

La Salle 2

3Q/2015 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Liquid Penetrant Testing Procedure Was Not Qualified for Its Full Applicability Range

The inspectors identified a Green NCV of Title 10, Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion IX, "Control of Special Processes," for the licensee's failure, as of February 13, 2015, to properly qualify a non-destructive testing procedure in accordance with applicable codes. Specifically, a liquid penetrant test (PT) procedure was not qualified for its full applicability temperature range in accordance with American Society of Mechanical Engineers (ASME) Code, Section V, "Non-Destructive Examination." The licensee entered this issue into its corrective action program as Action Request 02451872.

The failure to qualify a liquid PT procedure in accordance with ASME Section V was a performance deficiency. The performance deficiency was determined to be more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, since the liquid PT procedure was not qualified for its full applicability temperature range, liquid penetrant examinations would not be assured to detect flaws in the unqualified temperature range. As a consequence, the potential would exist for a rejectable flaw to go undetected affecting the operability of the affected system. This finding affected the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones. The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality; thus, the inspectors answered 'No' to all of the screening questions. Specifically, the licensee review completed liquid penetrant examination records and did not find an example where the procedure was implemented at the unqualified temperature ranges. The inspectors determined that the primary cause of the failure to properly qualify the PT procedure was related to the Problem Identification and Resolution cross-cutting area, Operating Experience aspect (P.5). Specifically, the organization failed to effectively implement external operating experience in a timely manner.

Inspection Report# : [2015001](#) (*pdf*)

Significance: G Dec 31, 2014

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Inappropriate Instructions Led to Failure of MSIV

A finding of very low safety significance and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self revealed for the licensee's failure to establish instructions for an activity affecting quality that were appropriate to the circumstances. Specifically, when the Unit 2 'C' inboard main steam isolation valve (MSIV) failed shut due to a stem to disc separation on August 5, 2014, inspectors reviewed the circumstances leading to the failure and determined that engineering change (EC) 340595 was deficient. This EC was created in response to 2003 industry operating experience (OE) for the same failure mechanism (loss of pretension on the shaft-to-pilot-disc) at another facility, with the purpose of establishing inspection acceptance criteria to determine if the OE applied to LaSalle. The inspectors concluded that the acceptance criteria were inappropriate to the circumstances because they contained no guidance for identifying or dispositioning the actual failure mechanism

reported in the OE. Even though two of the five MSIVs inspected at the time by the licensee displayed evidence of the OE reported failure mechanism (loss of pretension), the acceptance criteria as written were satisfied, so the MSIVs passed their inspections and future rebuild activities were deferred based primarily on these false negative inspection results. It was due to these deferrals that the August 5th failure occurred. All MSIV internals have since been rebuilt with a more robust design that is not susceptible to a loss of pretension failure, and a root cause evaluation was performed.

The performance deficiency was determined to be more than minor because it was associated with the Initiating Events Cornerstone attribute of procedure quality and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Since the valve failure caused a reactor scram and loss of condenser as the normal heat sink due to the Group I MSIV isolation, a detailed risk evaluation was required. The RIII Senior Reactor Analysts (SRAs) performed a detailed risk evaluation using the NRC's Standardized Plant Analysis Risk model for LaSalle, version 8.24, and calculated a conditional core damage probability estimate of $8.4E-7$, which represents a finding of very low safety significance, or Green. Because this performance deficiency occurred in 2003, no cross cutting aspect was assigned because it was not considered current performance. (Section 4OA3)

Inspection Report# : [2014005](#) (*pdf*)

Mitigating Systems

Significance:  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadvertent Operation of Breaker for Unit 2 Train A Residual Heat Removal Suppression Chamber Spray Isolation Valve

A finding of very low safety significance (Green) and associated non-cited violation of Technical Specification 5.4.1, "Procedures," was self revealed when the licensee failed to properly preplan and perform maintenance in accordance with written procedures and instructions appropriate to the circumstances. Specifically, on May 14, 2015, the Work Order (WO 1643222) for testing of the motor for the Unit 2 reactor core isolation cooling water leg pump and involving operation of the motor's breaker did not include precautions or restrictions to prevent the inadvertent operation, by bumping, of the adjacent breaker for the safety-related Unit 2 "A" residual heat removal suppression chamber spray isolation valve. Workers inadvertently bumped and opened the breaker for the residual heat removal valve and rendered the system inoperable.

