licensee provided its position: Exelon procedures ER-AA-330-007 and ISI Program Plan, ER-QC-330-1001, adopt and implement the ASME provided definition of “accessible” and “inaccessible” as discussed under IWE-1231, IWE-1232, and Section XI Code Interpretation XI-1-13-25. Industry practice for this area of inspection has been and continues to be to adopt the ASME provided definition of “accessible” and “inaccessible” per the Section XI Code Interpretation XI-1-13-25. This Code Interpretation was utilized at Quad Cities Station during Q1R25 IWE visual examinations.

Assignment 02 of AR 04231978 directs action to fleet CISI Engineer to revise Procedure ER-AA-330-007 to include Exelon position on Interpretation XI-1-13-25 and clarify definition of “Accessible Areas.”

Corrective Action Reference(s): AR 04231978; NRC ISI Inspection – IWE Examination Accessibility Question; March 22, 2019

Observation	71152
<p>The condition was identified in IR 04213355, "1A RHRSW Pump in IST [Inservice Test] Alert Range," dated January 23, 2019, where differential pressure across the pump was found to be in the Alert range during its biennial comprehensive performance test. The inspectors reviewed: (1) corrective actions taken by the licensee to address the condition, (2) pump differential pressure trend along with select previous maintenance history, and (3) the licensee's IST program procedure and ASME OM code requirements, and did not identify concerns. The inspectors noted that among the planned corrective actions to be taken in the future was to double the test frequency and keep it doubled until the cause of the degradation was determined and corrected. The inspectors recommend that the next biennial Problem Identification and Resolution inspection team review the 1A RHRSW pump trend and final corrective actions to ensure the licensee has appropriately addressed the degraded condition.</p>	

## EXIT MEETINGS AND DEBRIEFS

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

- On April 2, 2019, the inspector presented the quarterly integrated inspection results to Mr. K. Ohr and other members of the licensee staff.
- On March 28, 2019, the inspector presented the Unit 1 inservice inspection activities results to Mr. K. Ohr, Site Vice President and other members of the licensee staff.

## DOCUMENTS REVIEWED

### 71111.01—Adverse Weather Protection

- IR 4215339; 912-2 D4, Stability Trip Armed, Annunciator Received; 01/30/2019
- IR 4215974; GCB 7-8 and 6-7 Low SF6 Gas Pressure; 01/31/2019
- QCOA 0010-16; Flood Emergency Procedure; Revision 28

### 71111.04—Equipment Alignment

- IR 4207379; EO ID Local Light Indication for 1-2301-15 Not Functioning; 01/02/2019
- QCOP 2300-15; Unit 1 HPCI Preparation for Standby Operation; Revision 12
- QCOP 1300-01; RCIC System Preparation for Standby Operation; Revision 45
- QCOS 1400-4; Core Spray Pump Operability Test; Revision 19
- QCOS 1400-10; Core Spray Operability Verification; Revision 26
- QCOS 1400-02; Core Spray System Motor Operated Valve Operability Test; Revision 16
- QOM 1-1400-09; Unit 1A Core Spray Valve Checklist; Revision 8
- QOM 1-1900-01; Unit 1 Fuel Pool Cooling Valve Checklist; Revision 12
- QOM 1-1400-09; Unit 1 A Core Spray Valve Checklist; Revision 8
- QOM 1-1400-08; Core Spray System Fuse and Breaker Checklist; Revision 3
- Diagram of Core Spray Piping; M-78
- Diagram of Fuel Pool Cooling Piping; M-80

### 71111.05AQ—Fire Protection Annual/Quarterly

- Pre-Fire Plan, FZ 1.1.1.2, Unit 1 RB 595'-0" Elev., Ground Floor, October 2013
- Pre-Fire Plan, FZ 1.1.1.3, Unit 1 RB 623'-0" Elev., Mezzanine Level, July 2012

