



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

January 29, 2015

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 05000254/2014005;
05000265/2014005

Dear Mr. Hanson:

On December 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Quad Cities Nuclear Power Station, Units 1 and 2. The enclosed report documents the results of this inspection, which were discussed on January 14, 2015, with Mr. S. Darin, and other members of your staff.

Based on the results of this inspection, one NRC-identified finding of very low safety significance was identified. The finding involved a violation of NRC requirements. The inspectors also identified that one Severity Level IV violation occurred. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as non-cited violations (NCVs) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Quad Cities Nuclear Power Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Quad Cities Nuclear Power Station.

B. Hanson

-2-

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA Charles Phillips Acting for/

Christine A. Lipa, Chief
Branch 1
Division of Reactor Projects

Docket Nos. 50-254; 50-265
License Nos. DPR-29; DPR-30

Enclosure:
IR 05000254/2014005; 05000265/2014005
w/Attachment: Supplemental Information

cc w/encl: Distribution via LISTSERV®

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-254; 50-265
License Nos: DPR-29; DPR-30

Report No: 05000254/2014005; 05000265/2014005

Licensee: Exelon Generation Company, LLC

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

Location: Cordova, IL

Dates: October 1 through December 31, 2014

Inspectors: R. Murray, Senior Resident Inspector
K. Carrington, Resident Inspector
R. Jickling, Senior Emergency Preparedness Inspector
T. Bilik, Senior Reactor Inspector
M. Learn, Reactor Engineer
M. Mitchell, Health Physicist
V. Myers, Health Physicist
B. Palagi, Operations Engineer
C. Phillips, Project Engineer
J. Wojewoda, Reactor Engineer
C. Mathews, Illinois Emergency Management Agency

Approved by: Christine A. Lipa, Chief
Branch 1
Division of Reactor Projects

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS	2
REPORT DETAILS	4
Summary of Plant Status.....	4
1. REACTOR SAFETY.....	4
1R01 Adverse Weather Protection (71111.01)	4
1R04 Equipment Alignment (71111.04)	5
1R05 Fire Protection (71111.05).....	6
1R06 Flooding (71111.06)	7
1R11 Licensed Operator Requalification Program (71111.11)	9
1R12 Maintenance Effectiveness (71111.12)	12
1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13).....	13
1R15 Operability Determinations and Functional Assessments (71111.15).....	13
1R19 Post-Maintenance Testing (71111.19)	14
1R22 Surveillance Testing (71111.22).....	15
1EP4 Emergency Action Level and Emergency Plan Changes (IP 71114.04)	17
2. RADIATION SAFETY	17
2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01).....	17
2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06).....	20
2RS7 Radiological Environmental Monitoring Program (71124.07).....	25
4. OTHER ACTIVITIES	28
4OA1 Performance Indicator Verification (71151).....	28
4OA2 Identification and Resolution of Problems (71152).....	32
4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153).....	34
4OA5 Other Activities	37
4OA6 Management Meetings	41
SUPPLEMENTAL INFORMATION	2
KEY POINTS OF CONTACT.....	2
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED	2
LIST OF DOCUMENTS REVIEWED.....	3
LIST OF ACRONYMS USED	12

SUMMARY OF FINDINGS

Inspection Report 05000254/2014005, 05000265/2014005; 10/01/2014 - 12/31/2014; Quad Cities Nuclear Power Station, Units 1 and 2; Flooding, and Follow-up of Events and Notices of Enforcement Discretion.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding was considered a non-cited violation (NCV) of NRC regulations. The inspectors also determined that one Severity Level IV violation occurred. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using IMC 0609, "Significance Determination Process" dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas" effective date January 1, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" Revision 5, dated February 2014.

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance (Green) and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the licensee's failure to meet the requirements of QCTP 0130-11, "Internal Flood Protection Program," and QCTS 0810-10, "Reactor Building Internal Flood Barrier Surveillance," which require, in part, that internal flood protection requirements for emergency core cooling systems rooms are met. Specifically, the licensee failed to identify that a flood barrier for a fire protection pipe penetration into the Unit 2 high pressure coolant injection room was in a degraded condition. The licensee entered the condition into their CAP as Issue Report 2406984, "IEMA U2 HPCI Flood Penetration Concern," and was able to immediately correct the degraded condition of the link-seal type barrier by tightening the bolts around the seal.

The finding was determined to be more than minor because failing to identify degraded flood barriers could lead to safety-related equipment becoming susceptible to a flooding event. The finding was associated with the Mitigating Systems Cornerstone attribute of protection against external factors (flood hazard) and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the finding could be evaluated using the Significance Determination Process (SDP) in accordance with Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The inspectors answered, "No," to all of the Exhibit 2, "Mitigating Systems Screening Questions," in section B for external events and determined the finding was of very low safety significance (Green). This finding had a cross-cutting aspect in the area of Human Performance, Consistent Process aspect because the licensee did not use a consistent and systematic approach to conducting flood barrier inspections [H.13].
(Section 1R06)

Cornerstone: Emergency Preparedness

- Severity Level IV. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.72(b)(3)(xiii) when licensee personnel failed to submit a report required by 10 CFR 50.72 for a loss of emergency assessment capability when an unplanned loss of the station seismograph was identified. Specifically, the licensee declared the station seismograph non-functional on October 7, 2014, and failed to report the condition in accordance with 10 CFR 50.72. The licensee entered this issue into their CAP as Issue Report 2415243, "A Potential Issue Related to the QDC Seismic Monitor."

The inspectors determined that this issue had the potential to impact the regulatory process based, in part, on the generic communications input that 10 CFR 50.72 reports serve. Since the issue impacted the regulatory process, it was dispositioned through the traditional enforcement process. The inspectors determined that this issue was a Severity Level IV violation based upon Section 6.9, "Inaccurate and Incomplete Information or Failure to Make a Required Report," example d.9 in the NRC Enforcement Policy. Example d.9 specifically stated, "The licensee fails to make a report requirement by 10 CFR 50.72 or 10 CFR 50.73." Because a more-than-minor Reactor Oversight Process finding was not identified, there was no cross-cutting aspect associated with this violation. (Section 4OA3)

REPORT DETAILS

Summary of Plant Status

Unit 1

Unit 1 operated at 100 percent thermal power with the exception of planned power reductions for routine control rod surveillances, turbine testing, and control rod maneuvers from October 1, 2014, through December 31, 2014.

Unit 2

Unit 2 operated at 100 percent thermal power with the exception of planned power reductions for routine control rod surveillances, turbine testing, and control rod maneuvers from October 1, 2014, through December 31, 2014.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Documents reviewed are listed in the Attachment to this report. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- standby liquid control systems due to heating issues in the vicinity of the tank and potential of tank to freeze or ability to determine actual tank level;
- reactor core isolation cooling (RCIC)/high pressure coolant injection (HPCI) contaminated condensate storage tank due to previous occurrence of line freezing; and

- heating boiler system due to its ability to heat piping/equipment throughout various plant areas and historical issues with the boilers.

This inspection constituted one winter seasonal readiness preparations sample as defined in Inspection Procedure (IP) 71111.01–05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- Unit 2 high pressure coolant injection system;
- Unit 1/2 emergency diesel generator system; and
- Unit 2 train 'A' core spray system.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted three partial system walkdown samples as defined in IP 71111.04–05.

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On November 10-15 and December 15-17, 2014, the inspectors performed a complete system alignment inspection of the Unit 1 core spray system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment to this report.

These activities constituted one complete system walkdown sample as defined in IP 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Fire Zone 11.1.3, Unit 1 Reactor Building, Elevation 554'-0", HPCI & HPCI Access Tunnel;
- Fire Zone 11.4A and B, Crib House Building, Elevation 559'-8", Basement and Elevation 595'-0", Ground Floor/Service Water Pumps;
- Fire Zone 8.2.4, Unit 1 Turbine Building, Elevation 580'-0", Unit 1 Cable Tunnel; and
- Fire Zone 8.2.5, Unit 1/2 Turbine Building, Elevation 580'-0", Unit 2 Cable Tunnel.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later

additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment to this report, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

These activities constituted four quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the corrective action program to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following plant areas to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments:

- Units 1 and 2 HPCI rooms

Documents reviewed during this inspection are listed in the Attachment to this report.

This inspection constituted one internal flooding sample as defined in IP 71111.06-05.

b. Findings

(1) High Pressure Coolant Injection Flood Barrier Degraded

Introduction: A finding of very low safety significance and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the licensee's failure to meet the requirements of QCTP 0130-11, "Internal Flood Protection Program" Revision 5, and QCTS 0810-10, "Reactor Building Internal Flood Barrier Surveillance" Revision 4, which

require, in part, that internal flood protection requirements for emergency core cooling systems (ECCS) rooms are met. Specifically, the licensee failed to identify that a flood barrier for a fire protection pipe penetration into the Unit 2 HPCI room was in a degraded condition.

Description: On November 5, 2014, the inspectors identified a flood barrier for a fire protection penetration into the Unit 2 HPCI room was degraded. There was an opening between rooms through the flood barrier. The licensee entered the condition into their CAP as Issue Report (IR) 2406984, "IEMA U2 HPCI Flood Penetration Concern." The licensee was able to immediately correct the degraded condition of the link-seal type barrier by tightening the bolts around the seal. Operations, with engineering support, also determined that both Unit HPCI systems (they are connected through a non-flood protected door) remained operable with the degraded flood penetration due to the small opening size in the penetration.

Investigation into the cause of the degraded flood seal barrier was performed as part of the corrective actions for the original IR. While it was impossible to pinpoint exactly when the degraded condition of the penetration occurred, the licensee identified maintenance was performed on the fire protection pipe in August of 2013. A system walkdown performed by the licensee identified that there was evidence of significant line movement which could easily have resulted in the dislodging of the link-seal.

Licensee procedure QCTS 0810-10, "Reactor Building Internal Flood Barrier Surveillance," is conducted at least once every two years or on an as-needed as basis. The last periodic performance of the two-year inspection was in February of 2014. The inspectors considered that the licensee had two opportunities to identify the degraded condition of the flood seal, during post maintenance testing following maintenance on the line in August of 2013 and during the performance of the periodic inspection in February of 2014.

Section 3.4, "Water Level (Flood) Design," of the UFSAR describes the flood protection for the HPCI room. The HPCI room was protected from adjacent areas by watertight doors and walls, licensee procedure QCTP 0130-11, "Internal Flood Protection Program," was the implementing procedure for ensuring the design basis requirements for flood protection are met and QCTS 0810-10 was the implementing procedure for conducting the inspections and provided acceptance criteria for the flood barriers. Procedure QCTS 0810-10 stated, in part, that a link-seal type barrier is failed if there are any through openings in the seal. Therefore, the through opening in the flood barrier that was identified did not meet the licensee's flood protection requirements.

Analysis: The inspectors determined that the failure to identify that a flood barrier for a fire protection pipe penetration into the Unit 2 HPCI room was a performance deficiency. Specifically, licensee procedure QCTS 0810-10, stated, in part, that flood barriers SHALL be visually inspected at least once every 2 years and following repair or replacement. The licensee neither performed an adequate visual inspection after the last repair to the fire protection line nor during the last two year inspection.

