U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Quad Cities 2 – Quarterly Plant Inspection Findings

4Q/2017 – Plant Inspection Findings

On this page:

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness
- Occupational Radiation Safety
- Public Radiation Safety
- Security

Initiating Events

Significance: G Jun 30, 2017
Identified By: NRC
Item Type: FIN Finding
FAILURE TO JUSTIFY MSIV MAINTENANCE DEFERRAL
The inspectors identified a finding of very low safety significance for the licensee's failure to provide an adequate technical justification for deferral of a preventative maintenance task to replace or refurbish the Unit 1 2D main steam isolation valve (MSIV) in accordance with WC-AA-120, "Preventive Maintenance (PM) Database Revision Requirements." Specifically, overhaul or replacement of the 2D MSIV was deferred despite the historical performance of the valve, the as-found test results during Q1R24, and the amount of time that was available to plan for the overhaul to meet the maintenance strategy requirement of every seventh outage. Corrective actions for this issue included the licensee scheduling replacement of the Unit 1 2D MSIV during the next scheduled refueling outage (RFO). This issue was captured in the licensee's corrective action program (CAP) as Issue Report (IR) 4017529.

The inspectors determined the performance deficiency was more than minor because
it was associated with the Initiating Events Cornerstone attribute of Equipment Performance and impacted the cornerstone objective because the MSIV preventive maintenance overhaul/replacement frequency was not effectively managed to ensure the reliability of the MSIV closure time performance to meet Technical Specification (TS) requirements on a consistent basis. The inspectors determined the finding could be evaluated using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, for the Initiating Events screening questions and determined the finding was of very low safety significance. The inspectors determined the finding had a cross-cutting aspect in the area of Human Performance, Conservative Bias, which states, "Individuals use the decision making practices that emphasize prudent choices over those that are simply allowable" [H.14].

Inspection Report# : 2017002 *(pdf)*

Mitigating Systems

Significance: G Jun 30, 2017
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
FAILURE TO ESTABLISH A PROCEDURE APPROPRIATE FOR CALIBRATION OF RCIC GOVERNOR
A finding of very low safety significance and an associated non-cited violation of Technical Specification (TS) Section 5.4.1 was self-revealed for the licensee's failure to establish a procedure as governed by Regulatory Guide 1.33, Revision 2, Appendix A that was appropriate for performing adjustments to the governing control system for the Unit 1 reactor core isolation cooling (RCIC) system. Specifically, on April 14, 2017, the licensee failed to ensure procedure QCIPM 1300-04, "RCIC Woodward Governor EG-M Control Box and Ramp Generator/Signal Convertor in Field Calibration," was appropriate for the accurate calibration of the RCIC system turbine governor actuator such that the system would be capable supplying its TS required flowrate of 400 gallons per minute (gpm). Immediate corrective actions included the licensee declaring the Unit 1 RCIC system inoperable and performing required calibrations at normal operating temperatures and pressures. Additional corrective actions included the licensee making procedural revisions to QCIPM 1300-04 to include specific guidance on performing turbine governor calibration adjustments and providing training to maintenance control system technicians on performing the procedure tasks and other related tasks that led to the inadequate adjustment. The issue was entered into the licensee's CAP as IR 3998478.

The performance deficiency was determined to be more than minor, and a finding, because it impacted the Mitigating Systems Cornerstone attribute of Equipment Performance and affected the cornerstone objective because the failure to properly calibrate the RCIC governor led to the system becoming inoperable. The inspectors determined the finding could be evaluated using IMC 0609, Appendix A, "Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," and determined that the finding required a detailed risk evaluation by a senior reactor analyst (SRA) because it resulted in the loss of the RCIC system function. An SRA performed a detailed risk evaluation of the performance deficiency using the Quad Cities SPAR Model and determined the total delta Core Damage Frequency (CDF) was 7E-9 (Green). The inspectors determined this finding affected the cross-cutting area of Human Performance, in the aspect of Training, because the licensee failed to ensure the technicians performing the calibration understood null voltage adjustments to the RCIC turbine governor could only be performed when the system was at a specified rated speed and pressure [H.9].

Inspection Report# : 2017002 *(pdf)*

Significance: G Jun 30, 2017
Identified By: NRC
Item Type: NCV Non-Cited Violation
FAILURE TO ENSURE TWO LOW PRESSURE ECCS SYSTEMS OPERABLE IN MODE 4
The inspectors identified a finding of very low safety significance and an associated non-cited violation of Technical Specification (TS) 3.0.1 on April 12, 2017, for the licensee's failure to meet TS Limiting Condition for Operation (LCO) 3.5.2, "Emergency Core Cooling Systems (ECCS)-Shutdown." Specifically, on April 12, 2017, the licensee failed to ensure two low pressure ECCS subsystems were operable in Mode 4 in accordance with TS LCO 3.5.2 and failed to verify the LCO action conditions were met. Immediate corrective actions included restoring the 1A core spray pump to an operable status within 4 hours in order to comply with TS 3.5.2. This issue was entered into the licensee's CAP as IR 3997127.

