

## Three Mile Island 1 3Q/2016 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:**  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Emergency Diesel Generator Internal Flooding Risk Not Evaluated**

Green. The inspectors identified an NCV of Title 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion III, "Design Control," in that Exelon did not ensure the availability of the emergency diesel generator (EDG) following a seismic event. The inspectors reviewed the TMI licensing basis for internal flooding, associated evaluations and conditions reports, and walked down safety-related structures system and components (SSCs). During this review the inspectors determined that non-seismic piping failures in the EDG room were not properly evaluated. Specifically, the inspectors determined that pressurized fire water pipes in both EDG rooms were not classified as safety-related or seismically qualified. The inspectors reviewed Exelon's evaluation of the potential failure of the pipe, as assumed in the TMI design and licensing basis, and determined that operator actions were credited to mitigate the pipe failure in order to prevent water from affecting the operation of the EDGs. The inspectors determined that these operator actions could not be performed prior to water from the pipe break impacting the operation of the EDGs. Following identification of the issue, Exelon entered this issue into their corrective action program and performed an analysis on the structural loading on the fire water piping during a safe shutdown earthquake and concluded that the piping would not break during the design basis event and, therefore, the EDGs remained operable. The inspectors reviewed the analysis and found it reasonable.

The inspectors determined the failure to adequately evaluate the effects of a pipe failure in the EDG room in accordance with the design and licensing basis was a performance deficiency. The performance deficiency is considered more than minor because it is associated with the Protection Against External Factors 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). Additionally, the performance deficiency is considered more than minor in accordance with Manual Chapter 0612, Appendix E - Question 3K, in that there was a reasonable doubt of operability for the EDGs requiring engineering calculations and analysis to resolve.

In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the inspectors determined the finding to be of very low safety significance (Green) because the finding was determined to be a design or qualification deficiency that did not result in an inoperability.

No cross-cutting attribute is assigned to this finding because the performance deficiency was not indicative of Exelon's current performance. Specifically, this issue was last identified and reviewed by Exelon in issue report 1201424 in 2010. (Section 4OA2.2)

Inspection Report# : [2016003](#) (pdf)

**Significance:**  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Deficient Design Control of ECCS Level Transmitter Instrument Line Heat Trace Causes Freezing and Inoperability**

A self-revealing non-cited violation of Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion III, "Design Control," was identified for failure to establish and implement adequate design control measures to assure that the borated water storage tank (BWST) was capable of performing its design function to mitigate a design basis loss of coolant accident (LOCA) event. Specifically, a replacement of the safety-grade heat trace and resulting incompatible electrical configuration of the BWST level transmitter DH-LT-809 rendered its design incapable to prevent instrument line freezing during cold weather periods, contrary to its safety-function to maintain BWST level indication operable in cold weather. Additionally, this adversely impacted the availability of a BWST level indication necessary for operators to reliably perform a critical design basis manual action. Exelon documented these additional issues in IRs 2609417 and 2611119. Corrective actions included replacement of the affected heat trace and a compatible modification to its electrical configuration.

This performance deficiency was more than minor because it was associated with the design control 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. Additionally, the finding was similar to example 2.f in Appendix E of IMC 0612, in that failure to properly maintain cold weather protection equipment for the BWST level transmitters resulted in DH-LT-809 becoming inoperable. The finding was of very low safety significance (Green) 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 finding had a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because station personnel did not follow the heat trace procedure, which did not allow the two types of heat trace to be spliced together. (IMC 0310, Aspect H.8). (Section 1R01)

Inspection Report# : [2016001](#) (pdf)

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Trend Vibration Data for Safety Related River Water Pump**

The inspectors identified a self-revealing finding of very low safety significance (Green) involving a non-cited violation (NCV) of 10 CFR 50 Appendix B Criterion XVI, "Corrective Action Program," because Exelon did not identify and correct a condition adverse to quality on the 'B' nuclear river water pump (NR-P-1B). Specifically, Exelon did not evaluate all available data to identify and correct an adverse vibration trend on NR-P-1B which resulted in unexpectedly exceeding its in-service test (IST) required action level and being declared inoperable on October 10, 2015. Exelon entered the condition into the CAP under IR 2568763 and emergently replaced the pump, engaged the vendor for short and long term design or material changes to correct the vibration issue and created process and peer check corrective actions to ensure all vibration data is reviewed timely and trends are addressed commensurate with their safety significance.

The performance deficiency is more than minor because it was associated with the equipment performance 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. Specifically, the elevated vibrations reduced the reliability and capability of NR-P-1B to perform its safety function. The inspectors evaluated the finding using Manual Chapter 0609, Attachment 4, Initial Characterization of Findings, and Appendix A, The Significance Determination Process for Findings At-Power, Exhibit 2, and the inspectors determined this finding to be of very low safety significance (Green) because the degraded condition was not a design deficiency that affected system operability; did not represent an actual loss of function of a system; did not represent an actual loss of function of a single train or two separate trains for greater than its technical specification allowed outage time and did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant.

The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, because the station did not thoroughly evaluate the elevated vibration data such that the issue was addressed before NR-P-1B became inoperable. [P.2]

Inspection Report# : [2015004](#) (*pdf*)

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **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.

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## **Miscellaneous**

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