- Pre-Fire Plan, FZ 1.1.1.4, Unit 1 RB 647'-6" Elev., Third Floor, October 2013
- Pre-Fire Plan, FZ 1.1.1.5, Unit 1 RB 666'-6" Elev., Standby Gas Treatment, 4<sup>th</sup> Floor, January 2011
- Pre-Fire Plan, FZ 1.1.1.5, Unit 1 RB 666'-6" Elev., Standby Liquid Control, 4<sup>th</sup> Floor, February 2013

#### 71111.06—Flood Protection Measures

- WO 1956798; 2B RHR RM RB Sump Valve Check/Adjust Actuator Travel Stop; 09/19/2017
- WO 4588088; 2A CS RB Sump Valve Check/Adjust Actuator Travel Stop; 03/14/2018
- WO 4651635; 2B CS RB Sump valve Check/Adjust Actuator Travel Stop; 05/23/2018
- WO 4658519; 2A RHR RM RB Sump Valve Check/Adjust Actuator Travel Stop; 06/08/2018

#### 71111.07—Heat Sink Performance

- ER-AA-340-1002; HX Inspection Report, 1B RHR Heat Exchanger; 03/21/2019
- ER-AA-340-1002; HX Inspection Report, 1A EDG Jacket Water Heat Exchanger; 03/25/2019
- ER-AA-340-1002; HX Inspection Report, 1B EDG Jacket Water Heat Exchanger; 03/25/2019
- ER-AA-340-1002; Service Water Heat Exchanger Inspection Guide; Revision 8
- ER-AA-340-1002; HX Inspection Report; Revision 8
- EC 387980; Determine Tube Fouling Limit for Wiegmann & Rose Diesel Generator Heat Exchangers; Revision 0
- QCMMS 6600-07; Emergency Diesel Generator Heat Exchanger Service Water Side Clean and Inspect; Revision 6
- QCTP 0820-10; Heat Exchanger and Room Cooler Inspection; Revision 7
- Unit 1 Eddy Current Results: 2019-03 Project; 1B RHR EPN: 1-1003-B

#### 71111.08—Inservice Inspection Activities

- IR 3983983; 1A RFP FME, Impeller Pieces Found Missing During Maintenance; 03/10/2017
- IR 3989830; PSU Q1R24, Undervessel Identified Leakage; 03/27/2017
- IR 3992696; IVVI, Feedwater Sparger End Bracket Pin Damage; 04/01/2017
- IR 3993020; IVVI, Steam Separator Support Ring Gussets; 04/01/2017
- IR 3993050; ISI Support 1-0200-W-119A&B, RI; 04/02/2017
- IR 3993757; PSU Q1R24 IVVI, Jet Pump 04, DF-2 Weld, New Flaw; 04/04/2017
- IR 3994793; FM - 1"x ¾" Rusty, Mangled Piece of Metal, Annulus Floor, JP 19; 04/06/2017
- IR 3995147; FM - Silt and Small Pieces of Weld Slag by JP 17; 04/06/2017
- IR 3995838; IVVI, Jet Pump 16, AD-3 Weld Indication; 04/07/2017
- IR 3995910; 1-1001-65D Upstream Pipe Support Condition; 04/08/2017
- IR 4085103; Review Documentation Issue Identified During Work Completion; 12/15/2017
- IR 4231371; Loose End Cap Nut on Snubber 1-1025-86; 03/20/2019
- IR 4183430; ER-AA-016 Needs to Be Reviewed for Revision; 10/14/2018
- IR 4233392; Q1R25 Welded Lug on Guide Not on Drawing M-998D-71; 03/27/2019
- IR 4231978; NRC ISI Inspection: IWE Examination Question; 03/20/2019
- Drawing 1-CISI-1001, Sheet 1; IWE Boundary Drawings, Piping and Instrument Penetration Details, Configuration No. 1; Revision E
- Drawing 1-CISI-1001, Sheet 2; IWE Boundary Drawings, Piping and Instrument Penetration Details, Configuration No. 2; Revision C
- Drawing M-1602-14; Pipe Support Detail, ECCS Ring Header 1-1025-24"-LX; Revision 0
- Drawing M-983F-H1; Small Bore Support Detail, Core Spray Line 1-1432-2"-LX; Revision A
- EC 375492; Construction Porosity Found During ISI Exam Point; 05/09/2009

