



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

October 29, 2014

Mr. Michael J. Pacilio
Senior VP, Exelon Generation Co., LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 -
NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000254/2014007; 05000265/2014007**

Dear Mr. Pacilio:

On September 26, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed a Problem Identification and Resolution biennial inspection at your Quad Cities Nuclear Power Station, Units 1 and 2. The enclosed inspection report documents the inspection results which were discussed on September 26, 2014, with Mr. S. Darin and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to problem identification and resolution and compliance with the Commission's rules and regulations and the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the inspection samples, the inspection team concluded that implementation of the corrective action program (CAP) at Quad Cities Nuclear Power Station was effective. The licensee had a low threshold for identifying problems and entering them into the CAP. Items entered into the CAP were screened and prioritized in a timely manner using established criteria; were properly evaluated commensurate with their safety significance; and corrective actions were implemented in a timely manner, commensurate with the safety significance. Operating experience was entered into the corrective action program and appropriately evaluated for applicability to station activities and equipment. The use of operating experience was integrated into daily activities. Audits and self-assessments were performed at appropriate frequencies and at an appropriate level to identify issues. The assessments reviewed were thorough and effective in identifying site performance deficiencies, programmatic concerns, and improvement opportunities. On the basis of interviews conducted during the inspection, workers at the site expressed freedom to enter safety concerns into the CAP. The Inspectors did not identify any impediments to the establishment of a safety conscious work environment at the Quad Cities Nuclear Power Plant.

Two NRC-identified findings of very low safety significance (Green) were identified. One finding involved a violation of NRC requirements. However, because of the very low safety significance, and because the issue was entered into your corrective action program, the NRC is treating the issue as a non-cited violation (NCV) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of this NCV, 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 the findings 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.

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

Sincerely,

/RA/

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

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

Enclosure:
IR 05000254/2014007; 05000265/2014007
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000254/2014007; 05000265/2014007

Licensee: Exelon Generation Company, LLC

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

Location: Cordova, IL

Dates: September 8 through September 26, 2014

Inspectors: C. Phillips, Project Engineer (Team Lead)
R. Murray, Senior Resident Inspector
G. O'Dwyer, Reactor Inspector
R. Walton, Senior Operations Examiner
C. Mathews, Illinois Emergency Management Agency

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

Enclosure

SUMMARY OF FINDINGS

Inspection Report 05000254/2012007, 05000265/2012007; 09/08/2014 - 09/26/2014; Quad Cities Nuclear Power Station, Units 1 and 2; Biennial Problem Identification and Resolution (PI&R) Inspection.

This inspection was performed by three NRC regional inspectors, the senior resident inspector, and the onsite Illinois Emergency Management Agency inspector. Two Green findings were identified by the inspectors. One finding was considered a non-cited violation (NCV) of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. 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.

Problem Identification and Resolution

On the basis of the samples selected for review, the team concluded that implementation of the corrective action program (CAP) at Quad Cities Nuclear Power Station was effective. The licensee had a low threshold for identifying problems and entering them into the CAP. Items entered into the CAP were screened and prioritized in a timely manner using established criteria; were properly evaluated commensurate with their safety significance; and corrective actions were implemented in a timely manner, commensurate with the safety significance. Operating experience was entered into the corrective action program and appropriately evaluated for applicability to station activities and equipment. The use of operating experience was integrated into daily activities. Audits and self-assessments were performed at appropriate frequencies and at an appropriate level to identify issues. The assessments reviewed were thorough and effective in identifying site performance deficiencies, programmatic concerns, and improvement opportunities. On the basis of interviews conducted during the inspection, workers at the site expressed freedom to enter safety concerns into the CAP. The inspectors did not identify any impediments to the establishment of a safety conscious work environment at the Quad Cities Nuclear Power Plant.

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance (Green) was identified by the inspectors when they determined that non-licensed operator general area rounds and field checks were inadequate for the circumstances. The inspectors determined that the failure to have non-licensed operator rounds package acceptance criteria that met procedural requirements was a performance deficiency. The licensee entered this issue into the CAP as Issue Report (IR) 02385609, "PIR – Operator Rounds For HPCI Bearing Oil Lvl Differ between Units." The licensee had not had time to determine corrective actions before the end of the inspection.

The performance deficiency was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability to respond to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Attachment 0609.04 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power," the

finding was screened against the mitigating systems cornerstone and determined to be of very low safety significance (Green) because the finding was/did not: 1) a deficiency affecting the design or qualification of a mitigating structure, system or component, 2) represent a loss of system and/or function, 3) represent an actual loss of function of a single train for greater than its technical specification allowed outage time, 4) represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours and 5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. The inspectors determined this finding affected the cross-cutting area of Human Performance in the aspect of Training. Specifically, the non-licensed operators should have been trained that an oil level not between the marked bands on the oil level indicator was an issue regardless of the rounds acceptance criteria for that parameter. (IMC 0310 H.9) (Section 4OA2.1.b(1))

- **Green.** A finding of very low safety significance (Green) and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors when they determined that Technical Specification (TS) surveillance procedures contained inadequate acceptance criteria. The failure to have TS surveillance procedure acceptance criteria that ensured the Emergency Diesel Generator (EDG) loading would not exceed the maximum licensed limit was a performance deficiency. The issue was entered into the licensee's CAP as IR 02389102, "PIR Admin Controls For Allowed EDG Frequency Tolerance." The licensee had not had time to determine corrective actions before the end of the inspection.