The performance deficiency was determined to be more than minor, and a finding, because it impacted the Mitigating Systems Cornerstone attribute of Equipment Performance and 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). The finding was screened using IMC 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings," against the questions in Exhibit 3, "Mitigating Systems Screening Questions." The inspectors answered "No" to all of the questions and determined the finding could be screened as very low safety significance. The inspectors determined this finding affected the cross-cutting aspect of Human Performance, in the aspect of Work Management, because the licensee failed to ensure proper controls were in place while performing multiple activities which rendered multiple low pressure ECCS systems inoperable. In addition, the licensee failed to identify and manage the risk associated with performing multiple evolutions concurrently so that TS LCO 3.5.2 would be met and the required actions taken as necessary [H.5].
Inspection Report# : 2017002 *(pdf)*

Significance: G Jun 30, 2017
Identified By: NRC
Item Type: NCV Non-Cited Violation
FAILURE TO HAVE ADEQUATE GUIDANCE IN THE FIRE/EXPLOSION RESPONSE PROCEDURE
The inspectors identified a finding of very low safety significance and an associated non-cited violation of TS Section 5.4.1.c, "Procedures," for the licensee's failure to establish and maintain the fire response procedure. Specifically, Procedure QCOA 0010-12 "Fire/Explosion," Revision 47, failed to provide adequate instructions to ensure that the reactor core isolation cooling (RCIC) system would not be potentially affected by a single spurious operation of any of its associated valves in the event of a fire in Fire Area TB-II. The licensee entered the issue into their CAP as IR 2595878 and planned to revise the affected procedures.

The performance deficiency was determined to be more-than-minor because it impacted the Mitigating Systems Cornerstone attribute of Protection Against External Events (Fire), and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the lack of adequate procedural guidance in the fire response procedure did not ensure a single spurious operation would not potentially impair the operation of RCIC system in the event of a fire in TB-II. The finding was screened using IMC 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet." The inspectors determined the finding required a detailed risk evaluation by a Senior Reactor Analyst. The finding screened as very low safety significance because the calculated total delta Core Damage Frequency (CDF) was 9.5E-7/yr per the detailed risk evaluation. The inspectors did not identify a cross cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency.

Inspection Report# : 2017002 *(pdf)*

Significance: G Mar 31, 2017
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
FAILURE TO ENSURE HARDWARE SECURE FOR BREAKER MOC SWITCH LINKAGE
A finding of very low safety significance and an associated NCV of 10 CFR 50, Appendix B, Criterion V was self revealed on January 27, 2017, when the Unit 1C residual heat removal service water (RHRSW) pump was started for a routine surveillance evolution and all expected annunciators and equipment failed to operate properly, which led to the licensee declaring the Unit 1C RHRSW pump inoperable. Specifically, the licensee failed to establish a procedure for the mechanism operated contact (MOC) switch linkage arm that was appropriate to the circumstances to ensure the component would continue to perform its function. Immediate corrective actions included reconnecting the MOC switch linkage arm assembly and testing it by starting the 1C RHRSW pump prior to declaring the pump operable. In addition, the licensee planned procedure revisions to QCEPM 0200-11 that would specify a torque value to ensure the

MOC switch linkage arm was adequately secured and could perform its function. This issue was entered into the licensee's corrective action program as Issue Report 3967424.

The finding was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to ensure the MOC switch linkage arm was adequately fastened led to the failure of the component and its associated Unit 1C RHRSW pump during breaker operation on January 27, 2017. The finding was determined to be of very low safety significance (Green), because the inspectors answered "No" to all of the questions in IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power," Exhibit 2, "Mitigating Systems Screening Questions," Section A, "Mitigating SSCs and Functionality." The inspectors determined this finding affected the cross-cutting area of human performance, in the aspect of avoid complacency, which states, "Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes." Specifically, the licensee failed to recognize a potential risk and inherent latent issue for a condition identified in 2015 at Quad Cities, when an MOC switch failed to perform its function due to a missing nut in a different breaker's linkage assembly. The licensee identified and corrected the condition but failed to evaluate the cause of the missing nut because it did not impact the operability of the component. In the 2015 instance, the MOC switch issue only affected indications for the component and had no adverse impact on the ability of the component to perform its function [H.12].
Inspection Report# : 2017001 *(pdf)*

Barrier Integrity
Emergency Preparedness
Occupational Radiation Safety
Public Radiation Safety
Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : February 01, 2018

Page Last Reviewed/Updated Monday, November 06, 2017