- EC 618731; Evaluation of Q1R24 In-Vessel Visual Inspection (IVVI) Inspection Findings; Revision 0
- EC 619057; Rear Pin Cocked Spring Can M-994D-603 Evaluation; Revision 0
- PQR 1-50C; Clinton Power Station: Weld Procedure Qualification Record; 01/03/1984
- PQR A-001; Clinton Power Station: Weld Procedure Qualification Record; 10/19/1998
- PQR A-002; Clinton Power Station: Weld Procedure Qualification Record; 03/09/1999
- Procedure ER-AA-335-002; Liquid Penetrant (PT) Examination; Revision 10
- Procedure ER-AA-335-003; Magnetic Particle (MT) Examination; Revision 8
- Procedure ER-AA-335-016; VT-3 Visual Examination of Component Supports, Attachments and Interiors of Reactor Vessels; Revision 11
- Procedure ER-AA-335-018; Visual Examination of ASME IWE Class MC and Metallic Liners of IWL Class CC Components; Revision 13
- Procedure ER-AA-335-1008; Code Acceptance & Recording Criteria for Nondestructive (NDE) Surface Examination; Revision 5
- Procedure GEH-PDI-UT-2; PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds; Revision 12
- Procedure GEH-PDI-UT-10; PDI Generic Procedure for the Ultrasonic Examination of Dissimilar Metal Welds; Version 9
- QDC-1600-M-1617; Design Analysis: Determination of the Area of Primary Containment After Construction; Revision 0
- Report 2017-MT-018; Magnetic Particle Examination: Component 1-1603-18"-LX, Slip on Flange Weld-2 and Weld-4, WO 01801722-01; 04/05/2017
- Report 2017-MT-022; Magnetic Particle Examination: Component 1-1603-18"-LX, Slip on Flange Weld-1 and Weld-3, WO 01801722-01; 04/05/2017
- Report 2017-RT-001; Radiographic Examination: Component 1-1603-12"-LX, Weld-5 (Elbow to Tee), Weld-6 (Elbow to Pipe) and Weld-7 (Pipe to Flange), WO 01801722-01; 01/29/2017
- Report 2018-PT-107; Liquid Penetrant Examination Data Sheet: Component 1-1432-2"-LX, WO 01623483-01 Weld Map No. 1; 10/09/2018
- Report 2018-VT-052; VT-3 Visual Examination NDE Report for Component Supports: Component 1-1432-2"-LX, Support M-983F-H1, WO 01623483-01; 10/05/2018
- Report Q1R25-IWE-001; ASME IWE (Class MC) Containment, General Visual Examination NDE Report: Components X-007A, X-007B, X-007C, X-007D, X-008, X-009A, X-009B, X-010, and X-012; 03/31/2019
- Report Q1R25-MT-003; Magnetic Particle Exam: Component 1025-W-211A, 8 Lugs Welded to Pipe; 03/24/2019
- Report Q1R25-PT-001; Liquid Penetrant Examination: Component 0200-W-127A, Hanger Attachment to Recirc Pump; 03/23/2019
- Report Q1R25-UT-015; UT Calibration/Examination: Component 10BD-S12, Elbow-Elbow (4 Seam Welds); 03/24/2019
- Report Q1R25-UT-016; UT Calibration/ Examination: Component 10BD-F5, Valve-Elbow (2 Seam Welds) Cast Stainless Steel Valve; 03/24/2019
- Report Q1R25-UT-017; UT Calibration/ Examination: Component N10-F1, Nozzle Safe End; 03/27/2019
- Report Q1R25-UT-018; UT Calibration/ Examination: Component 10AD-S10, Pipe-Elbow (3 Seam Welds); 03/24/2019
- Report Q1R25-VT-001; Visual Examination of Pipe Hanger, Support or Restraint (VT-3): Component 3967-G-302, Box Guide; 03/27/2019
- Report Q1R25-VT-002; Visual Examination of Pipe Hanger, Support or Restraint (VT-3): Component 3967-M-302.1, Variable Spring Can; 03/26/2019
- Report Q1R25-VT-006; Visual Examination of Pipe Hanger, Support or Restraint (VT-3): Component 1025-W-211, Mechanical Snubber; 03/24/2019