The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Specifically, the licensee failed to ensure the acceptance criteria for EDG frequency and voltage would not affect the operability and reliability of the engine and safety related structures, systems or components. Using Manual Chapter 0609, Attachment 0609.04 "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power," dated June 19, 2012, the finding was screened against the mitigating systems cornerstone and determined to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system or component. This finding has a cross-cutting aspect of resolution in the area of problem identification because the licensee did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, the licensee did not implement adequate administrative controls to their EDG testing procedures to ensure that the procedures adequately addressed the non-conservative TS. (IMC 0310 P.3) (Section 4OA2.1.b(3))

Licensee-Identified Violations

No violations of significance were identified.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (71152B)

The activities documented in Sections .1 through .4 constituted one biennial sample of problem identification and resolution as defined in Inspection Procedure 71152.

.1 Assessment of the Corrective Action Program Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program (CAP) implementing procedures and attended CAP meetings to assess the implementation of the CAP by site personnel.

The inspectors reviewed risk and safety significant issues in the licensee's CAP since the last U.S. Nuclear Regulatory Commission (NRC) problem identification and resolution inspection in August 2012. The selection of issues ensured an adequate review of issues across NRC cornerstones. The inspectors used issues identified through NRC generic communications, department self-assessments, licensee audits, operating experience reports, and NRC documented findings as sources to select issues. Additionally, the inspectors reviewed issue reports (IRs) generated as a result of facility personnel's performance in daily plant activities. In addition, the inspectors reviewed IRs and a selection of completed investigations from the licensee's various investigation methods, which included root cause, apparent cause, equipment apparent cause, common cause, and quick human performance investigations.

The inspectors selected the residual heat removal service water systems for Units 1 and 2 for a detailed review. The inspectors' review was to determine whether the licensee staff properly monitored and evaluated the performance of the system through effective implementation of station monitoring programs. A 5-year review was performed to assess the licensee staff's efforts in monitoring for system degradation due to aging aspects. The inspectors also performed partial system walkdowns of the residual heat removal service water systems for Units 1 and 2.

During the reviews, the inspectors determined whether the licensee staff's actions were in compliance with the facility's corrective action program and 10 CFR Part 50, Appendix B requirements. Specifically, the inspectors determined if licensee personnel were identifying plant issues at the proper threshold, entering the plant issues into the station's CAP in a timely manner, and assigning the appropriate prioritization for resolution of the issues. The inspectors also determined whether the licensee staff assigned the appropriate investigation method to ensure the proper determination of root, apparent, and contributing causes. The inspectors also evaluated the timeliness and effectiveness of corrective actions for selected issue reports. This included completed investigations and NRC findings, including non-cited violations.

b. Assessment

(1) Effectiveness of Problem Identification

Based on the results of the inspection, the inspectors concluded that problem identification was generally effective. Based on the information reviewed, the inspectors determined that Quad Cities Station personnel had a low threshold for initiating IRs; station personnel appropriately screened issues from both the NRC and industry operating experience at an appropriate level and entered them into the CAP when applicable; and identified problems were generally entered into the CAP in a complete, accurate, and timely manner.

The inspectors determined that the station was generally effective at trending low level issues to prevent larger issues from developing. The licensee also used the CAP to document instances where previous corrective actions were ineffective or were inappropriately closed.

Findings

Introduction: A finding of very low safety significance (Green) was identified by the inspectors when they determined that non-licensed operator general area rounds and field checks were inadequate for the circumstances.

Description: On May 19, 2014, the inspectors identified that the Unit 2 High Pressure Coolant Injection (HPCI) booster pump outboard bearing oil was high out-of-specification. The inspectors questioned the operability of the Unit 2 HPCI pump due to the high bearing oil level. The licensee wrote IR 01661876, "NRC ID'D HPCI LP Pump OB Brng High Oil Lvl." In the basis for operability the licensee wrote that the HPCI system's safety-related mission time was only ten minutes. The licensee also wrote that the HPCI system had been run on May 6, 2014, for about one hour and again on May 12, 2014, for about 15 minutes with no detrimental effects and that no oil had been added since these runs.

The inspectors concluded that the HPCI booster pump bearing oil had been out-of-spec high for at least 13 days. The inspectors reviewed the non-licensed operator (NLO) logs for both the Unit 1 and Unit 2 HPCI pumps. The Unit 1 log stated, "Verify oil level is \geq marked," and the Unit 2 log stated, "Verify oil level is at marked levels." The inspectors determined these acceptance criteria were inadequate to ensure operability of the HPCI booster pump. Both units' HPCI booster pump outboard bearing oil level indicators have marked oil level bands. The correct oil level is between the lower and upper band.