The finding was determined to be more than minor because, if left uncorrected, the performance deficiency could lead to a more significant safety concern. Specifically, failing to identify degraded flood barriers could lead to safety-related equipment becoming susceptible to a flooding event. The finding was associated with the Mitigating

Systems Cornerstone attribute of protection against external factors (flood hazard) and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors determined the finding could be evaluated using the Significance Determination Process (SDP) in accordance with Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The inspectors answered, "No," to all of the Exhibit 2, "Mitigating Systems Screening Questions," in section B for external events and determined the finding was of very low safety significance (Green).

This finding had a cross-cutting aspect of Consistent Process in the area of Human Performance because the licensee did not use a consistent method of inspecting the flood barriers. Specifically, the licensee did not have a consistent method to ensure that flood barriers were inspected following maintenance that could impact a barrier. In addition, the level of detail associated with the link-seal inspection method may not give consistent inspection results (H13).

Enforcement: Title 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that procedures for activities affecting quality shall be accomplished in accordance with instructions and procedures of a type appropriate to the circumstances. The licensee established procedures QCTP 0130-11, "Internal Flood Protection Program," and QCTS 0810-10, "Reactor Building Internal Flood Barrier Surveillance," as the implementing procedures for ensuring the design basis requirements for flood protection were met, an activity affecting quality.

Contrary to the above, from August 2013 to November 2014, the licensee failed to ensure that the design basis flood protection requirements for the Unit 1 and 2 HPCI rooms were met. Specifically, the licensee failed to identify that a flood barrier for a fire protection pipe penetration into the Unit 2 HPCI room was in a degraded condition and therefore did not meet the requirements of QCTS 0810-10. Immediate corrective actions included correcting the degraded flood barrier and performing extent of condition walkdowns in other areas of the reactor building basement.

Because this violation was of very low safety significance and was entered into the licensee's CAP as IR 2406984, the violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000254/2014005-01, "HPCI Flood Barrier Degraded")**

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification (71111.11Q)

a. Inspection Scope

On November 4, 2014, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification training to verify that operator performance was adequate, evaluators were identifying and documenting crew

performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator requalification program simulator sample as defined in IP 71111.11-05 and satisfied the inspection program requirement for the resident inspectors to observe a portion of an in-progress annual requalification operating test during a training cycle in which it was not observed by the NRC during the biennial portion of this IP.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation During Periods of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On November 22-23, 2014, the inspectors observed a crew of licensed operators on Unit 1 (with oversight from nuclear engineers and licensee management) perform a rod pattern adjustment, control rod scram-timing tests, and turbine control valve tests. These were activities that required heightened awareness or were related to increased risk. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms (if applicable);
- correct use and implementation of procedures;
- control board (or equipment) manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications (if applicable).

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.3 Biennial Written and Annual Operating Test Results (71111.11A)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the Annual Operating Test, administered by the licensee from October 13, 2014, through November 25, 2014, required by 10 CFR 55.59(a). The results were compared to the thresholds established in IMC 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," effective January 1, 2012, to assess the overall adequacy of the licensee's Licensed Operator Requalification Training (LORT) program to meet the requirements of 10 CFR 55.59.

This inspection constitutes one complete annual licensed operator requalification operating test results sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.4 Biennial Review (71111.11B)

a. Inspection Scope

The following inspection activities were conducted during the week of October 13, 2014, to assess the effectiveness and adequacy of the facility licensee's implementation of its systems approach to training (SAT) based LORT program, put into effect to satisfy the requirements of 10 CFR 55.59. The documents reviewed are listed in the Attachment to this report.

- Licensee Requalification Examinations (10 CFR 55.59(c); SAT Element 4 as defined in 10 CFR 55.4): The inspectors reviewed the administration of LORT annual operating tests to assess the licensee's ability to administer examinations that are acceptable for meeting the requirements of 10 CFR 55.59(a).
 - The inspectors reviewed the annual operating test including content, level of difficulty, and general quality of the examination/test materials.
 - The inspectors observed the administration of the annual operating test to assess the licensee's effectiveness in conducting the examinations, including the conduct of pre-examination briefings, evaluations of individual operator and crew performance, and post-examination analysis. The inspectors evaluated the performance of two crews in parallel with the facility evaluators during one dynamic simulator scenario, and evaluated various licensed crew members concurrently with facility evaluators during the administration of several Job Performance Measures.

- Conformance with Examination Security Requirements (10 CFR 55.49): The inspectors conducted an assessment of the licensee's processes related to examination physical security and integrity (e.g., predictability and bias) to verify compliance with 10 CFR 55.49, "Integrity of Examinations and Tests." The inspectors observed the implementation of physical security controls (e.g., access restrictions and simulator I/O controls) throughout the inspection.

This inspection constitutes partial completion of one biennial licensed operator requalification inspection sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- motor operated valve program; and
- HPCI system.

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings were identified.

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

.1 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Work Week 14-42-05: Unit 1 reactor core isolation cooling maintenance, Unit 1 emergency diesel generator (EDG) FLEX modification for fuel oil transfer, 'B' control room emergency ventilation planned and emergent work, Unit 1 station blackout (SBO) EDG emergent work; and
- Work Week 14-43-06: Unit 2 125 Vdc maintenance, Unit 2 EDG planned maintenance, FLEX modifications, Unit 2 RCIC vent line corrective maintenance.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Documents reviewed during this inspection are listed in the Attachment to this report.

These maintenance risk assessments and emergent work control activities constituted two samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- 'B' control room emergency ventilation (CREV) degraded cable penetration (IR 2395355);

- Engineering Change (EC) 395862: Install Fuel Oil Connections for Transfer to Operations F750 Truck – Fukushima FLEX Strategy;
- 2A core spray discharge piping found with air void (IR 2398208);
- failure to enter required limited condition for operation (LCOs) during Buses 18 and 19 maintenance (IR 2402048);
- HPCI drain pot level switch failure (IR 2406419);
- Potential hydraulic control unit bracket issue from Peach Bottom (IR 2407342);
- ultrasonic testing readings on 1D residual heal removal service water (RHRSW) system cooler were below the minimum wall thickness (IR 2413814); and
- Unit 1 SBO diesel took multiple attempts to start (IR 2408090).

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and Updated Final Safety Analysis Report (UFSAR) to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted eight samples as defined in IP 71111.15–05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following post-maintenance (PM) activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- WO 1729645: Install FLEX Electrical Connections Switchgear 28 EC 396321;
- WO 1777961: Stem Disc Separation [on RCIC vent line] Prevents QCOS 1300-10;
- WO 1757239: RCIC Pump Operability (IST [in-service test]) and WO 1659872: RCIC Functional Logic Test following K41, K7, K22 Relay Replacements and RCIC planned maintenance activities;
- WO 1761048: HPCI Pump Operability (IST) following HPCI planned maintenance activities;

- WO 1762930: Replace U-1 Diesel fuel oil transfer pump due to the U1 EDG Fuel Oil Transfer Pump Failed Comprehensive IST; and
- WO 1763632: RHR Service Water Pump C Flow (IST) following planned maintenance activities on the 'B' and 'C' RHR Service Water pump motors.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted six post-maintenance testing sample as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- QCEMS 0230-03: Unit 2 125 Vdc Service Test on Normal Batteries (Routine);
- CY-QC-110-608: Reactor/Turbine Building Sample Panel Sample Collection (RCS);
- QCOS 2300-06: HPCI System High/Medium Risk Power Operated Valve Test (IST); and
- QOS 5600-01: Turbine Control Valve Fast Closure Scram Instrumentation Channel Functional Test (Routine).

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constitutes two routine surveillance testing samples, one in-service testing sample, and one reactor coolant system leak detection inspection sample as defined in IP 71111.22, Sections–02 and–05.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The regional inspectors performed an in-office review of the latest revisions to the Emergency Plan, Emergency Plan Annex, and Emergency Plan Implementing Procedures as listed in the Attachment to this report.

The licensee transmitted the Emergency Plan and Emergency Action Level revisions to the NRC pursuant to the requirements of 10 CFR Part 50, Appendix E, Section V, "Implementing Procedures." The NRC review was not documented in a Safety Evaluation Report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment to this report.

This Emergency Action Level and Emergency Plan Change inspection constituted one sample as defined in IP 71114.04-06.

b. Findings

No findings were identified.

2. RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

The inspection activities supplement those documented in NRC Inspection Report 05000254/2014003; 05000265/2014003 and constitute one complete sample as defined in IP 71124.01-05.

.1 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors selected various containers holding non-exempt licensed radioactive materials that may cause unplanned or inadvertent exposure of workers, and assessed whether the containers were labeled and controlled in accordance with 10 CFR 20.1904, "Labeling Containers," or met the requirements of 10 CFR 20.1905(g), "Exemptions To Labeling Requirements."

The inspectors reviewed selected occurrences where a worker's electronic personal dosimeter noticeably malfunctioned or alarmed. The inspectors evaluated whether workers responded appropriately to the off-normal condition. The inspectors assessed whether the issue was included in the CAP and dose evaluations were conducted as appropriate.

b. Findings

No findings were identified.

.2 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors selected several sealed sources from the licensee's inventory records and assessed whether the sources were accounted for and verified to be intact.

The inspectors evaluated whether any transactions since the last inspection involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

b. Findings

No findings were identified.

.3 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials (i.e., nonfuel) stored within spent fuel and other storage pools. The inspectors assessed whether appropriate controls (i.e., administrative and physical controls) were in place to preclude inadvertent removal of these materials from the pool.

The inspectors examined the posting and physical controls for selected high radiation areas and very-high radiation areas to verify conformance with the occupational performance indicator.

b. Findings

No findings were identified.

.4 Risk-significant High Radiation Area and Very-High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors discussed with the radiation protection manager the controls and procedures for high-risk, high radiation areas and very high radiation areas. The inspectors discussed methods employed by the licensee to provide stricter control of very-high radiation area access as specified in 10 CFR 20.1602, "Control of Access to Very-High Radiation Areas," and Regulatory Guide 8.38, "Control of Access to High and Very-High Radiation Areas of Nuclear Plants." The inspectors assessed whether any changes to licensee procedures substantially reduced the effectiveness and level of worker protection.

The inspectors discussed the controls in place for special areas that had the potential to become very-high radiation areas during certain plant operations with first-line health physics supervisors (or equivalent positions having backshift health physics oversight authority). The inspectors assessed whether these plant operations required communication beforehand with the health physics group, so as to allow corresponding timely actions to properly post, control, and monitor the radiation hazards including re-access authorization.

The inspectors evaluated licensee controls for very-high radiation areas and areas with the potential to become very-high radiation areas to ensure that an individual was not able to gain unauthorized access to the very high radiation areas.

b. Findings

No findings were identified.

.5 Radiation Worker Performance (02.07)

a. Inspection Scope

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be human performance errors. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. The inspectors discussed with the radiation protection manager any problems with the corrective actions planned or taken.

b. Findings

No findings were identified.