- Report SN-19-0061; Snubber Visual Examination: Snubber Mark No. 1-086; 03/21/2019
- Report SN-19-0062; Snubber Visual Examination: Snubber Mark No. 1-012; 03/26/2019
- WO 1623483-01; Discrepant Support on Core Spray Keep-Fill Line 1-1432-2"-LX; 10/04/2018
- WO 1801722-01; Install Reliable Hardened Containment Vent System; 04/26/2017
- WPS 1-1-GTSM-PWHT; ASME Welding Procedure Specification Record; Revision 2

#### 71111.12—Maintenance Effectiveness

- Maintenance Rule System Basis Document; NR0750; SRM/IRM
- Health Group Health Report, HPCI / RCIC (HPI - High Pressure Injection); February 2019
- Maintenance Rule System Basis Document, R11300, Reactor Core Isolation Cooling
- Maintenance Rule Function Evaluation, R11300, Reactor Core Isolation Cooling; February 2019
- IR 4183217; Unit 1 IRM 12 Erratic Indication; 10/13/2018
- IR 4192709; MRule A1DE Required for U-1 NR0750-06, IRM RPS Input; 11/07/2018
- IR 4224729; Troubleshoot/Replace Preamp on IRM 16; 02/28/2019
- IR 4055566; NCV 17-002-01, CIsr Pkg RCIC Testing; 09/25/2017
- IR 4057206; The U1 RCIC Instrument Rack Floor Drain is Becoming Clogged; 09/29/2017
- IR 4057223; The U2 RCIC Instrument Rack Floor Drain is Becoming Clogged; 09/29/2017
- IR 4083123; CCP: Create/Install RCIC Trip Throt Vlv Trip Level Covers; 12/12/2017
- IR 4106146; EO ID: U2 RCIC Turbine Exhaust Steam Trap Leaking 32 dpm; 02/20/2018
- IR 4106260; Secured RCIC Shortly After Start of Surveillance; 02/20/2018
- IR 4106267; Light Indication Lost for Unit 2 RCIC Governor Valve; 02/20/2018
- IR 4116815; MO 2-1301-16 RCIC Inbd Vlv LLRT Exceeds Alert Limit; 03/20/2018
- IR 4121468; U2 RCIC 2-1399-102 Minor Pitting; 03/31/2018
- IR 4122650; Q2R24 LL: RCIC 2-1301-16 Cycling during QCOS 6600-48; 04/03/2018
- IR 4139629; QAI 1(2)-1399-129 RCIC Bed Plate Drain Check Valve Outage; 05/21/2018
- IR 4139810; Pre-Conditioning Concern for RCIC 2-1301-12/13; 05/21/2018
- IR 4140188; EO ID: Petcock Valve Handle for RCIC Oil Sight Glass Detached; 05/22/2018
- IR 4162601; EO ID: U2 RCIC 48 Vlv Position Lit not Illuminated; 08/08/2018
- IR 4162602; EO ID: U1 RCIC 48 Vlv Position Lit not Illuminated; 08/08/2018
- IR 4166083; RCIC Pressure Indicator Fluctuation; 08/21/2018
- IR 4167194; EO ID: U2 RCIC Inbd/Otbd Oil Reservoir Drain Plugs Damaged; 08/25/2018
- IR 4175582; UNIT 1 RCIC/Core Spray Room Lighting; 09/21/2018
- IR 4175584; RCIC 2-1301-22 Local Controller Light Bulb Extinguished; 09/21/2018
- IR 4183395; U1 RCIC Pump Suction High Pressure Alarm; 10/14/2018
- IR 4192491; EO ID: ELP 42S in U1 RCIC/CS Room Low Level; 11/07/2018
- IR 4193388; QCOS 1300-24 RCIC AOV Testing Needs Risk Evaluation; 11/09/2018
- IR 4196713; Small Steam Leak from Packing 2-1303A "RCIC Governor Valve"; 11/20/2018
- IR 4225775; EO ID: ELP 45B in U2 RCIC Rm Low Electrolyte; 03/03/2019
- IR 4225778; EO ID: ELP 42A in U1 RCIC Rm Low Electrolyte; 03/03/2019
- IR 4225922; U1 RCIC Pump Suction High Pressure Alarm; 03/03/2019