The finding was determined to be more than minor because it was associated with 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. Specifically, the licensee failed to provide a work order appropriate to the circumstances of the juxtaposed breakers. The subsequent, inadvertent opening of the 2A residual heat removal suppression chamber spray isolation valve breaker, unexpectedly rendered the valve inoperable. This negatively impacted the residual heat removal suppression chamber spray system's ability to reduce suppression chamber pressure by removing one of the required two spray paths. The inspectors determined the finding to have very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Avoid Complacency, because configuration control and error prevention techniques (robust barriers) in an existing licensee procedure were not appropriately implemented due to the failure of individuals to recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes (H.12). Specifically, licensee staff failed to implement the guidance found in procedure HU AA 101, "Human Performance

Tools and Verification Practices.”

Inspection Report# : [2015002](#) (pdf)

Significance: G Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Measure Interpass Temperature

The inspectors identified a Green NCV of Title 10, CFR Part 50, Appendix B, Criterion IX, “Control of Special Processes,” for a failure of the licensee on February 12, 2015, to measure the interpass temperature while performing welding on the 2 diesel generator cooling water (DGCW) piping system. Consequently, welding was performed without the Code-and procedure-required interpass temperature being monitored on a number of welds, a parameter, which could have affected the mechanical properties of the material being welded. To restore compliance, the welders proceeded to measure the interpass temperatures on the balance of the welds, and verified that the interpass temperature did not exceed that allowed by procedure. The licensee entered this issue into its corrective action program as action report 02451583.

The inspectors determined that this issue was a performance deficiency that was more than minor because it had the potential to lead to a more significant safety concern. Specifically, absent NRC inspector intervention, the welders would have completed all of the welds without having measured the interpass temperature, a welding parameter which can affect the mechanical properties (e.g., impact properties) of some materials being welded, and, if left uncorrected could lead to a potential failure of the weld in service. The inspectors determined this finding was of very low safety significance (Green) because the DGCW system maintained its operability or functionality. The welders proceeded to measure the interpass temperatures on the balance of the welds, and verified that the interpass temperature did not exceed that allowed by procedure, and the issue did not result in the actual loss of the operability or functionality of a safety system. The inspectors determined that the primary cause of the failure to measure the interpass temperature while performing a manual welding process was related to the cross-cutting area of Human Performance, Procedure Adherence aspect (H.8). Specifically, the welders failed to follow procedures.

Inspection Report# : [2015001](#) (pdf)

Significance: G Jan 22, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure Circuits associated with Alternate Shutdown Capability Free of Fire-induced Damage (Section 1R05.6.b)

• Green. The inspectors identified a finding of very-low safety significance (Green) and associated NCV of the LaSalle County Station Operating License for the licensee’s failure to ensure that the alternate shutdown capability was independent of the fire area. Specifically, in the event of a fire in the control room, the alternate shutdown capability for 16 motor operated valves (MOV) associated with the Reactor Core Isolation Cooling (RCIC) may be affected, and may not be available due to lack of breaker fuse coordination. Fire-induced failures could result in tripping valve power supply breakers prior to tripping the control power fuses for several motor operated valves, thereby, potentially impairing the operation of RCIC from the Remote Shutdown Panel (RSP). The licensee entered this issue into their Corrective Action Program and established compensatory measures, and added steps to the safe shutdown procedures to reset the affected breakers if needed. In addition, the licensee intended to perform plant modifications to replace or revise existing breakers settings to correct the issue.