Operating procedure, OP-AA-102-102, "General Area Checks and Operator Field Rounds," Revision 12, Section 4.2 states, in part, that rounds data requirements consist of: the name of the parameter and/or gauge # and a high limit for the parameter and a low limit for the parameter.

Analysis: The inspectors determined that the failure to have NLO rounds package acceptance criteria that met procedural requirements was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability to response

to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Attachment 0609.04 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power," the finding was screened against the mitigating systems cornerstone and determined to be of very low safety significance (Green) because the finding was/did not: 1) a deficiency affecting the design or qualification of a mitigating structure, system or component, 2) represent a loss of system and/or function, 3) represent an actual loss of function of a single train for greater than its technical specification allowed outage time, 4) represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours and 5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. The inspectors determined this finding affected the cross-cutting area of Human Performance in the aspect of Training. Specifically, the NLOs should have been trained that an oil level not between the marked bands on the oil level indicator was an issue regardless of the rounds acceptance criteria. (IMC 0310 H.9)

Enforcement: No violation of a regulatory requirement was identified. The licensee entered this issue into the CAP as IR 02385609, "PIR – Operator Rounds For HPCI Bearing Oil Lvl Differ between Units." The licensee had not had time to determine corrective actions before the end of the inspection. Because this finding does not involve a violation and is of very low safety significance, it is identified as a FIN **(FIN 05000254/2014007-01; 05000265/2014007-01, "Inadequate Rounds Package Acceptance Criteria")**.

(2) Effectiveness of Prioritization and Evaluation of Issues

Based on the results of the inspection, the inspectors concluded that identified problems were generally prioritized and evaluated commensurate with their safety significance, including an appropriate consideration of risk. Higher level evaluations, such as root cause and apparent cause evaluations were generally technically accurate; of sufficient depth to effectively identify the cause(s); and adequately considered extent of condition, generic implications, and previous occurrences.

The inspectors determined that the station ownership committee and management review committee meetings were generally thorough and meeting participants were actively engaged and well-prepared. Station ownership committee and management review committee meetings accurately prioritized issues.

The inspectors determined that overall, Quad Cities Station personnel evaluated equipment operability and functionality requirements adequately after a degraded or non-conforming condition was identified, and appropriate actions were assigned to correct the degraded or non-conforming condition. There was one example the inspectors identified where an NRC identified issue, IR 01661876, "NRC ID'D HPCI LP Pump OB Brng High Oil Lvl," regarding the U2 HPCI booster pump outboard bearing oil level was assessed for operability but not for functionality. The inspectors concluded this issue was minor because U2 HPCI was not credited for safe shutdown and the mission time for station blackout was equal to or less than that for a design basis accident. Therefore U2 HPCI was functional. The licensee documented the issue in IR 2386293, "Functionality Assessment Not Performed For IR 1661876."

Findings

No findings were identified.

(3) Effectiveness of Corrective Actions

Based on the results of the inspection, overall, the corrective actions reviewed were found to be appropriately focused to correct the identified problem and were implemented in a timely manner commensurate with the issue's safety significance. Problems identified through root or apparent cause evaluations were resolved in accordance with the CAP procedural and regulatory requirements. Corrective actions intended to prevent recurrence were generally comprehensive, thorough, and timely.

The corrective actions associated with selected NRC documented findings and violations, as well as licensee-identified violations, were generally appropriate to correct the problem and were implemented in a timely manner.

Findings

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when they determined that Technical Specification (TS) surveillance procedures contained inadequate acceptance criteria.

Description: In January 2013, the inspectors identified that the diesel generator loading calculations were inadequate to demonstrate that the system design basis was met. This issue was dispositioned as NCV 05000254/2012005-01; 05000265/2012005-01, "Diesel Generator Technical Specification Frequency and Voltage Variation not Considered in Loading Calculations." The determination was made that the TS requirements for frequency and voltage were non-conservative because operation of the EDG at the far ends of bands could result in exceeding the licensed maximum load limit of the EDGs. The licensee entered this condition into their corrective action program as IR 1463907 on January 17, 2013.

Licensee procedure OP-AA-108-115, "Operability Determinations," Section 4.5.18, "Non-conservative TS," stated, in part, "The imposition of administrative controls in response to a non-conservative TS is considered acceptable short-term corrective action. The administrative controls should be evaluated in accordance with 10 CFR 50.59." The inspectors determined that the licensee implemented administrative controls to test procedures for the EDG; however, the procedure test acceptance criteria were not revised to ensure that the EDG would not be accepted in a condition that could exceed the licensed loading limits of the engine.