.6 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be radiation protection technician error. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.09)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring and exposure control were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring and exposure controls. The inspectors assessed the licensee's process for applying operating experience to their plant.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

This inspection constituted one complete sample as defined in IP 71124.06-05.

.1 Inspection Planning and Program Reviews (02.01)

Event Report and Effluent Report Reviews

a. Inspection Scope

The inspectors reviewed the radiological effluent release reports issued since the last inspection to determine if the reports were submitted as required by the Offsite Dose Calculation Manual/Technical Specifications. The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by the licensee for further inspection to determine if they were evaluated, entered in the CAP, and adequately resolved.

The inspectors selected radioactive effluent monitor operability issues reported by the licensee, as provided in effluent release reports, to review during the onsite inspection, as warranted, given their relative significance. The inspectors also determined if the issues were entered into the CAP and adequately resolved.

b. Findings

No findings were identified.

Offsite Dose Calculation Manual and Final Safety Analysis Report Review

a. Inspection Scope

The inspectors reviewed UFSAR descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths so they could be evaluated during inspection walkdowns.

The inspectors reviewed changes to the Offsite Dose Calculation Manual made by the licensee since the last inspection against the guidance in NUREG-1301, 1302, and 0133, and Regulatory Guides 1.109, 1.21 and 4.1. When differences were identified, the inspectors reviewed the technical basis or evaluations of the change during the onsite inspection to determine whether they were technically justified and maintain effluent releases as-low-as-reasonably-achievable.

The inspectors reviewed licensee documentation to determine if the licensee had identified any non-radioactive systems that became contaminated as disclosed either through an event report or the Offsite Dose Calculation Manual since the last inspection. This review provided an intelligent sample list for the onsite inspection of any 10 CFR 50.59 evaluations and allowed a determination if any newly contaminated systems have an unmonitored effluent discharge path to the environment, whether any required Offsite Dose Calculation Manual revisions were made to incorporate these new pathways and whether the associated effluents were reported in accordance with Regulatory Guide 1.21.

b. Findings

No findings were identified.

Groundwater Protection Initiative Program

a. Inspection Scope

The inspectors reviewed reported groundwater monitoring results and changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater.

b. Findings

No findings were identified.

Procedures, Special Reports, and Other Documents

a. Inspection Scope

The inspectors reviewed licensee event reports, event reports and/or special reports related to the effluent program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope/breadth of problems described in these reports.

The inspectors reviewed effluent program implementing procedures, particularly those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations.

The inspectors reviewed copies of licensee and third party (independent) evaluation reports of the effluent monitoring program since the last inspection to gather insights into the licensee's program and aid in selecting areas for inspection review (smart sampling).

b. Findings

No findings were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down selected components of the gaseous and liquid discharge systems to evaluate whether equipment configuration and flow paths aligned with the documents reviewed in 02.01 above and to assess equipment material condition. Special attention was made to identify potential unmonitored release points (such as open roof vents in boiling water reactor turbine decks, temporary structures butted against the turbine, auxiliary or containment buildings), building alterations which could impact airborne, or liquid effluent controls, and ventilation system leakage that communicated directly with the environment.

For equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions, the inspectors reviewed the licensee's material condition surveillance records, as applicable.

The inspectors walked down filtered ventilation systems to assess for conditions such as degraded high-efficiency particulate air/charcoal banks, improper alignment, or system installation issues that would impact the performance or the effluent monitoring capability of the effluent system.

As available, the inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluent (including sample collection and analysis) to evaluate whether appropriate treatment equipment was used and the processing activities aligned with discharge permits.

The inspectors determined if the licensee made significant changes to their effluent release points (e.g., changes subject to a 10 CFR 50.59 review or require NRC approval of alternate discharge points).

As available, the inspectors observed selected portions of the routine processing and discharging of liquid waste (including sample collection and analysis) to determine whether appropriate effluent treatment equipment was used and that radioactive liquid waste was processed and discharged in accordance with procedure requirements and aligned with discharge permits.

b. Findings

No findings were identified.

.3 Sampling and Analyses (02.03)

a. Inspection Scope

The inspectors selected effluent sampling activities, consistent with smart sampling, and assessed whether adequate controls were implemented to ensure representative samples were obtained (e.g., provisions for sample line flushing, vessel recirculation, composite samplers, etc.).

The inspectors selected effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to assess whether controls were in place to ensure compensatory sampling was performed consistent with the radiological effluent Technical Specifications/Offsite Dose Calculation Manual and that those controls were adequate to prevent the release of unmonitored liquid and gaseous effluents.

The inspectors determined whether the facility was routinely relying on the use of compensatory sampling in lieu of adequate system maintenance based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the Inter-Laboratory Comparison Program to evaluate the quality of the radioactive effluent sample analyses and assessed whether the inter-laboratory comparison program included hard-to-detect isotopes as appropriate.

b. Findings

No findings were identified.

.4 Instrumentation and Equipment (02.04)

Effluent Flow Measuring Instruments

a. Inspection Scope

The inspectors reviewed the methodology the licensee used to determine the effluent stack and vent flow rates. The inspectors determined if the flow rates were consistent with radiological effluent Technical Specifications/Offsite Dose Calculation Manual or Final Safety Analysis Report values, and whether differences between assumed and actual stack and vent flow rates affected the results of the projected public doses.

b. Findings

No findings were identified.

Air Cleaning Systems

a. Inspection Scope

The inspectors assessed whether surveillance test results since the previous inspection for TS-required ventilation effluent discharge systems (high efficiency particulate air and charcoal filtration), such as the Standby Gas Treatment System and the Containment/Auxiliary Building Ventilation System, met TS acceptance criteria.

b. Findings

No findings were identified.

.5 Dose Calculations (02.05)

a. Inspection Scope

The inspectors reviewed all significant changes in reported dose values compared to the previous radiological effluent release report (e.g., a factor of five, or increases that approach Appendix I Criteria) to evaluate the factors which may have resulted in the change.

The inspectors reviewed radioactive liquid and gaseous waste discharge permits to assess whether the projected doses to members of the public were accurate and based on representative samples of the discharge path.

Inspectors evaluated the methods used to determine the isotopes that were included in the source term to ensure all applicable radionuclides were included within detectability standards. The review included the current 10 CFR Part 61 analyses to ensure hard-to-detect radionuclides were included in the source term.

The inspectors reviewed changes in the licensee's offsite dose calculations since the last inspection to evaluate whether changes were consistent with the Offsite Dose Calculation Manual and Regulatory Guide 1.109. Inspectors reviewed meteorological dispersion and deposition factors used in the Offsite Dose Calculation Manual and effluent dose calculations to evaluate whether appropriate factors were being used for public dose calculations.

The inspectors reviewed the latest Land Use Census to assess whether changes (e.g., significant increases or decreases to population in the plant environs, changes in critical exposure pathways, the location of nearest member of the public or critical receptor, etc.) have been factored into the dose calculations.

For the releases reviewed above, the inspectors evaluated whether the calculated doses (monthly, quarterly, and annual dose) were within the 10 CFR Part 50, Appendix I and TS dose criteria.

The inspectors reviewed, as available, records of any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc.) to ensure the abnormal discharge was monitored by the discharge point effluent monitor. Discharges made with inoperable effluent radiation monitors, or unmonitored leakages were reviewed to ensure that a discharge evaluation was made to satisfy 10 CFR 20.1501 so as to account for the source term and projected doses to the public.

b. Findings

No findings were identified.

.6 Groundwater Protection Initiative Implementation (02.06)

a. Inspection Scope

The inspectors reviewed monitoring results of the Groundwater Protection Initiative to determine if the licensee had implemented its program as intended and to identify any anomalous results. For anomalous results or missed samples, the inspectors assessed whether the licensee had identified and addressed deficiencies through its CAP.

The inspectors reviewed identified leakage or spill events and entries made into 10 CFR 50.75 (g) records. The inspectors reviewed evaluations of leaks or spills and reviewed any remediation actions taken for effectiveness. The inspectors reviewed onsite contamination events involving contamination of ground water and assessed whether the source of the leak or spill was identified and mitigated.

For unmonitored spills, leaks, or unexpected liquid or gaseous discharges, the inspectors assessed whether an evaluation was performed to determine the type and amount of radioactive material that was discharged by:

- assessing whether sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term, and assessing whether a survey/evaluation had been performed to include consideration of hard-to-detect radionuclides; and
- determining whether the licensee completed offsite notifications, as provided in its Groundwater Protection Initiative implementing procedures.

The inspectors reviewed the evaluation of discharges from onsite surface water bodies that contain or potentially contain radioactivity, and the potential for groundwater leakage from these onsite surface water bodies. The inspectors assessed whether the licensee was properly accounting for discharges from these surface water bodies as part of their effluent release reports.

The inspectors assessed whether onsite groundwater sample results and a description of any significant onsite leaks/spills into groundwater for each calendar year were documented in the Annual Radiological Environmental Operating Report for the Radiological Environmental Monitoring Program or the Annual Radiological Effluent Release Report for the Radiological Effluent Technical Specifications.

For significant, new effluent discharge points (such as significant or continuing leakage to groundwater that continues to impact the environment if not remediated), the inspectors evaluated whether the offsite dose calculation manual was updated to include the new release point.

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.07)

a. Inspection Scope

Inspectors assessed whether problems associated with the effluent monitoring and control program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee Corrective Action Program. In addition, they evaluated the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving radiation monitoring and exposure controls.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07)

This inspection constituted one complete sample as defined in IP 71124.07-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the Annual Radiological Environmental Operating Reports and the results of any licensee assessments since the last inspection to assess whether the Radiological Environmental Monitoring Program was implemented in accordance with the Technical Specifications and Offsite Dose Calculation Manual. This review included reported changes to the Offsite Dose Calculation Manual with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, Inter-Laboratory Comparison Program, and analysis of data.

The inspectors reviewed the Offsite Dose Calculation Manual to identify locations of environmental monitoring stations.

The inspectors reviewed the UFSAR for information regarding the Environmental Monitoring Program and meteorological monitoring instrumentation.

The inspectors reviewed quality assurance audit results of the program to assist in choosing inspection “smart samples.” The inspectors also reviewed audits and technical evaluations performed on the vendor laboratory if used.

The inspectors reviewed the annual effluent release report and the 10 CFR Part 61, “Licensing Requirements for Land Disposal of Radioactive Waste,” report to determine if the licensee was sampling, as appropriate, for the predominant and dose-causing radionuclides likely to be released in effluents.

b. Findings

No findings were identified.

.2 Site Inspection (02.02)

a. Inspection Scope

The inspectors walked down select air sampling stations and dosimeter monitoring stations to determine whether they were located as described in the Offsite Dose Calculation Manual and to determine the equipment material condition. Consistent with smart sampling, the air sampling stations were selected based on the locations with the highest X/Q, D/Q wind sectors, and dosimeters were selected based on the most risk significant locations (e.g., those that have the highest potential for public dose impact).

For the air samplers and dosimeters selected, the inspectors reviewed the calibration and maintenance records to evaluate whether adequate operability of these components was demonstrated. Additionally, the review included the calibration and maintenance records of select composite water samplers.