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

- OP-QC-201-012-1001; Quad Cities On Line Fire Risk Management; Revision 7
- OP-AA-108-117; Protected Equipment Program; Revision 5
- Protected Equipment Checklists; March 25-28, 2019
- IR 4232202; Open U1 PBIS Affecting U2 Risk Management Actions (RMAS); 03/22/2019

#### 71111.15—Operability Determinations and Functionality Assessments

- IR 4192493; U1 HPCI Relay in Unexpected State; 11/07/2018
- IR 4198785; ½ EDG O/P BRKR Failed to Close to 23-1; 11/29/2018
- IR 4213355; 1A RHRSW Pump in IST Alert Range; 01/23/2019
- IR 4217557; U1 HPCI Failed to Roll During QCOS 2300-27 Due to Blown Fuse; 02/05/2019
- IR 4219511; U-1 HPCI Work Week (2/4/19) Issues Summary; 02/12/2019
- IR 4221122; Lessons Learned: U1 HPCI MSC Emergent Issue; 02/18/2019
- IR 4229670; QCOS 6700-01 As-Found Time Unsat; 03/15/2019
- WO 4671357-01; 'A' RHR Service Water Pump Comprehensive Testing (IST); 01/24/2019
- WO 4816412-01; HPCI Pump Operability (IST); 11/05/2018
- WO 4640118-01; HPCI Turning Gear Logic Test; 11/06/2018
- ER-AA-321; Administrative Requirements for Inservice Testing; Revision 13

#### 71111.18—Plant Modifications

- EC 402298; U1 Core Spray Pipe Repairs In-Vessel; Revision 001
- WO 1837723; U1 Core Spray Pipe Repairs In-Vessel Per EC 402298; 01/16/2019
- Calculation 004N5515; Core Spray Line P4D Weld Repair Stress Analysis Report; Revision 0

#### 71111.19—Post Maintenance Testing

- WO 4884752; U1 HPCI Failed to Roll During QCOS 2300-27 Due to Blown Fuse; 02/07/2019
- WO 4631148; (LR) RHR Pump Support HX Monitoring; 03/20/2019
- WO 4890634; 1B RHR Pump Seal Cooler Does Not Have RHRSW Flow; 02/27/2019
- QCOS 2300-27; HPCI Pump Comprehensive/Performance Test; Revision 44

#### 71111.20—Refueling and Other Outage Activities

- QCOP 1000-05; Shutdown Cooling Operation; Revision 57
- WO 4682249-01; MSIV Closure Time (IST); 03/15/2019
- IR 4230600; PSU Q1R25 As Found MSIV 1B LLRT Exceeds TS Limit <34; 03/18/2019

#### 71111.22—Surveillance Testing

- QCIS 0200-46; Unit 2 'A' Loop ATWS/ECCS/FW/Main Turbine Reactor Water Level Transmitter Calibration and MTU/STU Trip Point Verification; Revision 12
- QCOS 5750-09; ECCS Room and DGCWP Cubicle Cooler Monthly Surveillance; Revision 38
- QCOS 6600-06; Diesel Generator Cooling Water Pump Flow Rate Test; Revision 47
- QCOS 6700-01; MCC 18/19-5 Auto-Transfer Logic Operability Surveillance; Revision 17
- WO 4616921; MCC 18/19-5 Auto-Transfer Logic Operability Surveillance; 03/30/2019