Analysis: The inspectors determined that the licensee's failure to have TS surveillance procedure acceptance criteria that ensured the EDG loading would not exceed the maximum licensed limit was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the licensee failed to ensure the acceptance criteria for EDG frequency and voltage

would not affect the operability and reliability of the engine and safety related structures, systems and components.

The inspectors determined the finding could be evaluated using the significance determination process in accordance with Inspection Manual Chapter 0609, Attachment 0609.04 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power," dated June 19, 2012. The finding was screened against the Mitigating Systems Cornerstone and determined to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system or component.

This finding has a cross-cutting aspect of resolution in the area of problem identification because the licensee did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, the licensee did not implement adequate administrative controls to their EDG testing procedures to ensure that the procedures adequately addressed the non-conservative TS. (IMC 0310 P.3)

Enforcement: Title 10 of the *Code of Federal Regulations* Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented procedures that shall have appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. The licensee established QCOS 6600-41, "Unit 1 Emergency Diesel Generator Load Test," Revision 48, as the implementing procedure for diesel generator surveillance testing, an activity affecting quality.

Contrary to the above, from January 17, 2013, until September 26, 2014, the licensee failed to have a procedure with appropriate acceptance criteria for ensuring that the EDG could meet its TS surveillance test design loading limits. Specifically, QCOS 6600-41, "Unit 1 Emergency Diesel Generator Load Test," Revision 48, acceptance criteria failed to verify that the EDG loading would not exceed the maximum licensed value. Immediate corrective actions were not completed as of the close of the inspection. Because this violation was of very low safety significance and it was entered into the licensee's CAP as IR 02389102, "PIR Admin Controls For Allowed EDG Frequency Tolerance," this violation is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000254/2014007-02; 05000265/2014007-02, "Inadequate Administrative Controls"**).

.2 Assessment of the Use of Operating Experience

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the facility's Operating Experience (OE) program. Specifically, the inspectors reviewed implementing OE program procedures, attended CAP meetings to observe the use of OE information, completed evaluations of OE issues and events, and selected monthly assessments of the OE composite performance indicators. The inspectors' review was to determine whether the licensee was effectively integrating OE experience into the performance of daily activities, whether evaluations of issues were proper and conducted by qualified personnel, whether the licensee's program was sufficient to prevent future occurrences of previous industry events, and whether the licensee effectively used the information in

developing departmental assessments and facility audits. The inspectors also assessed if corrective actions, as a result of OE experience, were identified and effectively and timely implemented.

b. Assessment

In general, OE was appropriately used at the station. The inspectors observed that OE was discussed as part of the daily station and pre-job briefings. Industry OE was disseminated across the various plant departments. No issues were identified during the inspectors' review of licensee OE evaluations. The inspectors also verified that the use of OE in formal CAP products such as root cause evaluations and equipment apparent cause evaluations was appropriate and adequately considered. Generally, OE that was applicable to Quad Cities Station was thoroughly evaluated and actions were implemented in a timely manner to address any issues that resulted from the evaluations.

c. Findings

No findings were identified.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors assessed the licensee staff's ability to identify and enter issues into the CAP program, prioritize and evaluate issues, and implement effective corrective actions, through efforts from departmental assessments and audits.

b. Assessment

Based on the results of the inspection, the inspectors did not identify any issues of concern regarding Quad Cities Station staff's ability to conduct self-assessments and audits. Assessments were conducted in accordance with plant procedures, were generally thorough and intrusive, adequately covered the subject area, and were effective at identifying issues and enhancement opportunities at an appropriate threshold. Identified issues were entered into the CAP with an appropriate significance characterization and corrective actions were completed and/or scheduled to be completed in a timely manner commensurate with their safety significance.

c. Findings

No findings were identified.

.4 Assessment of Safety Conscious Work Environment

a. Inspection Scope

The inspectors assessed the licensee's safety conscious work environment (SCWE) through the reviews of the facility's employee concern program implementing procedures, discussions with coordinators of the employee concern program, interviews with personnel from various departments, and reviews of issue reports. In order to assess Quad Cities' safety culture, interviews were conducted with a representative

group of station employees over the course of the first and third weeks of the inspection. Additionally, the site's most recent safety culture assessment was reviewed and the Employee Concerns Program (ECP) coordinators were interviewed.

b. Assessment

Based on the results of the inspection, the inspectors did not identify any issues that suggested conditions were not conducive to the establishment and existence of a SCWE at Quad Cities Station. Information obtained during the interviews indicated that an environment was established where Quad Cities Station employees felt free to raise nuclear safety issues without fear of retaliation; were aware of and generally familiar with the CAP and other processes, including the ECP and the NRC, through which concerns could be raised; and safety significant issues could be freely communicated to supervision.

c. Findings

No findings were identified.

4OA6 Management Meeting

.1 Exit Meeting Summary

On September 26, 2014, 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.