The inspectors assessed whether the licensee had initiated sampling of other appropriate media upon loss of a required sampling station.

The inspectors observed the collection and preparation of environmental samples from different environmental media (e.g., ground and surface water, milk, vegetation, sediment, and soil) as available to determine if environmental sampling was representative of the release pathways as specified in the Offsite Dose Calculation Manual and if sampling techniques were in accordance with procedures.

Based on direct observation and review of records, the inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the UFSAR, NRC Regulatory Guide 1.23, “Meteorological Monitoring Programs for Nuclear Power Plants,” and licensee procedures. The inspectors assessed whether the meteorological data readout and recording instruments in the control room and, if applicable, at the tower were operable.

The inspectors evaluated whether missed and/or anomalous environmental samples were identified and reported in the Annual Environmental Monitoring Report. The inspectors selected events that involved a missed sample, inoperable sampler, lost dosimeter, or anomalous measurement to determine if the licensee had identified the cause and had implemented corrective actions. The inspectors reviewed the licensee's assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection) and reviewed the associated radioactive effluent release data that was the source of the released material.

The inspectors selected structures, systems, or components that involved or could reasonably involve licensed material for which there is a credible mechanism for licensed material to reach groundwater. The inspectors assessed whether the licensee had implemented a sampling and monitoring program sufficient to detect leakage of these structures, systems, or components to ground water.

The inspectors evaluated whether records, as required by 10 CFR 50.75(g), of leaks, spills, and remediation since the previous inspection were retained in a retrievable manner.

The inspectors reviewed any significant changes made by the licensee to the Offsite Dose Calculation Manual as the result of changes to the land census, long-term meteorological conditions (three-year average), or modifications to the sampler stations since the last inspection. They reviewed technical justifications for any changed sampling locations to evaluate whether the licensee performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

The licensee used a vendor laboratory to analyze the Radiological Environmental Monitoring Program samples, so the inspectors reviewed the results of the vendor's quality control program, including the inter-laboratory comparison, to assess the adequacy of the vendor's program.

The inspectors reviewed the results of the licensee's inter-laboratory comparison program to evaluate the adequacy of environmental sample analyses performed by the licensee. The inspectors assessed whether the inter-laboratory comparison test included the media/nuclide mix appropriate for the facility. If applicable, the inspectors reviewed the licensee's determination of any bias to the data and the overall effect on the Radiological Environmental Monitoring Program.

b. Findings

No findings were identified.

.3 Identification and Resolution of Problems (02.03)

a. Inspection Scope

The inspectors assessed whether problems associated with the Radiological Environmental Monitoring Program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's Corrective Action Program. Additionally, they assessed the appropriateness of the

corrective actions for a selected sample of problems documented by the licensee that involved the Radiological Environmental Monitoring Program.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

4OA1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures performance indicator (PI) for Units 1 and 2 for the period from the third quarter 2013 through the second quarter 2014. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports, and NRC Integrated Inspection Reports for the period of July 1, 2013, through June 30, 2014, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two safety system functional failures samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index – Emergency Alternating Current Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency Alternating Current (AC) Power System PI for Units 1 and 2 for the period from the fourth quarter 2013 through the third quarter 2014. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, issue reports, event reports, and NRC Integrated Inspection Reports for the period of October 1, 2013, through

September 30, 2014, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two MSPI emergency AC power system samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Heat Removal System PI for Units 1 and 2 for the period from the fourth quarter 2013 through the third quarter 2014. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports, and NRC Integrated Inspection Reports for the period of October 1, 2013 through September 30, 2014, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two MSPI heat removal system samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Residual Heat Removal System PI for Units 1 and 2 for the period from the fourth quarter 2013 through the third quarter 2014. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's

operator narrative logs, issue reports, MSPI derivation reports, event reports, and NRC Integrated Inspection Reports for the period of October 1, 2013, through September 30, 2014, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two MSPI residual heat removal system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Mitigating Systems Performance Index—Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index – Cooling Water Systems PI for Units 1 and 2 for the period from the fourth quarter 2013 through the third quarter 2014. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports, and NRC Integrated Inspection Reports for the period of October 1, 2013, through September 30, 2014, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two MSPI cooling water systems samples as defined in IP 71151-05.

b. Findings

No findings were identified.

Cornerstones: Occupational and Public Radiation Safety

.6 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity PI for Units 1 and 2 for the period from the third quarter 2013 through the

third quarter 2014. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's reactor coolant system chemistry samples, TS requirements, issue reports, event reports, and NRC Integrated Inspection Reports for the period July 1, 2013, thru September 30, 2014, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine whether any problems had been identified with the PI data collected or transmitted for this indicator, and none was identified. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two reactor coolant system specific activity samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.7 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Exposure Control Effectiveness PI for the period from the third quarter 2013 through the third quarter 2014. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if the indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarms and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very-high radiation area entrances to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational exposure control effectiveness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.8 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the radiological effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences PI for the period from the third quarter 2013 through the third quarter 2014. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Radiological Effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified.

40A2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of July 2014 through December 2014, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

This review constituted one semi-annual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

40A3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 Loss of Seismograph Functionality

a. Inspection Scope

The inspectors reviewed the plant's response to a degraded condition of the site seismograph. On October 19, 2014, the station experienced a loss of the station seismograph as identified by the lighting of the red event light and the inability to retrieve data from the seismograph. The station determined that there were no reportability thresholds, specifically for a loss of emergency preparedness capability. The inspectors questioned the licensee's reportability determination based on their review of emergency action levels (EALs) as described in the stations emergency plan, including the EAL bases document. Documents reviewed are listed in the Attachment to this report.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

Introduction: The inspectors identified a Severity Level IV NCV of 10 CFR 50.72(b)(3)(xiii) when licensee personnel failed to submit a report required by 10 CFR 50.72 for a loss of emergency assessment capability when an unplanned degradation of the station seismograph was identified. Specifically, the station seismograph was declared non-functional following an unplanned failure of the instrument, which adversely impacted the ability to make an ALERT EAL assessment in accordance with EP-AA-1006, "Radiological Emergency Plan Annex for Quad Cities Station." The licensee did not report the condition as required.

Description: On October 7, 2014, operators in the plant reported to the control room that the station seismograph was exhibiting erratic behavior. The licensee document this condition in the CAP under IR 2392264 and the shift manager declared the seismograph non-functional. The station determined that the condition was not reportable based on station procedural guidance and having redundant methods of determining if an initiating condition was met. Specifically, the licensee's procedures directed using the Byron Generating Station seismograph as a means of evaluating Quad Cities seismic EALs.

Licensee procedure EP-AA-121-F-06, "Quad Cities Equipment Matrix," directed compensatory measures for a loss of the strong motion accelerometer (or seismograph). Specifically, it directed classifying events in accordance with QCOA 0010-09, "Earthquake." Procedure QCOA 0019-09 gave the licensee guidance to, "if necessary, then obtain seismic data from Byron station to evaluate for EAL at Quad Cities station." The procedure correlated Byron seismograph data to EAL thresholds at Quad Cities station.

The inspectors reviewed the licensee's EALs and EAL bases contained in EP-AA-1006. The inspectors identified that the threshold values for an ALERT (HA4) for a seismic event greater than the operating basis earthquake (OBE) was based on indication from the station Strong Motion Seismograph. The inspectors also noted that the EALs and

bases neither credited nor discussed the Byron station seismograph for EAL classification. The only reference to procedure QCOA 0010-09, "Earthquake," was in the list of references for the EAL bases.

Exelon procedure EP-AA-120-1006, "EP Reportability- Loss of Emergency Assessment Capability," gave an example for loss of emergency classification capability: "The seismic monitoring system suffers a failure such that the one seismic related EAL cannot be evaluated (**and off-site sources are unavailable**) [emphasis added]. This event would be reportable because the remaining EALs under the IC are unrelated to a seismic event."

The inspectors reviewed NEI 13-01, "Reportable Action Levels for Loss of Emergency Assessment Capabilities." While it is not a regulatory requirement, NEI 13-01 is an NRC endorsed document that provides guidance on reporting loss of emergency assessment capabilities. The inspectors noted that Exelon's procedure was similar to the guidance provided in NEI 13-01; however, the NEI 13-01 example for the loss of emergency assessment capability did not contain the parenthetical statement, "and off-site sources are unavailable." In addition, NEI 13-01 discussed that compensatory measures are considered for planned losses of emergency assessment capabilities (the loss of the seismograph was not planned).

The inspectors discussed this issue with regional emergency preparedness inspectors and members of the Office of Nuclear Security and Incident Response in headquarters and concluded that the loss of the station seismograph was a reportable condition. This event constituted an unplanned loss of emergency preparedness equipment that is used to evaluate a seismic event corresponding to an ALERT (HA4). The Byron seismograph was not discussed in the station's EAL or EAL bases document as a viable method of EAL assessment at Quad Cities. Therefore, the loss of the seismograph met the reporting criteria of 10 CFR 50.72(b)(3)(xiii) because the seismograph is equipment that is necessary for accident assessment.

Analysis: The inspectors determined that the failure to submit a report required by 10 CFR 50.72 for a loss of emergency assessment capability when an unplanned failure was identified associated with the seismograph was a performance deficiency. Specifically, the EAL for an ALERT under HA4 for a seismic event contained threshold values for an Operating Basis Earthquake (OBE) that were dependent upon readings from the station seismograph. The loss of the seismograph could impact the emergency assessment capabilities as stated in the station's emergency plan because the monitor is required for accident assessment in the event that OBE values are reached.

The inspectors determined that this issue had the potential to impact the regulatory process based, in part, on the generic communications input that 10 CFR 50.72 reports serve. Since the issue impacted the regulatory process, it was dispositioned through the Traditional Enforcement process. The inspectors determined that this issue was a Severity Level IV violation based upon Section 6.9, "Inaccurate and Incomplete Information or Failure to Make a Required Report," example d.9 in the NRC Enforcement Policy. Example d.9 specifically states, "The licensee fails to make a report requirement by 10 CFR 50.72 or 10 CFR 50.73."

The inspectors evaluated the technical issue associated with the loss of the seismograph in accordance with IMC 0612, Appendix B, "Issue Screening," issued September 7, 2012, and did not identify a performance deficiency that led to the failure of the seismograph. Because a more-than-minor Reactor Oversight Process finding was not identified, there was no cross-cutting aspect associated with this violation.

Enforcement: Title 10 CFR Part 50.72(b)(3), "Eight-hour reports," requires, in part, that "If not reported under paragraphs (a), (b)(1) or (b)(2) of this section, the licensee shall notify the NRC as soon as practical and in all cases within eight hours of the occurrence of any of the following...(xiii) any event that results in a major loss of emergency assessment capability."

Contrary to the above, on October 7, 2014, the licensee declared the seismograph non-functional and failed to report the loss of the seismograph as a major loss of emergency assessment capability.