The inspectors determined that the issue was more than minor, because fire induced circuits could impair the operation of RCIC and complicated shutdown of the plant in the event of a fire in the control room. The finding affected the Mitigating Systems Cornerstone. The finding was determined to be of very-low safety significance based on a detailed risk-evaluation. This finding was not associated with a cross-cutting aspect because the finding was not

representative of the licensee's current performance. (Section 1R05.6.b)

Inspection Report# : [2014008](#) (*pdf*)

Significance:  Dec 31, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Scaffold Installed Without Engineering Review

The inspectors identified a finding of very low safety significance and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure on September 11, 2014, to develop and supply specific minimum clearance requirements to maintenance staff prior to erecting scaffold in close proximity to safety related equipment. The licensee has entered this item into its corrective action program (CAP).

The performance deficiency was determined to be more than minor because, if left uncorrected, the performance deficiency has the potential to become a more significant safety concern. Specifically, the method used to determine the minimum clearances did not account for the potential motion of in place systems/components. The inspectors determined the finding could be evaluated in accordance with IMC 0609, "Significance Determination Process," Exhibit 2, "Mitigating System Screening Questions," dated June 2, 2011. The finding was determined to be of very low safety significance (Green). This finding has a cross cutting aspect in the area of Human Performance, Training, because the licensee did not provide training and ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values (H.9).

Inspection Report# : [2014005](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate 10 CFR 50.59 Evaluation for Jet Pump Plugs Affecting Fuel Bundle Cooling

The inspectors identified a Severity Level IV non-cited violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.59, "Changes, Tests, and Experiments," having very low safety significance (Green), for the licensee's failure to provide a written safety evaluation supporting the determination that a license amendment was not required for operation with jet pump seal plugs (lost in the reactor vessel in February 2015 during a refueling outage) that could negatively impact fuel bundle cooling during an anticipated operational occurrence (misplaced fuel bundle). The licensee entered this issue into the corrective action program as action report 02486215 and considered the core operable because additional testing demonstrated that with sufficient time (approximately 11 days) at operating temperature, the rubber plugs would degrade and pass through the affected flow orifices.

The finding was determined to be more than minor because the inspectors could not reasonably determine that the activity, to operate with jet pump plugs blocking peripheral fuel bundle flow, would not have required prior NRC approval. Specifically, if the licensee operated a peripheral blocked fuel bundle coincident with a misplaced fuel bundle, the minimum critical power ratio limits/margins may not have been assured. Additionally, this finding was more than minor because the underlying technical issue adversely affected the Barrier Integrity Cornerstone objective of design control and cladding performance. The finding involves the potential for a misplaced fuel bundle concurrent

with complete flow blockage to a fuel assembly. Given standard refueling practices, an error that results in plant operation with a misplaced fuel bundle is very unlikely due to strict procedural controls and multiple verifications of fuel assembly placement. In addition, the misplaced fuel assembly would have to be located at a peripheral core location to be susceptible to a jet pump plug that could possibly block bundle cooling and this was very unlikely. Further, the inspectors considered the relatively short duration of time where the plug material parameters were sufficient to cause plugging of an orifice coincident with plant power levels that could challenge the fuel integrity limits. Given these factors, the inspectors determined that the likelihood of a misplaced fuel assembly combined with a blocked orifice that could result in fuel clad damage was very low. Given the very low likelihood of the event scenario to occur and the low consequences if it were to occur, the inspectors concluded that the finding was of very low safety significance (Green). The inspectors identified a cross cutting aspect associated with this finding in the area of Human Performance, Conservative Bias, because the licensee staff did not use a decision-making practice that emphasized prudent choices over those that are simply allowable.

Inspection Report# : [2015002](#) (pdf)

Significance:  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Include Limiting Conditions for Operation in the Technical Specifications

The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.36, “Technical Specifications,” having very low safety significance (Green), for the licensee’s failure to ensure that limiting conditions for operation were contained in the station’s Technical Specifications. Specifically, as of March 15, 2015, through the Unit 2 Core Operating Limits Report (COLR), Cycle 16, Revisions 1 and 2, the licensee introduced new “Operating Limits for Lost Jet Pump Plug Seals Mitigation Strategy,” that created new limiting conditions of operation as defined by §50.36 (c)(2) but did not incorporate these limiting conditions of operation into the Technical Specifications. The licensee incorrectly believed that because the Core Operating Limits Report was revised via the 50.59 process and the special content that accounted for the existence of the plugs was developed using NRC approved methodologies, the change was acceptable and no change to the Technical Specification was obtained from the NRC.

