

Nine Mile Point 2

1Q/2007 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2006

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate use of human performance tools during maintenance results in an equipment failure that causes a reactor scram.

A self-revealing finding of very low safety significance occurred on March 9, 2006, when Nine Mile Point Unit 2 automatically scrammed due to a main turbine trip caused by low condenser vacuum. The loss of condenser vacuum occurred when the normal turbine gland seal supply isolated due to high water level and the emergency gland seal steam supply (non-safety related) failed. The emergency gland seal steam supply failed because a maintenance technician improperly assembled a pressure indicating controller for the system following maintenance in April 2004. Maintenance repaired the pressure indicating controller and Operations restored the plant to full power on March 13, 2006. Nine Mile Point Nuclear Station (NMPNS) entered the issue into its corrective action program (CAP) as CR 2006-0993.

The finding is greater than minor because it was associated with the human performance attribute of the Initiating Event cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. The inspectors determined the finding to be of very low safety significance using the Phase 1 SDP screening worksheet for at power situations. The finding screened to Green because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available, and was not potentially risk significant due to external events.

Inspection Report# : [2006003](#) (*pdf*)

Mitigating Systems

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedure Caused Inadvertent Isolation of RCIC Steam Supply

A self-revealing, non-cited violation (NCV) of technical specification (TS) 5.4, "Procedures," was identified on January 11, 2007, when the Unit 2 reactor core isolation cooling (RCIC) system automatically isolated as a result of an improperly performed surveillance procedure. When performing a test of the temperature instrument that provides residual heat removal (RHR) and RCIC system high area temperature isolations, technicians failed to ensure that the affected channel was bypassed prior to disconnecting the input thermocouple. This resulted in an automatic isolation of the RCIC system steam supply and the unavailability of RCIC for approximately four hours. Operators immediately recognized the error and halted the surveillance procedure. Technicians reconnected the thermocouple, and operators restored RCIC to a normal standby lineup. NMPNS entered the issue into the CAP as condition report (CR) 2007-0186.

The finding is greater than minor because it is associated with the human performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," based on a Phase 3 analysis. The Region I senior reactor analyst (SRA) used the Nine Mile Point Unit 2 Standardized Plant Analysis Risk (SPAR) model and the actual four-hour exposure time to determine that the increase in core damage frequency was in the range of one core damage accident in 125,000,000 years of reactor operation, high E-9 per year. This finding has a cross-cutting aspect in the area of human performance because the technicians failed to use appropriate human error prevention techniques, such as self-checking and prominent visual identification of critical procedure steps.

Inspection Report# : [2007002](#) (*pdf*)

W**Significance:** Dec 31, 2006

Identified By: NRC

Item Type: AV Apparent Violation

Failure to Ensure Integrity of Unit 1 Examinations and Tests

White. An apparent violation of 10 CFR 55.49, "Integrity of Examinations and Tests," was identified, concerning an apparent compromise of the 2005 and the 2006 annual operating exams at Unit 1. NRC inspectors identified practices that collectively had the impact of compromising, albeit unintentionally, the examinations; these practices included: 1) a lack of simulator exam scenario diversity (i.e., The scenarios were substantially the same including: critical tasks; major transients; Emergency Operating Procedure flow paths; and emergency classifications); 2) an overuse of a single emergency operating procedure strategy (i.e., full core Anticipated Transient Without Scram); and 3) a pattern of crews validating scenarios substantially similar to their exam scenario sets. Constellation had not identified and compensated for the compromise prior to completing the 2005 exam and returning the operators to normal control room duties. Following NRC identification of the compromise in 2006, Constellation took immediate and substantive corrective actions prior to completion of the annual operating exam cycle. Based on the Licensed Operator Requalification Significance Determination Process (SDP) this finding was preliminarily determined to be of low to moderate safety significance (White). The licensee initiated Condition Report CR-NM-2006-4808, dated October 19, 2006, that documented this issue and later initiated a Category I Root Cause Analysis (CR-NM-2006-4808), "Annual Licensed Operator Requalification Exam Compromise."

This finding was more than minor because it was associated with the Human Performance attribute of the Initiating Events, Mitigation Systems, and Barrier Integrity cornerstones and affected the combined objective of: limiting the likelihood of; ensuring the availability and reliability of mitigating systems to respond to; and providing reasonable assurance that physical barriers protect the public from radio-nuclide releases caused by, initiating events.

The finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not effectively collect, evaluate, and communicate applicable external operating experience to affected internal stakeholders nor did they conduct self-assessments that were comprehensive, appropriately objective, and self-critical such that either Unit 1 2005 exam compromise issues were avoided altogether or identified and corrected prior to the end of the 2005 annual operating exam cycle.

Inspection Report# : [2006011](#) (*pdf*)**G****Significance:** Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure Integrity of Unit 2 Examinations and Tests

A Green NRC-identified non-cited violation (NCV) of 10CFR55.49 was identified, concerning an apparent compromise of the 2006 annual operating requalification examinations at Unit 2. NRC inspectors identified practices that collectively had the impact of compromising, albeit unintentionally; the examinations, these practices included: 1) a lack of simulator exam scenario diversity (i.e., The scenarios were substantially the same including: critical tasks; major transients; Emergency Operating Procedure flow paths; and emergency classifications); 2) an overuse of a single emergency operating procedure strategy (i.e., full core Anticipated Transient Without Scram); and 3) a pattern of crews validating scenarios substantially similar to their exam scenario sets. The licensee initiated CR-NM-2006-4808 that documented this concern and later initiated a Category I Root Cause Analysis.