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
H. Dodd, Maintenance Director
D. Collins, Radiation Protection Manager
T. Wojcik, Nuclear Oversight Manager
J. Wooldridge, Chemistry/Environ/Radwaste Manager
K. Ohr, Site Engineering Director
D. Kimler, Operations Director
B. Wake, Shift Operations Supervisor
T. Peterson, Regulatory Assurance
C. Berry, Corrective Actions Manager
S. Mroz, Senior Design Engineering
D. Damhoff, Design Engineer Structural
N. Howard, RHRSW System Engineer
M. Hurley, RHRSW System Engineer

Nuclear Regulatory Commission

C. Lipa, Chief, Reactor Projects Branch 1

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000254/2014007-01; 05000265/2014007-01	FIN	Inadequate Rounds Package Acceptance Criteria (Section 4OA2.1b.(1))
05000254/2014007-02 05000265/2014007-02	NCV	Inadequate Administrative Controls (Section 4OA2.1b.(3))

Closed

05000254/2014007-01; 05000265/2014007-01	FIN	Inadequate Rounds Package Acceptance Criteria (Section 4OA2.1b.(1))
05000254/2014007-02 05000265/2014007-02	NCV	Inadequate Administrative Controls (Section 4OA2.1B.(3))

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.

Plant Procedures

PI-AA-125-1006, "Investigation Techniques Manual," Revision 0
PI-AA-125-1001, "Root Cause Analysis Manual," Revision 0
PI-AA-125, "Corrective Action Program (CAP) Procedure," Revision 0
LS-AA-115, "Operating Experience Program," Revision 19
LS-AA-125-1001, "Root Cause Analysis Manual," Revision 10
LS-AA-1012, "Safety Culture Monitoring," Revision 4
MA-AA-716-001, "Quality Material/Components Control and Identification/Segregation of Non-Conforming Items," Revision 7
MA-AA-725-111, "Preventative Maintenance Inspection of GE 4KV Magne-Blast Vertical Circuit Breakers," Revision 6
MA-AA-716-001, "Quality Material Components Control and Identification Segregation of Non-Conforming Items," Revision 7
MA-AA-716-011, "Work Execution and Closeout," Revision 18
MA-AA-716-040, "Control of Portable Measurement and Test Equipment Program," Revision 9
MA-AA-1000, "Conduct of Maintenance," Revision 17
ER-AA-300-150, "Cable Condition Monitoring Program" Revision 0
CY-QC-110-630, "Diesel Fuel Oil Sampling," Revision 7
CY-QC-130-700, "Diesel Fuel Oil Testing," Revision 23
QCEPM 0200-55, "Replacement of Breakers in Seismic Qualified 125 VDC Distribution Panels," Revision 5
OP-AA-102-102, "General Area Checks and Operator Field Rounds," Revision 12
OP-AA-108-103, "Locked Equipment Program," Revision 2
OP-AA-108-115, "Operability Determinations," Revisions 12 and 13
OP-AA-108-115-1002, "Supplemental Consideration For On-Shift Immediate Operability Determinations," Revision 2
QCAP 1500-02, "Administrative Technical Requirements For Inoperable Safe Shutdown Equipment," Revision 31
QCARP, "TB-II Unit 1 Injection with HPCI and Bringing The Unit To Cold Shutdown," Revision 19
QCOP 1000-04, "LPCI Automatic Operation," Revision 16
QCOP 1000-05, "Shutdown Cooling Operation," Revision 50
QCOP 1000-30, "Post Accident RHR Operation," Revision 30
QCOS 6600-03, "Diesel Generator Fuel Oil Transfer Pump Monthly Operability," Revision 25
QCOS 6600-41, "Unit 1 Emergency Diesel Generator Load Test," Revision 48
QOP 7000-01, "Reactor Protection System MG Sets" Revision 45

Corrective Action Program Documents Reviewed

RCR 01641010, "Forced Unit 2 Shutdown Due to Reactor Coolant Pressure Boundary Leakage"
RCR 01592806, "DC Motor Control Center 1A-1 Breaker 5 Tripped During Maintenance Activity"