Corrective actions included repairs to the seismograph and a planned revision to their procedure EP-AA-120-1006, "EP Reportability - Loss of Emergency Assessment Capability," to address the difference in wording with NEI 13-01. Because the issue was entered into the licensee's CAP as IR 2415243, "A Potential Issue Related to the QDC Seismic Monitor," the violation is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. **(Severity Level IV NCV 05000254/2014005-02; 05000265/2014005-02, "Failure to Submit a Report Required by 10 CFR 50.72(b)(3)(xiii)")**

.2 Half Scram Due to Inadvertent Closure of Turbine Control Valve #1

a. Inspection Scope

The inspectors reviewed the plant's response to a half scram condition generated during turbine testing on December 22, 2014. Licensed operators were performing turbine testing in accordance with QCOS 5600-08, "Turbine Generator Quarterly Testing," when operators mistakenly selected control valve (CV) #1, rather than combined intermediate valve (CIV) #1 in accordance with the procedure direction. The closure of CV #1 generated a ½ SCRAM on the reactor protection system (RPS) as designed. The inspectors determined that the failure to comply with the procedure was a performance deficiency. However, the inspectors determined the performance deficiency was minor because it was similar to example 4.b in Appendix E of IMC 0612, "Examples of Minor Issues," issued August 11, 2009. The inspectors determined the performance deficiency was an insignificant procedural error that did not result in any safety consequences or transient conditions.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

No findings were identified.

.3 (Closed) LER 254/2014-001: Secondary Containment Differential Pressure Momentarily Lost Due to Fuel Pool Radiation Monitor Spike

On March 4, 2014, the station received a fuel pool channel 1B high radiation monitor alarm, causing the Units 1 and 2 reactor building ventilation and control room ventilation to isolate, as designed. The radiation monitor spiked high before lowering back to its previous steady state value. The standby gas treatment system was in operation at the time of the ventilation isolation as part of a planned surveillance activity. The common reactor building (secondary containment) for Units 1 and 2 had its differential pressure go positive for approximately three minutes, during which time the licensee declared secondary containment inoperable. Corrective actions included replacing the failed radiation monitor and having it sent to an off-site vendor for failure analysis. Documents reviewed are listed in the Attachment to this report. This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153–05.

.4 (Closed) Licensee Event Report (LER) 254/2014-002: Reactor Building Interlock Doors Opened Simultaneously

On April 1, 2014, the licensee identified that both reactor building interlock doors were opened simultaneously, causing the licensee to momentarily declare secondary containment inoperable. The doors were immediately reclosed and secondary containment was reestablished and declared operable. Documents reviewed are listed in the Attachment to this report. This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153–05.

.5 (Closed) LER 254/2014-003: HPCI Interlock Doors Opened Simultaneously

On May 22, 2014, the licensee identified that both HPCI interlock doors were opened simultaneously, causing the licensee to momentarily declare secondary containment inoperable. The doors were immediately reclosed and secondary containment was reestablished and declared operable. Documents reviewed are listed in the Attachment to this report. This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153–05.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation at Operating Plants (60855.1)

a. Inspection Scope

The inspectors observed and evaluated select licensee loading, processing, and transfer operations of the first canister during the licensee's 2014 dry fuel storage campaign to verify compliance with the applicable certificate of compliance conditions, the associated TS, and Independent Spent Fuel Storage Installation (ISFSI) procedures. Specifically, the inspectors observed: loading of the fuel assemblies into the multi-purpose canister (MPC); lifting of the transfer cask (HI-TRAC) from the spent fuel pool; decontamination and surveying; welding of the MPC lid; non-destructive weld evaluation of the MPC lid;

draining of water; and helium backfilling of the MPC. The licensee uses the Holtec International HI-STORM 100 Cask System.

The inspectors performed tours of the ISFSI pad to assess the material condition of the pad and the loaded HI-STORM casks. The inspectors observed ISFSI pad surface repairs to address previous spalling and degradation, all of which was above the top layer of rebar. The inspectors reviewed the contamination and radiation levels from previously loaded MPCs and reviewed offsite dose radiation level documentation to ensure offsite dose to members of the public were below the regulatory limits.

The inspectors reviewed select documents, in part, after the licensee completed certain loading activities. The inspectors also performed a review of the fuel selection documentation was performed to verify the fuel placed in the MPC met the TS and applicable heavy loads procedures and inspection documentation, to determine compliance with the site's heavy loads program. In addition, the inspectors reviewed a number of condition reports and the associated corrective actions since the last ISFSI inspection. The inspectors reviewed calculations and evaluations of ISFSI related changes implemented since the last ISFSI inspection. The inspectors also reviewed 10 CFR 72.48 screenings and changes to the licensee's 10 CFR 72.212 evaluations since the last ISFSI inspection.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

Inspectors verified that the Quad Cities staff's interim actions would perform their intended function for flooding mitigation.

The inspectors independently verified that the Quad Cities staff's proposed interim actions would perform their intended function for flooding mitigation.

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

b. Findings

In a letter from the Quad Cities Nuclear Power Station to the NRC, dated June 4, 2014, the licensee described the interim actions that had been taken or were planned associated with the Flooding Hazard Reevaluation Report, dated March 12, 2013. Interim Action #4 stated that the licensee would develop and implement appropriate

operational response procedures to mitigate the effects of the Local Intense Precipitation Event. The licensee developed and implemented QCOA 0010-22, "Local Intense Precipitation Response Procedure," Revision 1, for this purpose. In the June 4, 2014, letter the licensee stated that Interim Action #4 was completed on March 14, 2013.

Local Intense Precipitation (LIP) Evaluation LIP-QDC-002, Revision 0, Section 7.3, identified that the water level after a LIP would be about 2-3 feet above ground level at the entrance to the reactor building. Without flood barriers the water would enter the building and fill the rooms that contain the emergency core cooling system pumps and cause most, if not all, of the electrical distribution system to fail which could potentially lead to core damage. The licensee had not completed installing any flood barriers at the time of the inspection. The inspectors reviewed QCOA 0010-22 and determined that the procedure, as written, would not have mitigated the effects of a LIP event that resulted in a water level 2-3 feet above ground level without flood barriers installed.

In addition, the inspectors identified that in Interim Action #7, the licensee was to determine if interim flood barriers are warranted until the 2-Year Integrated Assessment Report is complete. The licensee determined that interim flood barriers would provide negligible benefit for protection from the LIP event. However, the licensee was unable to produce any documentation as to how this conclusion was reached.

The installation of flood barriers was expected to be addressed by the licensee by the implementation of the flood FLEX strategy currently scheduled to be completed by March 2015. The inspectors determined that Temporary Instruction (TI)-190 would remain open until the flood barriers were installed and inspected to verify that QCOA 0010-22 would mitigate the effects of a LIP event.

Post-Approval Site Inspection for License Renewal (Phase II) (71003)

(Closed) Unresolved Item (URI) 05000254/2012010-01; 05000265/2012010-01: Concerns with Meeting One-Time Visual Inspections in Accordance with (IAW) American Society of Mechanical Engineers (ASME) Section XI Requirements

During the 2012 Post-Approval Site Inspection for License Renewal, the inspectors identified an URI related to a concern with meeting one-time visual inspections in accordance with the ASME Section XI requirements. Specifically, the licensee did not perform visual examinations related to the following Aging Management Programs (AMPs) in accordance with the ASME code as required by a commitment. The inspectors identified this through direct observation, review of the work orders used to perform these examinations and interviews with the appropriate plant personnel.

The licensee's commitment to perform visual examinations in accordance with the ASME Section XI Code applied to the following programs:

- B.1.23 One Time Inspection – Ventilation Systems, Compressed Gas Systems, Standby Liquid Control Chemistry Program;
- B.1.24 Selective Leaching;
- B.2.8 Periodic Inspection of Plant Heating Steam; and
- B.2.9 Periodic Inspection of Components Subject to Moist Air Environments.

While the associated Commitment Items did not contain verbiage associated with performing inspections in accordance with the ASME Code, in a letter to staff dated November 20, 2003 (ML 033370342), the licensee specifically stated, "The inspections will be performed in accordance with ASME Code requirements. Certified non-destructive examination examiners will conduct a vehicular technology (VT)-3 visual inspection (VT-1 for the Selective Leaching Program, these inspections will consist of visual inspection consistent with ASME Section XI VT-1 visual inspection requirements.)" As such, it was the NRC's understanding the licensee would be performing the VT examinations in accordance with the ASME Code.

The licensee indicated the intent was not to perform Code equivalent examinations, which would be incongruous since the exams were performed on non-Code components, but rather to use personnel qualified to perform Code examinations (i.e., VT-1 or VT-3 qualified personnel). In a letter dated May 18, 2012 (ML 12173A423), the licensee requested a Commitment Item change that "clarified" their position of the intent to have a qualified person performing the inspection, not to perform the examination in accordance with the requirements of the ASME Code. The inspectors were unable to assess the status of the above commitments and opened an unresolved item.

The NRC completed the review of the commitment change in a Safety Review dated January 6, 2014 (ML 13304A524), and while no concerns were presented in the review, certain concerns with historical inspections remained open. The review indicated that while the commitment change would satisfy the requirements for inspections going forward, licensee actions to address previous inspections still needed to be resolved. Specifically, the licensee needed to conduct additional inspections on components previously inspected in order to meet the original commitment, or provide justification on the adequacy of the previous inspections as conducted. The licensee elected to perform the latter.

The purpose of performing VT examinations of passive components in specific AMPs prior to entering the period of extended operation was to identify relevant aging effects. For the previous VT examinations to have been adequate, the licensee would need to ensure the relevant aging effects would be identified and documented. In a white paper entitled "Acceptability of License Renewal Visual Examinations" dated October 14, 2014, the licensee documented its reasoning and justification for the adequacy of the previous VT examinations performed in lieu of the ASME Code exams the licensee originally stated would be performed. Exelon stated that its intent was to ensure license renewal visual examinations were effective in detecting unacceptable aging. Examination instructions were developed by a Level III non-destructive examination qualified individual (certified in VT-1 and VT-3). The training, qualification, and certification of the Level II or Level III VT (VT-1 and VT-3) examiner who performed the examination supported their ability to identify the evidence of aging as required by the AMP from the acceptance criteria specific to the degradation mechanism in each work order. Their qualification ensured the individuals had experience in identifying degradation visually, had appropriate vision acuity, and were trained in establishing appropriate lighting and resolution to ensure the aging effect could be identified.

The examinations were specifically tailored to focus on identifying aging effects that could require ongoing management during the period of extended operation.

The forms used for recording observations were developed to be consistent with ASME Section XI forms used at the station, but were modified to ensure the component and aging effects of interest were appropriately captured. VT examination results were reviewed by a certified VT examiner or engineer as appropriate to the component and relevant degradation mechanism/aging effect.

Based on the above, there is reasonable assurance the actions taken by the licensee to perform VT examinations were adequate and appropriate to detect the effects of aging for the previously performed examinations related to this commitment.