This finding was more than minor because it was associated with the Human Performance attribute of the Initiating Events, Mitigation Systems, and Barrier Integrity cornerstones and affected the combined objective of: limiting the likelihood of; ensuring the availability and reliability of mitigating systems to respond to; and providing reasonable assurance that physical barriers protect the public from radio nuclide releases caused by, initiating events. The finding was assessed as having very low safety significance because immediate and substantive corrective actions were taken by Constellation prior to the end of the current exam cycle.

The finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not effectively collect, evaluate, and communicate applicable external operating experience to affected internal stakeholders nor did they conduct self-assessments that were comprehensive, appropriately objective, and self-critical such that the 2006 Unit 2 exam compromise issues were either avoided altogether or at least identified and corrected by Constellation prior to the start of this inspection

Inspection Report# : [2006011](#) (*pdf*)

Significance: N/A Dec 31, 2006

Identified By: NRC

Item Type: FIN Finding

Unit 1 Crew Failure Rate on the Dynamic Simulator Portion of the Annual Operating Examinations

A finding of very low safety significance (Green) was identified at Unit 1. The finding was associated with crew performance on the simulator during the 2006 facility-administered requalification examinations. Of the six crews evaluated, two failed to pass their simulator examinations when the newly developed more comprehensive exams were re-administered in response to the above noted preliminary White finding. The failures are documented in licensee-initiated Condition Report CR 2006-5797, which resulted in Constellation conducting a Category I Root Cause Analysis.

This finding was more than minor because it was associated with the Human Performance attribute of the Initiating Events, Mitigation Systems, and Barrier Integrity cornerstones and affected the combined objective of: limiting the likelihood of; ensuring the availability and reliability of mitigating systems to respond to; and providing reasonable assurance that physical barriers protect the public from radio nuclide releases caused by, initiating events. The finding was assessed as having very low safety significance because: 1) the failures occurred during annual testing of the operators on the simulator; 2) there were no actual consequences to the failures; 3) the crews were removed from watch standing duties, retrained and re-evaluated before they were authorized to return to control room watches; and, 4) because the crew failure rate for the 2005 Unit 1 Annual Operating Exams was less than 20%.

Inspection Report# : [2006011](#) (*pdf*)

Significance: N/A Dec 31, 2006

Identified By: NRC

Item Type: FIN Finding

Unit 2 Crew Failure Rate on the Dynamic Simulator Portion of the Annual Operating Examinations

A finding of very low safety significance (Green) was identified at Unit 2. The finding was associated with crew performance on the simulator during the 2006 facility-administered requalification examinations. Of the six crews evaluated, two failed to pass their simulator examinations when the newly developed more comprehensive exams were re-administered in response to the above noted preliminary White finding. The failures are documented in licensee-initiated Condition Report CR 2006-5797, which resulted in Constellation conducting a Category I Root Cause Analysis.

This finding was more than minor because it was associated with the Human Performance attribute of the Initiating Events, Mitigation Systems, and Barrier Integrity cornerstones and affected the combined objective of: limiting the likelihood of; ensuring the availability and reliability of mitigating systems to respond to; and providing reasonable assurance that physical barriers protect the public from radio nuclide releases caused by, initiating events. The finding was assessed as having very low safety significance because: 1) the failures occurred during annual testing of the operators on the simulator; 2) there were no actual consequences to the failures; 3) the crews were removed from watch standing duties, retrained and re-evaluated before they were authorized to return to control room watches; and, 4) because the crew failure rate for the 2005 Unit 2 Annual Operating Exams was less than 20%.

Inspection Report# : [2006011](#) (*pdf*)



Significance: Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

RCIC Alignment During Maintenance Not Consistent With Design Bases.

An NRC-identified NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified on February 8, 2006, when the reactor core isolation cooling (RCIC) system was operated in an unanalyzed configuration that degraded plant safety. Specifically, steam exhaust line vacuum breaker isolation valve 2ICS*MOV148 was shut while RCIC remained aligned for automatic operation. This configuration would have prevented the vacuum breakers from mitigating the water hammer event that occurs following system shutdown, which can produce stresses in the RCIC steam exhaust line that exceed code-allowable values during certain accident scenarios. Operations revised the operating procedure to direct operators to inhibit RCIC automatic initiation if the steam exhaust line vacuum breakers were isolated. NMPNS entered the issue into its CAP as CR 2006-0545.

The finding is greater than minor because it is associated with the procedure quality attribute 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 Region I SRA conducted a Phase 3 risk assessment and determined the finding to be of very low safety significance. The only accident conditions that could cause the suppression pool to pressurize and RCIC to automatically start were medium and large break loss of coolant accidents

(LOCAs). The SRA conservatively assumed, based on NMPNS data, that RCIC was in the degraded condition for 3 hours. Using the annual initiating event frequencies from the NMP2 SPAR model for medium and large break LOCAs, the SRA determined that the delta-CDF could not be greater than the low E-8 range, because even if RCIC caused the failure of all injection sources, the increase in the probability of core damage could not be greater than the initiating event frequency adjusted for the exposure time.

Inspection Report# : [2006003](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Last modified : June 01, 2007