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

- Radiation Work Permit and Associated ALARA File; QC-01-19-701; Torus Diving
- Radiation Work Permit and Associated ALARA File; QC-01-19-513; Control Rad Drive Exchange
- Radiation Work Permit and Associated ALARA File; QC-00-19-307; Steam Sensitive Areas
- Radiation Work Permit and Associated ALARA File; QC-01-19-903; IVVI and Associated Activities
- Radiation Work Permit and Associated ALARA File; QC-01-19-805; Sand Blasting

- RP-AA-401; Operational ALARA Planning and Controls; Revision 24
- RP-AA-401-1002; Radiological Risk Management; Revision 12
- NISP-RP-010; Radiological Job Coverage; Revision 0
- RP-AA-210; Dosimetry Issue, Usage, and Control; Revision 29
- NISP-RP-005; Access Controls for High Radiation Areas; Revision 1
- RP-AA-460; Controls for High and Locked High Radiation Areas; Revision 34
- RP-AA-460-001; Controls for Very High Radiation Areas; Revision 6
- RP-AA-460-002; Additional High Radiation Exposure Control; Revision 5
- RP-AA-461; Radiological Controls for Contaminated Water Diving Operations; Revision 8
- NISP-RP-007; Control of Radioactive Material; Revision 1
- NISP-RP-004; Radiological Posting and Labeling; Revision 1
- RP-AA-500-1001; Control of RAM Storage Areas and Containers Stored Outside; Revision 8
- Source Inventory Page; 07/27/2018
- Semi-Annual Source Leak Test Report; 01/27/2018
- Source Inventory Page; 01/18/2019
- Semi-Annual Source Leak Test Report; 01/18/2019
- IR 4231284; NRC ID: Improper Radworker Practices; 03/20/2019
- IR 4231963; NRC ID: Possible Enhancement for Torus Diving Process; 03/22/2019
- IR 4231924; NRC ID: Improvement Opportunity to RP-AA-500-1001; 03/22/2019
- IR 4231932; NRC Improvement Observation of the Aerosol (DOP) Testing; 03/22/2019
- IR 4231983; NRC ID: Improvement Opportunity to RP-AA-460; 03/23/2019
- IR 4232021; NRC ID: Enhancement for Control Room SCBA Mask Sizes; 03/23/2019
- IR 4231764; NRC ID: Inaccurate Information in Self-Assessment; 03/21/2019
- IR 4197601; Self-Assessment - NRC Rad Protection Radiological Hazard Assessment and Exposure Controls, In-Plant Airborne Radioactivity Control and Mitigation, and Occupational Dose Assessment; 01/24/2019
- IR 4231163; Unplanned Dose Rate Alarm in Reactor Cavity; 03/20/2019
- IR 4127351; Q2R24 LL: Dose Rate Alarm; 04/16/2018

#### 71124.03—In-Plant Airborne Radioactivity Control and Mitigation

- AA-825-101; Monthly Inspection and Maintenance of MSA Firehawk Mask Mounted Regulator SCBAs; Revision 1
- RP-AA-825-101-1001; Operation and Use of the MSA Firehawk Self-Contained Breathing Apparatus (SCBA); Revision 0
- RP-AA-444; Controlled Negative Pressure (CNP) Fit Testing; Revision 10
- RP-AA-302; Determination of Alpha Levels and Monitoring; Revision 10
- RP-AA-870-1003; Testing of Portable HEPA Filter Units; Revision 5
- NISP-RP-008; Use and Control of HEPA Filtration and Vacuum Equipment; Revision 1
- CY-QC-120-710; Service Air Analysis; Revision 8
- Bioassay Program Annual Review at Quad Cities Nuclear Power Station; 01/03/2019
- Unit 1 Alpha Area Level Assessment; 01/25/2018
- Unit 2 Alpha Area Level Assessment; 09/05/2018
- Respiratory Protection Monthly Inspection Records; March 2019
- SCBA Qualification Records; RO/SRO 03/18/2019 Dayshift Records
- Summary of License Restrictions; 12/11/2018
- Versaflo PAPR Qualification Records; Under Vessel Work; 03/18/2019
- Summary of License Restrictions Corrective Lenses; 12/11/2018
- Grade D Air Test Data; Service Air Drop Valve; 2017-2018 Data
- Grade D Air Test Data; Compressor; Fire Training Building; 2017-2018 Data
- Grade D Air Test Data; Compressor; SCBA Compressor Building; 2017-2018 Data