ACE 01659100, "MPT-2 Pressure Relief Device Actuation"
 ACE 01389668, "Unexpected Gasket Leak Developed on B CREV Condenser Head"
 ACE 01646432, "Suction Relief Valve For The 1B Reactor Feed Pump, 1-3401-B, Is Lifting Continuously"
 ACE 01063300, "Decision Making Related to RHRSW Pump Elbow Failures"
 ACE 01024260, "Through Wall Leak On 1A RHRSW Pump Caused By Inadequate Fusion In Weld"
 ACE 01617892, "Through Wall Leak in Line 2-10116B-2"-D.2B RHRSW Cubicle Cooler"
 EACE 01388890, "Steam Leak Identified On the 1-2301029, HPCI Steam Line Drain"
 IR 01659110, "MPT-2 Pressure Relief Device Lifted"
 IR 01487950, "NOS ID: Improper Control of Quality Parts"
 IR 01665312, "NRC Question On EDG Fuel Oil Valves"
 IR 01620825, "NOS ID: Improper Control of Quality Parts"
 IR 01661876, "NRC ID'D HPCI LP Pump OB Brng High Oil Lvl"
 IR 01525054, "NOS ID: EDG Operability – Fuel Oil Tank Water Intrusion"
 IR 01523351, "U-1 EDG Fuel Oil Water Analysis is Above 0.05% Limit"
 IR 01524688, "NOS ID Narrowly Focused IR Operability Basis"
 IR 02234202, "SBO Fuel Sample Shows 0.20% Water and Sediment"
 IR 01056375, "2C Condenser Backpressure Reads Higher Than Expected"
 IR 01172564, "Training Request Model, AT 74, EACE Apparent Cause Training"
 IR 01176616, "Need to Generate AT'S for CC Outage HIT Area Walkdowns"
 IR 01272614, "GASM - Potential for SDC Flashing During LOCA"
 IR 01321983, "NCV 11-009-07, CLSR PKG – RHR Flashing During Mode 3 LOCA"
 IR 01322407, "B Control Room HVAC BKR Found Tripped, AT 26 "
 IR 01342018, "Followup to IR 1272614: Mode 3 SDC to LPCI Transition"
 IR 01353772, "Recommend BWRS Revise RHR Procedures to Address IN 2010-11"
 IR 01362164, "GE SIL 672 ML13/13A Control Switch Binding"
 IR 01397306, "1-4899-121 Failed QCOS 0020-04"
 IR 01397691, "2B CS Room Floor Drain Ball Valve Failed QCOS 0020-04"
 IR 01406071, "Reportability Review for RB Floor Drain Sump Valve Leakage"
 IR 01502308, "NCV 12-005-03, CLSR PKG. U1 Core Spray INOP by POT RM Flood"
 IR 01552451, "Maintenance Adverse Trend In Human Performance"
 IR 01580700, "Common Cause Analysis of Equipment Reliability & Technical "Conscience for 2013"
 IR 01588830, "CCA For LCO Performance"
 IR 01626789, "Maintenance HU Issues Rollup"
 IR 01641010, "Thru Wall Leak On CRD HCU Scram Isolation Valve Body"
 IR 01660714, "2C Condenser Backpressure Response is Slow"
 IR 01737958, "FME Loss of Foreign Material Integrity (Tool Lost Cal Screw)"
 IR 01024260, "1A RHRSW HP Pump Leak"
 IR 01063300, "Actions From RHRSW Elbow Failure Decision Making Evaluation"
 IR 01431473, "NRC Identified Diamond Plate Wear On Piping From Diamond Plating.
 IR 01438094, "NOS QV Inspector Identified Hot Tap Performed Prior To Required Piping Inspection"
 IR 01438887, "NOS Identified RHRSW System Operability Not Addressed In IR As Required"
 IR 01460304, "Followup To Wear On Unit 1 Piping From Diamond plating"
 IR 01460305, "Followup To Wear On Unit 2 Piping From Diamond plating"
 IR 01594556, "Actions Generated by NOSA-QDC-14-05 Audit"
 IR 01617892; "Actions From Evaluation of Through Wall Leak In Line 2-10116B-2"
 IR 01687840, "Broken Spring Bushing And Spring Arms In 1A RHRSW Pump Discharge"

