

# Three Mile Island 1

## 2Q/2010 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:**  Dec 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

#### **NCV 05000289/2009005-01, Potential CO2 Migration Outside the Relay Room Fire Area**

The inspectors identified a Green, non-cited violation of the Three Mile Island operating license for not adequately considering the effects of CO2 toxicity. Specifically, for a fire in the relay room which causes a CO2 initiation and a control room evacuation, CO2 would migrate into adjacent areas. Because operators must enter these adjacent areas to perform time critical, safe shutdown actions, the potential existed to delay or incapacitate the operators which would negatively impact the ability to safely shutdown the plant. Exelon made procedural and training changes to ensure that operators immediately don self-contained breathing apparatus in the event of a control room evacuation after a CO2 initiation in the relay room.

The finding was more than minor because it was associated with the external factors (fire) attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This issue was found to be of very low safety significance (Green) due to the low degradation rating resulting from the minimal impact on the fire protection program. This finding did not have a cross-cutting aspect because the most significant contributor of the performance deficiency was not reflective of current licensee performance.

Inspection Report# : [2009005](#) (*pdf*)

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### Barrier Integrity

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### Emergency Preparedness

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### Occupational Radiation Safety

**Significance:**  Mar 12, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Use Process or Engineering Controls Caused Airborne Radioactivity**

A self-revealing non-cited violation (NCV) of 10 CFR 20.1701 was identified because Exelon did not use process or other engineering controls, to the extent practicable, to control the concentration of radioactive materials in air.

Specifically, process or engineering controls were not used to the extent practicable, during vacuuming of a Unit 1 reactor coolant system cold leg, of the "A" steam generator, on November 21, 2009. The vacuum was unfiltered and

caused generation of airborne radioactivity, subsequent internal and/or external contamination of 145 personnel; dispersal of airborne radioactivity to the Containment work areas, and release of low-level contamination to the offsite environment. Workers were evacuated from Containment, the source of the radioactivity was stopped, and the issue was documented in the corrective action program (AR 996823).

This finding is more than minor because it adversely affected the Occupational Radiation Safety Cornerstone objective to ensure adequate protection of worker health and safety. Using the IMC 0609, Appendix C, Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it did not involve: (1) as low as is reasonably achievable collective exposure planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. The cause of the finding is related to the cross-cutting area of Human Performance, Work Control aspect H.3(a), in that radiological controls requirements, developed for this task, were not adequately planned, coordinated, or incorporated to preclude its occurrence.

Inspection Report# : [2010007](#) (pdf)

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## Public Radiation Safety

**Significance:**  Mar 12, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

### **Deficient Design Change Implementation and Controls Resulted In Unfiltered Radioactivity Release to the Environment**

A self-revealing NCV of Technical Specification 6.8 was identified because Exelon did not properly establish and implement procedures for control of radioactivity to limit materials released to the environment and limit personnel exposure as specified in Appendix A of Regulatory Guide 1.33, 1978. Specifically, from November 12 to November 21, 2009, Exelon did not effectively manage Unit 1 Containment openings and ventilation system flows, following removal of a section of the Containment liner, to maintain inward airflow and promptly detect and minimize the release of radioactivity from the construction opening as required by Engineering Change Request TM-06-00816. As a result, an uncontrolled airborne radioactivity release occurred from the construction opening on November 21 at about 3:45 p.m. Further, airborne radioactivity was released from the opening during periods of outward airflow following the removal of a section of the Containment construction opening liner on November 12 through the time of the uncontrolled release, until midnight on November 21 when inward airflow was re-established. Exelon documented this issue in its corrective action program. (ARs 994989 and 1000819)

This finding is more than minor because, if left uncorrected the issue had the potential to lead to a more significant safety concern. Using the Public Radiation Safety Significance Determination Process (IMC 0609, Appendix D), the finding was of very low safety significance because the licensee was able to assess the dose impact to members of the public and the dose impact to a member of the public from the radiological release was less than the dose values specified in both Appendix I, to 10 CFR Part 50, and 10 CFR 20.1301(e). The cause of the finding is related to the cross-cutting area of Human Performance, Resources aspect H.2(c), because procedures developed for both control and timely detection of radioactive effluents from the Containment construction opening were inadequate.

Inspection Report# : [2010007](#) (pdf)

**Significance:**  Mar 12, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

### **Untimely Corrective Action to Stop Unfiltered Radiological Release**

The inspectors identified an NCV of Technical Specification 6.11 because from November 16 through November 21, 2009, Exelon did not implement timely follow-up and corrective action to minimize radioactivity released to the environment as required radiation protection procedures, RP-AA-1, RP-AA-10, and RP-AA-14. Specifically, upon discovery on November 16 of an unplanned, unfiltered radioactive release pathway from the Containment

construction opening to the environment, station personnel did not promptly initiate a condition report or assign appropriate significance to the issue. Consequently, an unfiltered release pathway from the Containment existed until appropriate control of Containment openings and the ventilations system were re-established on November 21. Condition reports 1041529 and 1042874 were initiated to evaluate timeliness of actions to stop the unfiltered radioactive release to the environment.

This finding is more than minor because, if left uncorrected the issue had the potential to lead to a more significant safety concern. Using the Public Radiation Safety Significance Determination Process (IMC 0609, Appendix D), the Finding was of very low safety significance because the licensee was able to assess the dose impact to members of the public and the dose impact to a member of the public from the radiological release was less than the dose values specified in both Appendix I, to 10 CFR Part 50, and 10 CFR 20.1301(e). The cause of the finding is related to the cross-cutting area of Problem Identification and Resolution, Corrective Action Program aspect P.1(d), because appropriate corrective actions to assess and correct the cause of the outward air flow from the Containment construction opening were not properly prioritized and implemented in a timely manner commensurate with their safety significance and complexity.

Inspection Report# : [2010007](#) (*pdf*)

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## Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

Last modified : September 02, 2010