The inspectors did not identify a performance deficiency or violation of NRC requirements. This URI is closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 14, 2015, the inspectors presented the inspection results to Mr. S. Darin, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The biennial licensed operator review inspection results with Mr. E. Pannell, Operations Training Manager, on October 16, 2014;
- The inspection results for the areas of radiological hazard assessment and exposure controls; radioactive gaseous and liquid effluent treatment; radiological environmental monitoring; and RCS specific activity, occupational exposure control effectiveness, and RETS/ODCM radiological effluent occurrences performance indicator verification with Mr. S. Darin, Site Vice President, on October 24, 2014;
- The ISFSI operational inspection results with the licensee management and staff, on October 31, 2014;
- The licensed operator requalification training biennial operating test results with Mr. E. Pannell, Operations Training Manager, on November 25, 2014;
- The annual review of Emergency Action Level and Emergency Plan changes with Mr. C. Schronik, Emergency Preparedness Manager, via telephone on, December 3, 2014; and
- The closure of the URI related to the post approval site inspection for license renewal with Mr. W. Beck, Regulatory Assurance Manager, on December 8, 2014.

The licensee acknowledged the issues presented in each of the interim exit meetings. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Darin, Site Vice President
K. O'Shea, Plant Manager
W. Beck, Regulatory Assurance Manager
D. Kimler, Operations Director
D. Luebbe, Online Work Control Manager
A. Misak, Critical Skills Manager
T. Petersen, Regulatory Assurance Lead
S. Piepenbrink, Security Manager
B. Stedman, Senior Engineering Manager
T. Wojick, Nuclear Oversight Manager
J. Wooldridge, Chemistry Manager

Illinois Emergency Management Agency (IEMA)

C. Settles, IEMA

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000254/2014005-01	NCV	HPCI Flood Barrier Degraded (Section 1R06)
05000254/2014005-02; 05000265/2014005-02	NCV	Failure to Submit a Report Required by 10 CFR 50.72(b)(3)(xiii) (Section 4OA3)

Closed

05000254/2014005-01	NCV	HPCI Flood Barrier Degraded (Section 1R06)
05000254/2014005-02; 05000265/2014005-02	NCV	Failure to Submit a Report Required by 10 CFR 50.72(b)(3)(xiii) (Section 4OA3)
50-254/2014-001	LER	Secondary Containment Differential Pressure Momentarily Lost Due to Fuel Pool Radiation Monitor Spike (Section 4OA3)
50-254/2014-002	LER	Reactor Building Interlock Doors Opened Simultaneously (Section 4OA3)
50-254/2014-003	LER	HPCI Interlock Doors Opened Simultaneously (Section 4OA3)
05000254/2012010-01; 05000265/2012010-01	URI	Concerns with Meeting One-Time Visual Inspections in accordance with ASME Section XI Requirements (4OA5.b(1))

Discussed

TI 2515/190

Inspection of the Proposed Interim Actions Associated with
Near-Term Task Force Recommendation 2.1 Flooding
Hazard Evaluations (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

Section 1R01

- IR 01605272: 'B' CCST Level Not Responding as Expected
- IR 2405311: Pump Seal Vent Line Leaks Water From Several Cracks; November 2, 2014
- IR 2412183: Winterizing Checklist Discrepancies; November 14, 2014
- IR 2412202: Winterizing Checklist Discrepancies; November 14, 2014
- IR 2413012: NOS ID: Winter Readiness Checklist Improvement Opportunity; November 17, 2014
- IR 2413293: Heater 2-5753-L Does Not Turn On When Thermostat Adjusted; November 14, 2014
- IR 2420704: Winter Readiness Item Not Completed Prior to December 1; December 4, 2014
- PI-AA-120: Issue Identification and Screening Process; Revision 1
- Quad Cities Winter Readiness Conference Report
- SVP 14-083: Certification of 2014-2015 Winter Readiness; November 13, 2014
- WC-AA-107: Seasonal Readiness; Revision 14

Section 1R04

- QOM 2-2300-01: Unit 2 HPCI Valve Checklist
- IR 1654040: Need WR/WO to Replace TIS 2-2341-4B (LP Brg Drn Oil Temp); April 20, 2014
- IR 2400993: NRC Identified: Valve 2-5199-18 Packing Leak; October 24, 2014
- Drawing M-36: Diagram of Core Spray Piping
- Drawing M-78: Diagram of Core Spray Piping
- QOM 1-1400-09: Unit 1 'A' Core Spray Valve Checklist; Revision 7
- QOM 1-1400-10: Unit 1 'B' Core Spray Valve Checklist; Revision 7
- QOM 1-1400-08: Core Spray System Fuse and Breaker Checklist; Revision 2
- QOP 1400-10: Unit 1 ECCS Fill System
- Drawing 1RB1: Unit 1 Rx. Bldg. Basement 554' Elevation; Revision 7
- Drawing 2RB1: Unit 2 Rx. Bldg. Basement 554' Elevation; Revision 7
- QCOP 1400-08: Unit 1 Core Spray System Preparation For Standby Operation; Revision 3
- QOM 2-1400-08: Core Spray System Fuse and Breaker Checklist; Revision 5
- QOM 2-1400-09: 2A Core Spray Valve Checklist; Revision 8
- QOM 2-1400-10: 2B Core Spray Valve Checklist; Revision 6
- QCOP 6600-04: Diesel Generator ½ Preparation for Standby Operation; Revision 31
- QOM ½-6600-01: Unit ½ Diesel Generator Valve Checklist; Revision 16
- IR 1639471: 0-6660 EDG Turbo Oil Circ Pump Has 1 Ounce/Day Leak; March 27, 2014
- IR 1485074: Locking Handwheel Turns Only About 3/8 of One Revolution; March 8, 2013
- IR 1626139: ½ EDG Lube Oil Circ Pump Making Abnormal Noise; February 26, 2014

Section 1R05

- Fire Zone 11.1.3: Quad Cities Generating Station Pre-Fire Plan, Unit 1 Reactor Bldg. 554'-0" Elevation, HPCI & HPCI Access Tunnel

- Fire Zone 11.4A: Quad Cities Generating Station Pre-Fire Plan, Crib House Bldg. El. 559'-8" Basement
- Fire Zone 11.4B: Quad Cities Generating Station Pre-Fire Plan, Crib House Bldg. El. 595'-0" Ground Floor/Service Water Pumps
- Fire Zone 8.2.4: Quad Cities Generating Station Pre-Fire Plan, Unit 1 Turbine Bldg. El. 580'-0" U-1 Cable Tunnel
- Fire Zone 8.2.5: Quad Cities Generating Station Pre-Fire Plan, Unit 1/2 Turbine Bldg. El. 580'-0" U-2 Cable Tunnel
- IR 01631015: FAS Device14-29 Failed in QCOS 4100-32-Failed PM WO 1696299; March 9, 2014
- IR 02426232: NRC Questions Need Further Review; December 12, 2014
- WO 01718774: ESS Fire Protect Sys Wetpipe Test A; June 1, 2014
- WO 01745589: ESS Fire Protect Sys Wetpipe Test A; August 31, 2014
- WO 01466224: Cable Tunnel Fire Protection Func Test; June 21, 2012
- WO 01567899: Cable Tunnel Fire Protection Func Test; June 19, 2013
- IR 2416306: Ground Fault Plus, Loop 61 Detection Alarm on FAS; November 23, 2014
- Fire Protection Impairment Permit (FPI)-3629: Loop 61 Detection

Section 1R06

- IR 2406984: IEMA U2 HPCI Flood Penetration Concern
- QCTS 0810-10: Reactor Building Internal Flood Barrier Surveillance; Revision 4
- QCAN 901(2)-3 H-10: HPCI Floor Drain Sump High Level; Revision 2
- QCAP 0250-06: Control of In-Plant Flood Barriers and Watertight Submarine Doors; Revision 12
- QCTP 0130-11: Internal Flood Protection Program; Revision 5
- Drawing FL-1: Flood Barriers Basement Floor; Revision C

Section 1R11

- Operating Exam Number Three; Revision 23
- Operating Exam Number Seven; Revision 22
- JPM SRO-018-I; Classify Event and Determine Protective Action Recommendations; Revision 02
- JPM LP-003-I-A; Locally Start up a Diesel Generator With a Failure of the Vent Fan to Start; Revision 21
- JPM LP-009-I; Energize the "B" RPS Bus with Reserve Power; Revision 06
- JPM LS-003-I; Perform the CORE Spray Pump A/B Operability Test; Revision 19
- JPM LS-065-I; Swapping SSMP Injection from Unit 2 to Unit 1; Revision 03
- JPM LS-082-I-A; Energize 480 VAC Bus 15 With a Failure of the Normal Feed; Revision 02
- LORT Annual Exam Status Report Quad Cities Generating Station 2014
- IR 2416166: Full Core Display for Rod K-5 Has Orange 00 Indicator; November 23, 2014
- IR 2416355: Received Unexpected Alarm 901-5 A5 & C3; November 23, 2014
- IR 2416450: Received Unexpected Alarm 901-5 A5 & C3; November 24, 2014
- Operations Logs November 23-24, 2014
- Q1C23 Bank Map - November Sequence Exchange
- QCOS 0300-23: Control Rod Scram Timing in the Hot Condition; Revision 13
- Quad Cities U1 Control Rod Scram Timing Full Report; November 23, 2014
- Quad Cities U1 Control Rod Scram Timing Full Report; September 14, 2014
- Quad Unit 1- November Sequence Exchange (Gen Manager Ticket 1062757)
- WO 1769688: CRD Scram Timing in Hot Condition (IST); November 23, 2014

Section 1R12

- Quad Cities Motor Operated Valve Program Focused Area Self-Assessment, IR 1610903; November 2014
- ER-AA-300: Motor-Operated Valve Program Administrative Procedure; Revision 8
- ER-AA-302: Motor-Operated Valve Program Engineering Procedure; Revision 5
- 10CFR50.65(a)(3) Periodic Evaluation Assessment Period: 05/01/2012-05/01/2014; July 25, 2014
- ACE 2406419: Unit 2 HPCI Turbine Inlet Drain Pot Level Switch Is Sticking (LS 2-2365); December 4, 2014
- Drawing 4E-2527, Sheet 2: Schematic Diagram High Pressure Coolant Injection System Sensor and Auxiliary Relays
- Drawing M-87, Sheet 1, 2: Diagram of High Pressure Coolant Injection – HPCI Piping
- ER-AA-2003: System Performance Monitoring and Analysis; Revision 11
- ER-AA-310: Implementation of the Maintenance Rule; Revision 9
- ER-AA-310-1002: Maintenance Rule Functions - Safety Significance Classification; Revision 3
- ER-AA-310-1003: Maintenance Rule Performance Criteria Selection; Revision 4
- ER-AA-310-1004: Maintenance Rule Performance Monitoring; Revision 11
- ER-AA-310-1005: Maintenance Rule Dispositioning Between (a)(1) and (a)(2); Revision 7
- ER-AA-310-1006: Maintenance Rule Expert Panel Roles and Responsibilities; Revision 5
- ER-AA-310-1007: Maintenance Rule Periodic a(3) Assessment; Revision 4
- ER-AA-600-1011: Risk Management Program; Revision 13
- ER-AA-600-1044: Maintenance Rule Support; Revision 4
- Exelon Maintenance Rule Failure Classification Form; Quad Cities/2; HP2300
- IR 1471679: U2 HPCI Quarterly Operability Test Aborted; February 5, 2013
- IR 1473775: Received HPCI Drain Pot Hi Level Alarm Longer Than Expected; February 11, 2013
- IR 1584092: Received HPCI Exhaust Drain Pot High Level Alarm on U2; November 12, 2013
- IR 1585507: 902-3 C11: U2 HPCI Exhaust Drain Pot High Level Alarm; November 15, 2013
- IR 1600408: Received 902-3 C9, HPCI Pump Suction High Pressure Alarm; December 23, 2013
- IR 1607070: Unit 2 HPCI RO 2-2301-98 Has Elevated Temperature; January 12, 2014
- IR 2406809: HPCI Drain Pot Level Switch Surveillance Commitment; November 5, 2014
- IR 2416641: Possible Rework - WO 01742154 Air Leak on AO 2-2301-30; November 24, 2014
- Maintenance Rule System Basis Document - Quad Cities/2; HP2300
- MR Basis MPFF - HP2300
- MR Monthly Monitoring Evaluation – HP2300
- MR-Monthly Monitoring Availability – HP2300
- MR-Monthly Monitoring Reliability – HP2300
- Quad Cities IPEEE
- Quad Cities Maintenance Rule System Status; November 14, 2014
- WC-AA-106: Work Screening and Processing; Revision 14