IR 01694057, "1C RHRWS Suction And Discharge Valves Not Isolating"
IR 01699354, "FI 0-3941-27 – DG Hx 1/2 – 6661A&B DG Cooling Water Flow Indicator Failure Followup"
IR 01700084, "912-1 G-12, Control Room Standby HVAC Sys Major Trouble light"
IR 01741233, "Unable To Remove Contaminated Water From Manhole West #1"
IR 02059854, "Refurbished Speed Switch From Vendor Not Working Correctly"
IR 01403182, "Missed DEP Opportunity"
IR 01405617, "Security – Impact to Swing Arm"
IR 01413128, "Training ILT – 10-01 SRO Throughput Below Goal"
IR 01416480, "Godwin Pump Performance Not Routinely Checked"
IR 01438907, "Training Crew Failure of Annual Operating Test"
IR 01479081, "Training – Performance Activity Not Completed for Fall Protection"
IR 01480464, "U2 RCIC Area ARM #12 Failed"
IR 01485944, "MSIV Slow Closure"
IR 01487102, "NOS ID Poor Radiation Worker Practice in RCA"
IR 01488540, "Failed LLRT on 1A MSIV Due To Fractured Wave Spring"
IR 01491292, "NOS ID Poor Radiation Worker Practice in RCA"
IR 01493983, "Documents MRFF of 1B MSIV"
IR 01493997, "Documents MRFF of 1C MSIV"
IR 01494000, "Documents MRFF of 1D MSIV"
IR 01496023, "Spurious Alarms from U2 ARM 11 (HPCI Room)"
IR 01504720, "ARM 11 (U2 HPCI Room) Failed High"
IR 01511765, "Found U1 Drywell NMC Cam Motor Off"
IR 01540175, "Dissolved Oxygen Surveillance Not Performed as Scheduled"
IR 01576304, "Training-Crew Failure During Annual Exams"
IR 01584638, "Training DEP Failure Cycle 13-8"
IR 01587829, "Cyber Security - Interim Resolution for DTE Scan Exemption"
IR 01588749, "Cyber Security - Digital Component Not Identified as a CDA"
IR 01607358, "Review for Trend - Security Camera Issues"
IR 01608269, "2A Drywell Rad Monitor Spiked High Causing 902-55 A1 Alarm"
IR 01610604, "An Adverse Trend in Dose Performance Identified for Station Laborers"
IR 01611926, "FASA-014 Operations Comprehensive Self-Assessment"
IR 01631598, "U1 Drywell Continuous Air Monitor (CAM) Found Offline"
IR 01648548, "Fractured Wave Spring Was Cause Of A Failed LLRT On 2D MSIV"
IR 01674207, "High Delta Temperature for Unit 1 HPCI Equipment Room"
IR 01741233, "Unable to Remove Water from Contaminated Water from Manhole"
IR 01453252, "NRC Observation During RP Inspection - Spent Fuel Pool"
IR 01489751, "NRC Id'd Contaminated Area Improperly Down-posted"
IR 01539271, "NCV 2013007-01, Toxic Gas Procedure Not Per Calc "
IR 01515014, "NCV 2013007-01, Mod 5059 – Control Room Toxic Air Response"
IR 01455703, "NRC TIA 2012-08, Revision 1 to GE 10CFR21.21 Notification"
IR 01539756, "NCV 13-003-01, Closure Package"
IR 01416634, "Ultimate Heat Sink Calculation Uses Minimum Pump Flow Rates"
IR 01514532, "NCV 13-002-02, Closure Package: EDGCW Pump Misaligned"
IR 01482214, "½ DGCWP Found Lined Up To Incorrect Unit"
IR 01427621, "NCV 12-007-01, Closure Package: PQI Testing CAPR Not Completed"
IR 01400877, "PIR Implementation of Enhanced PQI Testing Criteria"
IR 01409378, "PIR CAPR Completion Less Than Adequate"
IR 01100602, "U1 Rx Scram Due to Loss of Condenser Vacuum"
IR 01539709, "NCV 13-003-06, Closure Package. Unit 1 MSIV Slow Closures"

IR 01485944, "QCOS 0250-04 MSIV Closure Time Failed As-Found"
IR 01514339, "NCV 13-002-01 Closure Package – U2 Half-Scram"
IR 01487334, "Unexpected ½ SCRAM On Unit 2"
IR 01463907, "Tech Spec Limits for EDG Freq and Voltage"
IR 01502238, "NCV 12-005-01, Closure Package: EDG Freq and Voltage TS Tolerance"
IR 01288784, "CDBI – Technical Specification Limits for EDG"
IR 01126366, "Dresden OPRM NER"
IR 01492972, "1-2301-56 is Very Hard to Operate"
IR 01626539, "Initiate Common Cause Analysis for 2013 Operations Performance Review"
IR 01620242, "Performance CCA On 2013 Reactivity Management Performance"
IR 01602336, "Initiate Operations Procedure Revision CCA"
IR 01555050, "Need CCA On Operability Determinations In IRs"
IR 01431240, "U2 EDG Breaker Tripped During QCOS 6600-42"
IR 01649677, "Closing Time for 2-1001-36B Missed During QCOS 1000-06"
IR 01230225, "Bkr 924 Would Not Close In at Bus 11 Main Feed Bkr"
IR 01514339, "NCV 13-002-01 Closure Package – U2 Half-Scram"
IR 01487334, "Unexpected ½ SCRAM On Unit 2"
IR 01610466, "Preparation For NRC Problem Identification and Resolution Inspection"

Corrective Action Program Documents Written During The Inspection

IR 02178789, "IMD Parts Staging Area Issues Identified"
IR 02124238, "During PIR Inspection Issues Identified"
IR 02385609, "PIR Oper Rounds For HPCI Brg Oil Lvl Differ Between Units"
IR 02386138, "PIR Revision of CY-QC-130-700 Enhancement For Clarification"
IR 02228086, "PIR Piping Penetrations In RB 595 Elev Diamond Plating"
IR 02381285, "PIR Light Surface Corrosion On Suction of 2C RHRSW HP Pump"
IR 02381292, "PIR Loose Vent Cover On the 2C RHRSW Pump Motor"
IR 02385009, "PIR Assignments Contained Confusing Information"
IR 02389102, "PIR Admin Controls For Allowed EDG Frequency Tolerance"