This finding was considered more than minor because it was associated with the design control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the Unit 2 Core Operating Limits Report was revised in a manner that created new Limiting Condition of Operations and further, could have resulted in the operation of Unit 2 outside of its approved Technical Specification and license. Operating the unit in accordance with its NRC approved Technical Specifications could have resulted in the plant operating in an unanalyzed condition that could have resulted in fuel failure.

The finding involves the potential for a failed safety/relief valve or turbine bypass valve concurrent with complete flow blockage to a peripheral fuel assembly, with a simultaneous breakdown of control room operator knowledge of the special steps required by the Core Operating Limits Report revision. Given standard operating practices and the significant amount of extra attention and sensitivity placed on the jet pump plugs and their potential effect, an error that results in licensed operators failing to comply with the restrictive limits of the Core Operating Limits Report would be very unlikely. Additionally, a read and sign was required of all Unit 2 control room operators and supervisors delineating the special compensatory measures to be taken in the event that a Core Operating Limits Report base case component, such as an safety/relief valve were to fail. Further, the inspectors considered the relatively short duration of time (March 15–23, 2015) where the plug material parameters were sufficient to cause plugging of an orifice coincident with plant power levels that could challenge the fuel integrity limits. Given these factors, the inspectors determined that the likelihood of a failed Core Operating Limits Report base case component, combined with the operation of the unit in an unanalyzed condition in accordance with the NRC approved Technical

Specifications combined with a blocked orifice that could result in fuel clad damage was very low. Given the very low likelihood of the event scenario to occur and the low consequences if it were to occur, the inspectors concluded that the finding was of very low safety significance (Green). The inspectors determined that this finding had a cross cutting aspect in the area of Human Performance, Change Management, because the licensee leaders did not ensure the use of a systematic process for evaluating and implementing change so that nuclear safety remained the overriding priority.

Inspection Report# : [2015002](#) (*pdf*)

Emergency Preparedness

Significance:  Oct 03, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Evacuation Time Estimate Submittals

The NRC identified a non-cited violation of 10 CFR 50.54(q)(2) associated with 10 CFR 50.47(b)(10) and 10 CFR Part 50, Appendix E, Section IV.4, for failing to maintain the effectiveness of the LaSalle County Station Emergency Plan, as a result of failing to provide the station evacuation time estimate (ETE) to the responsible offsite response organizations (OROs) by the required date. Exelon submitted the LaSalle County Station ETE to the NRC on December 12, 2012, prior to the required due date of December 22, 2012. The NRC completeness review found the ETEs to be incomplete due to Exelon fleet common and site specific deficiencies; thereby, preventing Exelon from providing the ETEs to responsible OROs and from updating site specific protective action strategies as necessary. The NRC discussed its concerns regarding the completeness of the ETE, in a teleconference with Exelon on June 10, 2013, and on September 5, 2013, Exelon resubmitted the ETEs for its sites. The NRC again found the ETEs to be incomplete.

The issue is a performance deficiency because it involved a failure to comply with a regulation that was under Exelon's control to identify and prevent. The finding is more than minor because it is associated with the Emergency Preparedness Cornerstone attribute of procedure quality and because it adversely affected the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding is of very low safety significance (Green) because it was a failure to comply with a non risk significant portion of 10 CFR 50.47(b)(10). The licensee had entered this issue into its corrective action program (CAP) and re submitted a new revision of the LaSalle County Station ETE to the NRC on April 30, 2014, which was found to be complete by the NRC. The cause of the finding is related to cross cutting element of Human Performance, Documentation (H.7).

Inspection Report# : [2014004](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

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