Section 1R13

- Work Week Safety Profile (14-42-05)
- Work Week Safety Profile (14-43-06)
- OP-AA-108-117: Protected Equipment Program; Revision 4

Section 1R15

- IR 2395355: 2014 CREH Boundary FASA Walkdown Deficiency; October 14, 2014
- EC 395862: Install Fuel Oil Connections for Transfer to Operations F750 Truck – Fukushima FLEX Strategy; October 15, 2014
- IR 2398208: UT Vent Verification on 2A Core Spray; October 20, 2014
- WO 1740240: Core Spray System UT Vent Verifications; October 21, 2014
- EC 371224: NRC GL 08-01 Venting and Gas Accumulation Evaluation for Core Spray; Revision 0
- QDC 1400-M-1170: Determination of Acceptance Criteria for RCIC and Core Spray System Monthly Vent Verifications; Revision 0
- IR 2402048: Failure to Enter Required LCOs; October 27, 2014
- QCOS 0005-08: Unit One Electrical Distribution Breaker and Voltage Verification; Revision 33
- QCOS 0005-09: Unit Two Electrical Distribution Breaker and Voltage Verification; Revision 36
- IR 2406419: New U2 HPCI Drain Pot Level Switch is Stuck; November 4, 2014
- M-87, Sheet 2: Diagram of High Pressure Coolant Injection (HPCI) Piping
- IR 2408090: U1 SBO Took Multiple Attempts to Start; November 6, 2014
- Drawing Number 4E-6576E: External Wiring Diagram Smoke and Fire Detection System Deluge and Detector Cont Pnl's; July 1, 1997
- Drawing Number 6620-01: SBO Electrical Distribution: July 2010; Revision 1
- WO 1736939: SBO Remote/Local/PLC Bypass Emergency Start Test; November 6, 2014
- EC 384132: Minimum Wall Thickness for Unit 1 DGCW Cubicle Cooler 2" Header Line, Revision 0
- ECR 406537: RHRSW Cubicle Cooler Min Wall Information Applicability of EC 384132; September 11, 2012
- ER-AA-5400: Buried Piping and Raw Water Corrosion Program (BPRWCP) Guide; Revision 6
- IR 1204785: U1 EDGCWP Cubicle Cooler Leak; April 19, 2011
- IR 1419137: 2C RHRSW Vault Cooler UT Results; September 27, 2012
- IR 2413814: 1D RHRSW Room Cooler Header UT Readings Below Min Wall; November 18, 2014
- IR 2416825: 1D RHRSW Room Cooler RO and FE UT Measurements; November 24, 2014
- IR 2424503: Moderate Surface Corrosion on Valve Body, Bolts and Pipe; December 12, 2014
- IR 2425790: Moderate Surface Corrosion on RHRSW Piping Strut; December 16, 2014
- NES-MS-03.1: Piping Minimum Wall Thickness Calculation; Revision 5
- IR 2407342: Potential HCU Bracket Issue From Peach Bottom; November 5, 2014
- WO 1782547: CRD Brackets Installed Upside Down; November 5, 2014

Section 1R19

- WO 1729645: Install FLEX Electrical Connections Switchgear 28 EC 396321
- EC 396321: Fukushima Unit 1 & 2 FLEX – 480VAC MCC/ Bus Portable Diesel Generator Connections
- WO 1777961: Stem Disc Separation Prevents QCOS 1300-10
- WO 1761048: HPCI Pump Operability (IST); November 5, 2014
- Operations Log: November 4-5, 2014
- PINV 2406419: New Unit 2 HPCI Turbine Inlet Drain Pot Level Switch is Stuck
- Drawing M-87
- QCOS 2300-15: HPCI Drain Pot/Steam Line Drain Level Switch, Valve, and Alarm Functional Verification; Revision 26
- QCOS 2300-05: HPCI Pump Operability Test; Revision 75
- WC-AA-101: Revision 23

- TIC 3267: HPCI Pump Operability Test; Revision 75a
- QCOS 2300-06: HPCI System High/Medium Risk Power Operated Valve Test; Revision 38
- TIC 3268: HPCI System High/Medium Risk Power Operated Valve Test; Revision 38a
- QCAN 901(2)-3 B-11: HPCI Turbine Inlet Drain Pot High Level; Revision 5
- Quad Cities IST Program Plan; February 18, 2013
- WO 1763632: RHR Service Water Pump C Flow (IST); November 19, 2014
- QCOS 1000-04: RHR Service Water Pump Operability Test
- AD-AA-101: Processing of Procedures and T&RMs; Revision 26
- WO 1762930: Replace U-1 Diesel Fuel Oil Transfer Pump
- WO 1740265: DG Fuel Oil Transfer Pump Flow (IST); August 17, 2014
- WO 1713282: DG Fuel Oil Transfer Pump Flow (IST); May 19, 2014
- WO 1692579: DG Fuel Oil Transfer Pump Flow (IST); February 17, 2014
- Log Entries Report (Operator Logs); November 17, 2014
- QCOS 6600-05: Diesel Generator Fuel Oil Transfer Pump Flow Rate Test; Revision 29
- IR 2412869: U1 EDG Fuel Oil Transfer Pump Did Not Meet IST Requirements; November 17, 2014
- IR 2413631: Identified Flange Leak at RV Discharge; November 18, 2014
- ER-AA-200: Preventive Maintenance Program; Revision 0
- WO 1659872

Section 1R22

- WO 1640984: 125 VDC Battery Service Test
- QCOP 6900-24: Transfer of Unit Two 125 VDC Bus Between Normal and Alternate Battery; Revision 18
- QCEMS 0230-03: Unit 2 125 VDC Service Test on Normal Batteries; Revision 4
- CY-QC-120-503: Reactor Water Iodine Analysis; Revision 2
- CY-QC-110-608: Reactor/Turbine Building Sample Panel Sample Collection; Revision 31
- QCOS 0010-17: Portable Diesel Pump Surveillance; Revision 0
- IR 2179314: Off-site Portable Diesel Pump Surveillance Discrepancies; September 11, 2014
- Drawing Number 10647: DPC300 Contingency Plan
- QCOP 4100-02: Portable Diesel Pump Operation; Revision 12
- CC-AA-112: Temporary Configuration Changes; Revision 21
- CC-QC-406: RPS/PCI Test Box Inspection, Installation and Removal Expectations; Revision 1
- IR 2416190: Unit 1 Control Vlv 3 Closed During Qtrly Turb Test
- QCAN 901(2)-7 A-5: Major Trouble Turbine Control; Revision 0
- QCOA 5650-01: Malfunction of the EHC Pressure Control System; Revision 20
- QCOP 2300-06: HPCI System Manual Startup (Injection/Pressure Control); Revision 33
- QCOS 2300-06: HPCI System High/Medium Risk Power Operated Valve Test; Revision 38
- QOA 5650-02: Turbine Control Valve Failure; Revision 11
- QOS 5600-01: Turbine Control Valve Fast Closure Scram Instrumentation Channel Functional Test; Revision 52
- WO 1767643: TCV Fast Closure Scram Functional Test; November 24, 2014
- Drawing 4E-1484E, Sheet 1: Schematic Diagram RCIC System Valves MO 1-1301-16, 1-1301-22, and 1-1301-48
- Drawing 4E-1484E, Sheet 2: Schematic Diagram RCIC System Valves MO 1-1301-17, and -49
- Drawing 4E-2484B, Sheet 1: Schematic Diagram Reactor Core Isolation Cooling System Part 2
- IR 2417459: QCOS 1300-25 Deferred Due to Plant Conditions; November 25, 2014

- QCIS 1300-03: RCIC Steam Line High Flow Calibration and Functional Test; Revision 11
- QCOP: RCIC System Preparation for Standby Operation; Revision 43
- QCOS 1300-05: RCIC Pump Operability Test; Revision 55
- QCOS 1300-06: RCIC System High/Medium Risk Motor Operated Valve Test, Revision 28
- QCOS 1300-23: Unit 1 RCIC Functional Logic Test; Revision 19
- WO 1659872: RCIC Logic Functional Test; October 15, 2014
- WO 1757239: RCIC Pump Operability (IST); October 15, 2014

Section 1EP4

- EP-AA-1000: Exelon Nuclear Standardized Radiological Emergency Plan; Revisions 24 and 25
- EP-AA-1006: Radiological Emergency Plan Annex for Quad Cities Nuclear Power Station; Revisions 35 and 36
- EP-AA-110-200: Dose Assessment; Revisions 4, 5, 6, and 7
- EP-AA-110-200-F-01: Dose Assessment Input Form; Revision B
- EP-AA-110-201-F-01: On-Shift Dose Assessment Input Sheet; Revision B
- EP-AA-120-F-01: Core Damage Assessment BWR; Revisions 9 and 10

Section 2RS1

- IR 1622216: Radiation Boundary Rope Not Staying Secured; February 17, 2014
- IR 1632843: Unplanned Spread of Contamination; March 13, 2014
- IR 1646798: Radiological Near Miss Inside of Unit 2 Torus; April 12, 2014AR
- IR 1649764: NOS Identified: Poor Radiation Worker Practices Observed; April 21, 2014
- IR 1663614: NSRB Identified: Radioactive Material Labeling Out of Date; May 22, 2014
- IR 1695852: Dosimeter Not Returned at End of Job/Shift; August 24, 2014
- IR 1694577: Hole in a Radioactive Material Bag; August 20, 2014
- IR 2395975: NOS Identified: Electrical Maintenance Supervisor Not Practicing ALARA; October 15, 2014
- OU-AA-390, Attachment 1: Spent Fuel Pool Material Log; Revision 2
- RP-AA-460: Controls of High and Locked High Radiation Areas; Revision 26
- RP-AA-460-001: Controls for Very-High Radiation Areas; Revision 5
- Semi-Annual Source Leak Test Report; September 22, 2014