- SCBA S/N CBAI349971; Maintenance and Test Document; 12/12/2018
- SCBA S/N CBAI349994; Maintenance and Test Document; 12/12/2018
- SCBA S/N CBAI349995; Maintenance and Test Document; 12/12/2018
- IR 4117567; ST-Long Standing Deficiencies on Various Ventilation Systems; 03/21/2018
- IR 4112385; SET Respiratory Program Approved; 03/07/2018

#### 71124.04—Occupational Dose Assessment

- RP-AA-270; Prenatal Radiation Exposure; Revision 8
- RP-AA-203-1001; Personnel Exposure Investigations; Revision 10
- DLR to ED comparison data; 2018 Data
- Area DLR Program Data; 2017-2018 Data
- Landauer Inc. NVLAP dosimetry accreditation; 12/17/2018
- Radiological Survey Map; U1 Drywell Undervessel; 03/19/2019
- Whole Body Count Record; Declared Pregnant Worker; 08/27/2018
- Whole Body Count Record; Declared Pregnant Worker; 09/25/2018
- Whole Body Count Record; Investigation Record; 10/04/2018
- Declared Pregnant Worker Records; 08/27/2018
- Declared Pregnant Worker Records; 09/25/2018
- Personnel Exposure Investigation; 06/05/2018
- Personnel Exposure Investigation; 03/29/2018
- Personnel Exposure Investigation; 02/20/2018
- IR 4018500; Incorrect HPED(Dose) Data Transferred to PADS; 06/05/2017
- IR 4005589; Dose Rate Alarm Requiring ICES Report; 05/02/2017

#### 71152—Problem Identification and Resolution

- IR 4192662; HPCI SOV SV8 Part 21 Evaluation Timeliness; 11/07/2018
- IR 4199909; 2B RHRSW Pump Failed Operability Surveillance; 12/03/2018
- IR 4204885; 1A 125 Vdc Battery Charger Failure; 12/20/2018
- IR 4205455; Clearance Writing on Shift; 12/22/2018
- IR 4210715; Update on the MSV LS Part 21 from Curtiss-Wright; 01/14/2019
- IR 4213355; 1A RHRSW Pump in IST Alert Range; 01/23/2019
- IR 4216261; Received 912-7 B4 Drywell 2 O2 Content Hi Alarm; 02/01/2019
- IR 4216290; 2A Cam Not Trending; 02/01/2019
- IR 4216413; U2 Drywell Cam Fitting Found Loose; 02/01/2019
- IR 4217490; Part 21 53856 Deviation of Switches With Terminal Blocks (SOR); 02/05/2019
- IR 4222416; 1B RHR Pump Seal Cooler Does Not Have RHRSW Flow; 02/21/2019
- IR 4229251; Cond. D/P -16.9 and -17.1 Ft After Main Cond. Flow Rev.; 03/14/2019
- Technical Information Letter, GE Power, TIL 2073; Mechanical Drive Turbine Solenoid Valve Maintainability; 04/03/2018
- WO 4671357-01; 'A' RHR Service Water Pump Comprehensive Testing (IST); 01/24/2019
- ER-AA-321; Administrative Requirements for Inservice Testing; Revision 13

#### 71153—Follow-Up of Events and Notices of Enforcement Discretion

- IR 4216373; Received 901-8 B9 "125V Battery Ground"; 02/01/2019
- IR 4216550; U1 RFP Roll-O-Matic Access Door Open; 02/01/2019