Three Mile Island 1
1Q/2015 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Feb 27, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Untimely Identification and Correction of Degraded BWST Level Transmitter Cold Weather Protection Equipment
The NRC identified an NCV of Title 10 of the Code of Federal Regulations (10 CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly identify and correct degraded borated water storage tank (BWST) level transmitter instrument line cold weather protection equipment. Specifically, station personnel performed periodic maintenance and testing activities to verify the adequacy of cold weather protection for the BWST level transmitters prior to the onset of cold weather, but did not identify existing uninsulated sections of the instrument lines or degraded heat trace circuit continuity. Consequently, on February 15, 2015, the sensing line for BWST level transmitter DH-LT-808 froze which challenged the operators' capability to successfully perform a critical design basis manual action. Namely, swapover from the injection to recirculation phase of ECCS operation following a LOCA. Immediate actions included entering the applicable technical specification (TS) limiting condition of operation (LCO), thawing the frozen instrument line, restoring DH-LT-808 to service, and exiting the TS LCO. Exelon entered the cold weather protection issue into their corrective action program as issue reports (IR) 2445164, 2451342, 02452858, and 02454925.
This finding was more than minor because it was associated with the equipment and human performance attributes of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined that the finding was of very low safety significance because it did not affect design or qualification, did not represent a loss of system, did not cause at least one train of BWST level instrumentation to be inoperable for greater than its TS LCO allowed outage time, and did not involve external event mitigation systems. The team assigned a cross-cutting aspect in the area of Human Performance, Procedure Adherence (aspect H.8), because station personnel did not follow processes, procedures, and work instructions when performing maintenance and operational activities that should have identified degraded BWST level instrument cold weather protection equipment associated with missing insulation and loss of heat trace circuit continuity. (Section 1R21.2.1.2)
Inspection Report# : 2015007 *(pdf)*

Significance: G Jun 30, 2014

Identified By: NRC
Item Type: NCV Non-Cited Violation
Risk Mitigation Actions Not Performed for Excavation of Nuclear River System Cable Conduits
The inspectors identified a finding of very low safety significance (Green) involving a non-cited violation (NCV) of 10 CFR Part 50.65(a)(4), "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," because Exelon did not implement risk management actions (RMAs) to manage risk associated with the nuclear service river pump B (NR-P-1B) during excavation for fire service piping replacement. Specifically, the excavation exposed a cable conduit duct bank containing safety-related cables for nuclear service river valve 1B (NR-V-1B) without having adequate RMAs in place to ensure NR-V-1B cabling would remain protected from a tornado generated missiles. Exelon entered the condition into their corrective action program as IR 1670876 and took immediate corrective actions to modify the work instructions to include RMAs for soil restoration over the conduit duct bank in the event of a tornado. The performance deficiency is more than minor because it is associated with the Protection Against External Factors attribute of the Mitigating Systems cornerstone, and adversely affected the cornerstones objective to ensure the availability and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the findings using IMC 0609.04, "Initial Characterization of Findings." The finding involved the licensee's management of risk in accordance with 10 CFR 50.65(a)(4) therefore, the inspectors evaluated the significance using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process." The inspectors determine that this performance deficiency was of very low safety significance (Green) because the finding was associated with RMAs only and the incremental core damage probability (IDCP) was not >1E-6. This finding has a cross-cutting aspect in the area of Human Performance, Work Management; because Exelon did not manage risk associated with the underground piping replacement project and did not effectively communicate job activities between work groups to ensure the RMAs would be implemented as required. (H.5) (Section 1R13)

Inspection Report# : 2014003 *(pdf)*

Barrier Integrity

Significance: G Feb 27, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Deficient Design Control for Verifying Reactor Building Fan Assembly Capability to Perform Design Basis Function
The NRC identified an NCV of Title 10 of the CFR, Part 50, Appendix B, Criterion III, "Design Control," for failure to establish and implement adequate design control measures to assure that the reactor building (RB) fan assemblies were capable of performing their design function to mitigate a design basis loss of coolant accident (LOCA) event. Specifically, testing and design calculations used a non-conservative RB ventilation system alignment to determine the brake horsepower of the RB fan motors during a LOCA. As a result, engineers had not evaluated the capability of the RB fan motors to operate above their nameplate full load rating to perform their intended safety function. Additionally, RB fan motor electrical overload protection analyses were incorrect. Immediate corrective actions included interim calculations which demonstrated that the RB fan assemblies would remain capable of performing their safety functions and that the emergency diesel generators were capable of supplying the additional electrical load requirements. Exelon entered the issues into their corrective action program as IRs 2458932, 2458929, and 2451855.
This finding was more than minor because it was associated with the design control attribute

of the Barrier Integrity cornerstone and adversely affected the cornerstone objective of ensuring the operational capability of the containment barrier to protect the public from radionuclide releases caused by accidents or events. Additionally, the finding was similar to example 3.j in Appendix E of IMC 0612, in that the engineering calculation error resulted in a condition where there was reasonable doubt of the operability of the RB fan assemblies to perform their safety function during a design basis LOCA. The team determined the finding was of very low safety significance because it: did not affect the reactor coolant system (RCS) boundary; did not affect the radiological barrier function of the control room, auxiliary building, or spent fuel pool systems or boundaries; and did not represent an actual open pathway in containment or involve a reduction in the function of hydrogen igniters. This finding was not assigned a cross-cutting aspect because the underlying cause was not indicative of current performance in that the non-conservative calculation error occurred in 1993. (Section 1R21.2.1.1)
Inspection Report# : 2015007 *(pdf)*