Section 2RS6

- EN-AA-408-4000: Radiological Groundwater Protection Program Implementation; Revision 4
- QCIS 5700-07: Chimney Flow Rate Indication Calibration; Revision 6
- CY-QC-110-603: Service Water/RHR Service Water Vault Composite Sampling; Revision 15
- CY-QC-110-605: Reactor Building Vent Gaseous and Particulate Sampling; Revision 12
- CY-QC-110-606: Main Chimney Gaseous and Particulate Sampling; Revision 19
- Gaseous Release Permit Report; Various Dates
- Radioiodine Test Report; Various Dates
- CY-QC-130-650, Attachment 2: Inoperable Chemistry Instrument LCO Surveillance; Various Dates
- IR 1655888: Multiple Service Water Rad Monitor Low Flow Alarms; May 5, 2014
- IR 2387115: U-2 Rx Bldg Vent Rad Monitor Spike During U-2 HPCI Run; September 27, 2014
- IR 1615259: U1 Reactor Building Vent Rad Monitor Recorder Error; January 31, 2014

Section 2RS7

- CY-QC-170-301: Offsite Dose Calculation Manual; Revision 11
- Annual Radiological Environmental Operating Report; May 14, 2014
- Meteorological Monitoring Program Monthly Report by Murray and Trettel; May 2014
- IR 1594553: Chemistry, Radwaste, Effluent, Environmental Monitoring Audit Report; June 13, 2014
- IR 1547938: Offsite Dose Calculation Manual (ODCM)/Radiological Environmental Monitoring Program (REMP) Third Quarter 2013 REMP Anomalies/Missed Samples; December 27, 2013
- IR 1601307: Offsite Dose Calculation Manual (ODCM)/Radiological Environmental Monitoring Program (REMP) Second Quarter 2013 REMP Anomalies/Missed Samples; August 18, 2013
- IR 1616110: Offsite Dose Calculation Manual (ODCM)/Radiological Environmental Monitoring Program (REMP) Fourth Quarter 2013 REMP Missed Samples; February 2, 2014
- IR 166742: NOS Identifies: Align Tables in Offsite Dose Calculation Manual (ODCM); June 3, 2014
- IR 1668309: NOS Identifies: Improve Process of Radiological Environmental Monitoring Program (REMP) Exceptions IR Initiation; June 5, 2014
- IR 1687135: Offsite Dose Calculation Manual (ODCM)/Radiological Environmental Monitoring Program (REMP) First Quarter 2014 REMP Anomalies/Missed Samples; July 30, 2014
- EIML-SPM-1: Sampling Procedures Manual - Environmental Incorporated Midwest Laboratory; Revision 15
- CY-QC-170-301: Radiological Environmental Monitoring Program; Revision 11

Section 4OA1

- LS-AA-2090: Monthly Data Elements for NRC Reactor Coolant System Specific Activity; Various Dates
- CY-QC-120-503, Attachment: Reactor Water Radionuclide Analysis; Various Dates
- CY-QC-110-608: Reactor/Turbine Building Sample Panel Sample Collection; Revision 31
- CY-QC-120-720, Attachment 2: Dose Data; Various Dates
- Occupational Exposures Control Effectiveness PI Packages; Various Dates

Section 4OA3

- IR 2415243: A Potential Issue Related to the QDC Seismic Monitor; November 20, 2014
- IR 2392264: Red "Event" Light Lit on Seismograph Event Recorder Again; October 7, 2014
- QCOA 0010-09: Earthquake; Revision 14
- EP-AA-121-F-06: Quad Cities Equipment Matrix; Revision 2
- IR 2397719: Unable to Retrieve Data from Seismograph; October 19, 2014
- NEI 13-01: Reportable Action Levels for Loss of Emergency Preparedness Capabilities; Revision 0
- EP-AA-1006: Radiological Emergency Plan Annex for Quad Cities Station; Revision 36
- EP-AA-120-1006: EP Reportability- Loss of Emergency Assessment Capability; Revision 1
- IR 2428308: Wrong Turbine Valve Stroked During Turbine Testing; December 22, 2014
- LER 254/2014-001: Secondary Containment Differential Pressure Momentarily Lost Due to Fuel Pool Radiation Monitor Spike; May 5, 2014
- LER 254/2014-002: Reactor Building Interlock Doors Opened Simultaneously Cause Loss of Secondary Containment; June 2, 2014
- LER 254-2014-003: HPCI Interlock Door Opened Simultaneously Cause Loss of Secondary Containment; July 17, 2014

Section 4OA5

72.48 Screening / Evaluations

- 72.48-0071: EC 381003 and 381004 Repair for ISFSI Pad Surface; Revision 0
- 72.48-S-13-001: QCNPS Revise Calculations QDC-0085-S-1490 and QDC-0085-S-1343; Revision 0
- 72.48-S-14-0020: EC 397898 Issuance of Fuel Selection Packages for QC 2014 Dry Cask Storage Campaign; Revision 0
- 72.48-S-14-007: EC396699 Revise Issue Calculations for Dry Cask Storage Rocking/Stability Analysis; Revision 0

Corrective Action Documents

- IR 01431475: NOS Finding, ISFSI Pad does not meet Design Specifications; October 25, 2012
- IR 02402683: NRC ID, Hydrogen Monitor Verification Test on Dry Cask Storage; October 28, 2014
- IR 02402718: NRC ID, Calibration Frequency of Hydrogen Monitor; October 28, 2014

Calculations and Evaluations

- EC 381003: Evaluation of ISFSI Pad Repair and Report; Revision 000
- EC 392940: Evaluate Acceptability of ISFSI Pad Conditions; Revision 000
- HI-2146110: HERMIT Analysis for Quad Cities Reactor Building Elevation 690; Revision 1
- QDC-0020-S-1800: Stability Evaluations for the HI-STORM and HI-TRAC Casks; Revision 0
- QDC-0020-S-2083: Non-linear Seismic Analysis of HI-TRAC Cask in Unit 1 Spent Fuel Pool; Revision 0
- QDC-0085-S-1343: Design of ISFSI Reinforced Concrete Pad for Dry Cask Storage Project; Revision 0
- QDC-0085-S-1490: Cask Sliding Analysis for Degraded Pad/Cask Interface Due to Potential Icing Conditions; Revision 0

Procedures

- 8MC-GTAW: Welding Procedure Specification; Revision 15
- GQP-9.2: High Temperature Liquid Penetrant Examination and Acceptance Standards for Welds, Base Materials and Cladding (50°- 300°); Revision 3
- GQP-9.6: Visual Examination of Welds; Revision 14
- H2-MON-002: Hydrogen Monitoring for Holtec Canisters; Revision 2
- H2-MON-002: Hydrogen Monitoring for Holtec Canisters; Revision 3
- PI-CNSTR-OP-EXE-H-01: Closure Welding of Holtec Multi-Purpose Canisters at Exelon Facilities; Revision 9
- QCFHP 0800-05: Spent Fuel Cask Contingency Actions; Revision 6
- QCFHP 0800-69: HI TRAC Movement Within the Reactor Building; Revision 12,
- QCFHP 0800-70: HI-TRAC Loading Operations; Revision 15,
- QCFHP 0800-71: MPC Processing; Revision 14
- QCFHP 0800-82: MPC Unloading Operations; Revision 4
- RP-QC-303: HI-TRAC Radiation Survey; Revision 2
- RP-QC-304: HI-STORM Radiation Survey; Revision 2
- RP-QC-305: ISFSI Radiation Survey; Revision 1
- Welds, Base Materials and Cladding (50° - 300°F); Revision 7

Work Orders

- WO 01390827: Repairs for PCC ISFSI Pad Support EC381004; April 21, 2014
- WO 01547379: Lift Yoke Inspection; July 25, 2014
- WO 01637562: MPC Lift Cleat Inspection; July 3, 2014
- WO 01639280: HI-TRAC Trunnion Inspection; July 3, 2014
- WO 01639281: Perform an Integrity Inspection of the ISFSI; May, 6, 2014
- WO 01661195: Mechanical Maintenance Reactor Building Overhead Crane Annual Inspection; July 24, 2014
- WO 01733459: ISFSI Pad Structural Inspections; May 6, 2014
- WO; Mechanical Maintenance Monthly Reactor Building Overhead Crane Inspection; August 22, 2014

Other

- QDC-0027-N-2123: Fuel Selection Package QDC-0027 for MPC-68-275
- QDC-0034-N-2124: Fuel Selection Package QDC-0034 for MPC-68-291
- QDC-0038-N-2125: Fuel Selection Package QDC-0038 for MPC-68-379
- QDC-0039-N-2126: Fuel Selection Package QDC-0039 for MPC-68-380
- Quad Cities Nuclear Power Station, Units 1 and 2, 10 CFR 72.212 Evaluation Report; Revision 7
- NOSA-QDC-12-11 (AR 1303010) ISFSI Audit; October 31, 2012
- Quad Cities 2014 Spent Fuel Loading Campaign Readiness Assessment; August 22, 2014
- PCI Welder Qualification Documentation

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
AMP	Aging Management Program
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CIV	Control Intermediate Valve
CoC	Certificate of Compliance
CRD	Control Rod Drive
CREV	Control Room Emergency Ventilation
CV	Control Valve
DRP	Division of Reactor Projects
EAL	Emergency Action Level
EC	Engineering Change
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
HPCI	High Pressure Coolant Injection
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IP	Inspection Procedure
IR	Issue Report
ISFSI	Independent Spent Fuel Storage Installation
IST	In-Service Test
LCO	Limiting Condition for Operation
LORT	Licensed Operator Requalification Training
LIP	Local Intense Precipitation
LER	Licensee Event Report
MPC	Multi-Purpose Canister
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OBE	Operating Basis Earthquake
PI	Performance Indicator
PM	Post-Maintenance
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RPS	Reactor Protection System
SAT	Systems Approach To Training
SBO	Station Blackout
SDP	Significance Determination Process
SSC	Systems, Structures, and Components
TI	Temporary Instruction

TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VT	Vehicular Technology
WO	Work Order

B. Hanson

-2-

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA Charles Phillips Acting for/

Christine A. Lipa, Chief
Branch 1
Division of Reactor Projects

Docket Nos. 50-254; 50-265
License Nos. DPR-29; DPR-30

Enclosure:
IR 05000254/2014005; 05000265/2014005
w/Attachment: Supplemental Information

cc w/encl: Distribution via LISTSERV®

DISTRIBUTION w/encl:

Kimyata MorganButler
RidsNrrDorLpl3-2 Resource
RidsNrrPMQuadCities Resource
RidsNrrDirslrib Resource
Cynthia Pederson
Darrell Roberts
Eric Duncan
Allan Barker

Carole Ariano
Linda Linn
DRPIII
DRSIII
Jim Clay
Carmen Olteanu
ROPreports.Resource@nrc.gov

ADAMS Accession Number: ML15029A666

Publicly Available Non-Publicly Available Sensitive Non-Sensitive

To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII		RIII		RIII		RIII
NAME	CPhillips:rj						
DATE	01/29/2015						

OFFICIAL RECORD COPY