Audits, Assessments, and Self-Assessments

NOSA-QDC-13-04, "Quad Cities CAP Audit Report"
NOSA-QDC-13-12, "Maintenance Functional Area Increased Frequency Audit Report"
NOSA-QDC-14-05, "Engineering Programs and Station Blackout Audit Report"
NOSA-QDC-12-07, "Fitness-for-Duty, Access Authorization, and Corporate Security Audit Report"
NOSA-QDC-14-07, "Fitness-for-Duty, Access Authorization, and Corporate Security Audit Report"
NOSA-QDC-14-02, "Security Programs Audit Report"
NOSA-QDC-13-06, "Radiation Protection Audit Report"
NOSA-QDC-14-03, "Emergency Preparedness Audit Report"
NOSA-QDC-14-04, "Chemistry, Radwaste, Effluent and Environmental Monitoring Audit"
NOSA-QDC-13-08, "Nuclear Oversight Operations Audit Report"
NOS-QDC-13-09, "Nuclear Oversight Fire Protection Audit Report"

Operating Experience Item

NRC IN 2012-16, "Preconditioning of Pressure Switches Before Surveillance Testing"
EC 380819, "Acceptable Preconditioning of Tech Spec Pressure Switches"

IR 01092774, "NRC: TIA 2009-006, Unacceptable Preconditioning"
GE SIL 672, "ML13/13A Control Switch Binding," Revision 0

Miscellaneous Documents

FIN 2014003-05, "Failure To Follow Vendor Requirements Led To Fast Downpower"
NCV 2012004-02, "Control Room HVAC RCU Head Bolts Not Torqued"
NCV 2012004-01, "Unit 1 HPCI Steam Line Drain Valve Through-Body Leak"
EC 390541, "Request Torque on End Caps for RCU 0-9400-102," Revision 0
M-29, Sheet 2, "Diagram of Diesel Generator Fuel Oil Piping," Revision AC
M-97, Sheet 2, "Diagram of High Pressure Coolant Injection," Revision EDSF
M-994D-572; "Pipe Support Detail Line 1-1003A-12," Revision E
Quad Cities 1 & 2 Safe Shutdown Report, Revision 20
Regulatory Guide 1.137, "Fuel Oil Systems For Emergency Power Supplies," Revision 1
Regulatory Guide 1.137, "Fuel Oil Systems For Emergency Power Supplies," Revision 2
ASTM D 975-98b, "Standard Specification for Diesel Fuel Oils"
NCV 11-009-07, "RHR Flashing During Mode 3 LOCA"
IN 2010-11, "Potential For Steam Voiding Causing Residual Heat Removal System Inoperability"
NCV 12-005-03, "Both Unit 1 Core Spray Subsystems Inoperable Due to Degraded Flood Barriers"
LER 2014-003-00, "RPS Pressure Switch for Condenser Vacuum – Low Inoperable and Exceeded Technical Specifications"
LER 1-09-04, "Residual Heat Removal System Inoperability in Mode 4 Due to Potential Steam Voiding"
LER 2012-003-00, "Degraded Flood Protection Barrier"
LER 1-13-002, "U1 Outboard MSIV Closure Times Exceeded"
LER 2-12-004, "SSFF – 2B Drywell Radiation Monitor Inoperable"
LER 1-13-001, "U1 Loss of ECCS Room Cooling Due to ½ EDGCWP Misalignment (Condition Prohibited by Tech Specs)"
WO 01578738 Rebuild Spare RBCCW Pump
WO 01583356 2B RHR RM RB Sump Valve & Actuator Coupler Inspect / Repair
WO 01583360 2B CS RM RB Sump Valve & Actuator Coupler Inspect / Repair
WO 01583598 2A CS RM RB Sump Valve & Actuator Coupler Inspect / Repair
WO 01583602 1B CS RB Sump Valve & Actuator Coupler Inspect / Repair
WO 01748580 APRM 4 Adjusted Twice in Two Days
Trending Guide – CAP Process Help; Revision 16
Quad Cities Submerged Cable Risk Ranking List, September 23, 2014
Quarterly Safety Culture Monitoring Panel (SCMP) Results, August 8, 2012, May 6, 2013, August 12, 2013, January 24, 2014, June 2, 2014
Semi-Annual Safety Culture Review for 2nd Half of 2013, March 12, 2014
Semi-Annual Safety Culture Review for 1st Half of 2013, March 12, 2014

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
ECP	Employee Concerns Program
EDG	Emergency Diesel Generator
HPCI	High Pressure Coolant injection
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Issue Report
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
OE	Operating Experience
PIR	Problem Identification and Resolution
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
TS	Technical Specification

Two NRC-identified findings of very low safety significance (Green) were identified. One finding involved a violation of NRC requirements. However, because of the very low safety significance, and because the issue was entered into your corrective action program, the NRC is treating the issue as a non-cited violation (NCV) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of this NCV, 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 the findings 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.

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

Sincerely,

/RA/

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

Docket Nos. 50-254; 50-265
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Letter to Michael J. Pacilio from Christine A. Lipa dated October 29, 2014

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 -
NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000254/2014007; 05000265/2014007

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ROPAssessment.Resource@nrc.gov