Significance: G May 23, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Corrective Actions for a Condition Adverse to Quality that Caused the Failure of Two Primary Isolation Valaves
The inspectors identified a finding of very low safety significance involving an NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion XVI, "Corrective Action," because Exelon did not take adequate corrective actions to address a condition adverse to quality that caused the failure of two primary containment isolation valves. Specifically, the corrective actions implemented after the failure of CA-V-13 in 2010 and WDL-V-303 in 2013 did not ensure that the deficient basic work practices that resulted in the valve failures were corrected. Exelon documented this issue in the corrective action program as issue report (IR) 1664529 and took prompt actions to validate the operability of valves with similar actuators that had been worked since refueling outage T1R19. In addition, Exelon is performing a cause evaluation to fully understand the causes of the issue and implement actions to correct the condition adverse to quality prior to the next valve maintenance window. The finding is associated with the Barrier Integrity cornerstone and is more than minor because if left uncorrected it could lead to a more significant safety concern. Specifically, the uncorrected deficient basic work practices could result in additional primary containment isolation valve failures. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 3 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined that the finding was of very low safety significance (Green) because it does not represent an actual open pathway in the containment and did not impact the hydrogen igniters. The finding has a cross-cutting aspect of evaluation in the problem identification and resolution area because Exelon did not thoroughly evaluate the condition to ensure that corrective actions addressed the cause. Specifically, Exelon identified that deficient basic work practices during valve actuator reassembly were the probable cause of the WDL-V-303 failure in 2013 and had been previously identified as the cause of the CA-V-13 failure in 2010, but Exelon did not evaluate the effectiveness of the corrective actions completed after the CA-V-13 failure or the need for additional corrective actions to address the probable cause. [P.2 Evaluation] [Section 4OA2.1.c.(1)]

Inspection Report# : 2014009 *(pdf)*

Emergency Preparedness

Significance: G Sep 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Evacuation Time Estimate Submittals
Green. The inspectors identified an NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.54(q)(2), 10 CFR 50.47(b)(10), and 10 CFR 50, Appendix E, Section IV.4,
for failing to maintain the effectiveness of the Three Mile Island Nuclear Station (TMI) 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. Upon identification, Exelon entered this issue into its corrective action program (CAP) as issue reports (IRs) 1525923 and 1578649. Exelon submitted a third ETE for TMI on April 4, 2014, and the NRC's review of that ETE is documented in section 1EP4 of this report.

The finding is more than minor because it is associated with the Emergency Preparedness cornerstone attribute of procedure quality and 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 ETE is an input into the development of protective action strategies prior to an accident and to the protective action recommendation decision making process during an accident. Inadequate ETEs had the potential to reduce the effectiveness of public protective actions implemented by the OROs. The finding is determined to be of very low safety significance (Green) because it is a failure to comply with a non-risk significant portion of 10 CFR 50.47(b)(10). The cause of the finding is related to cross-cutting aspect of Human Performance, Documentation, because Exelon did not appropriately create and maintain complete, accurate and, up-to-date documentation [H.7]. (Section 1EP5)

Inspection Report# : 2014004 *(pdf)*

Occupational Radiation Safety

Public Radiation Safety

Significance: N/A Jun 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
UFSAR Max Hypothetical Dose Not Updated, Consistent with Current Plant Conditions
The inspectors identified a Severity Level lV (SL-lV) NCV of 10 CFR 50.71(e), "Maintenance of Records, Making of Reports," because TMI personnel did not update the Updated Final Safety Analysis Report (UFSAR) with information consistent with plant conditions. Specifically, TMI personnel did not remove reference to or correct information in UFSAR Section 14.2.2.3.4.a, "Environmental Analysis of Loss of Coolant Accidents -Consequences of LOCA Radioactive Releases to the Environment," to reflect current plant conditions with regard to maximum hypothetical accident doses at the main control room, exclusion area boundary, or low population zone. Exelon documented this in issue report 1662515 to address the UFSAR discrepancy. This issue was determined to be within the traditional enforcement process because it had the potential to impede or impact the NRC's ability to perform its regulatory functions. Specifically, the issue was determined to have a material impact on licensed activities and was considered more than minor using section 7.3.D of the NRC Enforcement Manual. Using example d.3 of section 6.1 of the NRC Enforcement Policy, the inspectors determined that the violation was a SL-IV violation because the erroneous

information was not used to make an unacceptable change to the facility or procedure. In accordance with inspection manual chapter 0612, section 07.03c, this traditional enforcement violation was not assigned a cross-cutting aspect. (Section 4OA2.1)

Inspection Report# : 2014003 *(pdf)*

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

Significance: N/A May 23, 2014
Identified By: NRC
Item Type: FIN Finding
PI&R Assessment
The inspectors concluded that Exelon was generally effective in identifying, evaluating, and resolving problems. Exelon personnel identified problems, entered them into the corrective action program at a low threshold, and prioritized issues commensurate with their safety significance. Exelon appropriately screened issues for operability and reportability, and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. The inspectors also determined that Exelon typically implemented corrective actions to address the problems identified in the corrective action program in a timely manner. However, the inspectors identified one violation of NRC requirements in the area of effectiveness of corrective actions.
The inspectors concluded that Exelon adequately identified, reviewed, and applied relevant industry operating experience to TMI operations. In addition, based on those items selected for review, the inspectors determined that Exelon's self-assessments and audits were thorough.
Based on the interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual corrective action program and employee concerns program issues, the inspectors did not identify any indications that site personnel were unwilling to raise safety issues nor did they identify any conditions that could have had a negative impact on the site's safety conscious work environment.

Inspection Report# : 2014009 *(pdf)*

Last modified : June 16, 2015