

Three Mile Island 1

4Q/2004 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: SL-IV Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely Licensee Event Report for Both Trains of High Pressure Injection Being Inoperable

A non-cited violation of 10 CFR 50.73 was identified for untimely submittal of a licensee event report (LER). In March 2004, station personnel had all necessary information available to identify that both trains of high pressure injection (HPI) had been inoperable for a brief period in 2003. The issue was not reported until December 2004, following identification by the inspectors. A contributing cause of this finding is a shortcoming in problem identification in the cross-cutting area of PI&R in that station personnel did not consider unavailability of the emergency power supply to the second HPI train and associated technical specification requirements when determining reportability of this condition. Additionally, the original operability determination did not correctly address seismic qualification of HPI support systems until identified by the inspectors. Corrective actions included submittal of the condition report, training for station personnel, and entering the issue into the corrective action program as issue report 267630.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate Configuration Control - Incorrect Material for MS-PI-22 Causes Main Steam Leak

A self-revealing Green NCV was identified for not maintaining control of materials as required by 10 CFR 50, Appendix B, Criterion VIII, "Identification and Control of Materials, Parts, and Components." Use of incorrect material (brass) for an instrument line cap near main steam (MS) pressure instrument MS-PI-22 resulted in a steam leak, a plant transient, and subsequent isolation of safety-related components. Not identifying the visible difference in materials is considered a cross-cutting issue in the area of problem identification, because technicians and operators missed several opportunities to identify the problem prior to the steam leak. Corrective actions included replacement of the fitting with stainless steel per design specifications, extent of condition evaluations, and issue entry to the corrective action program as issue report 281003.

This issue is more than minor because it affected the Mitigating System cornerstone objective by reducing availability of mitigating systems when operators isolated mitigating system components (one steam supply train to EFW turbine pump, turbine bypass valves, an atmospheric steam dump valve) in order to isolate the steam leak. The finding had very low safety significance due to the short duration of train inoperability during the leak isolation procedure. In each case, the single train loss of safety function existed for much less than the TS allowed outage time.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Degraded Main Steam Isolation Valve Snubber MS-225 Not Identified and Corrected

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for not identifying a degraded main steam isolation valve snubber (MS-225) during extent of condition review walkdowns following a steam leak in the intermediate building. Specifically, the inspectors identified that the snubber hydraulic oil reservoir was empty when conducting inspections after plant personnel had performed area walkdowns after the steam leak. A contributing cause of this finding is related to the cross-cutting area of problem identification, because system engineers did not identify the empty hydraulic snubber reservoir during inspections intended to look for this type of condition. Corrective actions included replacement of the degraded snubber and extent of condition walkdowns of all similar safety-related snubbers located in the intermediate building.

This issue is considered more than minor because it affected the mitigating system cornerstone by reducing the reliability of the 'B' main steam isolation valve [MSIV], a mitigating system component used during a loss of the normal heat sink or a steam generator tube rupture. Additionally, this issue resulted in the snubber being declared inoperable, thereby affecting its availability during replacement activities. This finding is of very low safety significance because the loss of hydraulic snubber fluid did not result in a failed snubber, nor did it cause the 'B'

MSIV to become inoperable.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct a Degraded 'A' EDG Fuel Injection Line

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI "Corrective Action" for failure to identify a degraded 'A' emergency diesel generator (EDG) common header fuel injector tube. In addition, after the condition was identified by the inspectors, station personnel failed to document, evaluate and correct this degraded condition, which had the potential to degrade further and adversely affect the operability of the 'A' EDG, until prompted by the inspectors. The tube degradation was caused by rubbing between the tube and the fuel oil duplex filter metal cover plate and resulted in a 40 percent reduction in tube wall thickness. (This finding is considered a cross-cutting issue in the area of problem identification and evaluation, because station personnel failed to identify the degraded fuel injector tube and) the initial assessment of this degraded condition was untimely and lacked technical rigor. The duplex filter cover plate was ultimately modified to establish proper clearance and prevent further tube degradation. In addition, corrective actions were initiated to replace the degraded fuel ejector tube during the next 'A' EDG outage.

This issue is more than minor since the failure to identify and correct the degraded EDG fuel ejector tube reduced the reliability of a mitigating system component. In addition, if left uncorrected, the condition could have degraded further and affected the operability of the 'A' EDG. This finding is of very low safety significance (Green) because it did not result in an actual failure of the 'A' EDG fuel injector tubing, nor did it cause the 'A' EDG to be inoperable.

Inspection Report# : [2004004\(pdf\)](#)

G

Significance: Jun 30, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Identify Abnormally High River Pump Vibrations

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. On March 9, 2004, AmerGen did not recognize that vibration levels on the 1C Nuclear River (NR) Pump (NR-P-1C) motor exceeded predictive maintenance program alert levels. [The finding is considered a cross-cutting issue in the area of problem identification, because] the failure to recognize the elevated vibration and take corrective actions resulted in the pump vibration levels continuing to increase. Subsequent vibration resulted in the inoperability of the pump. The pump shaft and bearings were ultimately replaced.

This self-revealing finding is more than minor since the failure to take timely action reduced the reliability and availability of a mitigating systems component. Corrective action to address the slowly degrading motor bearings could have been commenced prior to the vibration levels exceeding the fault level. This finding was determined to be of very low safety significance because at least two NR pumps remained available.

Inspection Report# : [2004003\(pdf\)](#)

G

Significance: Mar 31, 2004

Identified By: NRC

Item Type: FIN Finding

Inability of 25 Percent of the Crews to Pass the Dynamic Simulator Portion of the Facility-Administered Annual Operating Examinations

A finding of very low safety significance was identified. The finding was associated with operating crew performance on the simulator during facility-administered licensed operator requalification examinations. Of the eight crews evaluated, two did not pass their simulator examinations. The finding is of very low safety significance because the failures occurred during annual testing of the operators on the simulator, because there were no actual consequences to the failures, and because the crews were removed from watch-standing duties, retrained and re-evaluated before they were authorized to return to control room watches.

Inspection Report# : [2004002\(pdf\)](#)

G

Significance: Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Scaffolding Installation Procedures

The inspectors identified a non-cited violation (NCV) of technical specification 6.8.1.a for inadequate implementation of scaffold control requirements and for not performing engineering evaluations as required by procedures MA-AA-796-024-1001 and LS-AA-104-1000. The procedural violations resulted in scaffold construction deviations that were not evaluated for adequacy by engineering to ensure that safety related equipment would not be adversely impacted by the scaffold during a seismic event. The finding is of very low safety significance since no equipment was rendered inoperable due to the scaffolding, and the scaffolding would not have caused a loss of any safety function during or following a seismic event.

Inspection Report# : [2004002\(pdf\)](#)

G**Significance:** Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Lack of Assurance that Each Section of the Operating Exam is at Least 50 Percent Unique Compared to any Other Operating Exam Administered During the Same Cycle

An NCV was identified for non-adherence to an established Exelon/AmerGen licensed operator requalification test (LORT) program procedure that provided guidance for satisfying the requirements of 10 CFR 55.59 in the development of the Senior and Reactor Operator 2004 annual requalification exams.

The finding is greater than minor because the Performance Deficiency affected the mitigating systems cornerstone objective to ensure mitigating system reliability and availability, and its related attribute on human performance (Human Error (Pre-Event and Post-Event)). The finding is of very low safety significance because the discrepancy did not have an adverse impact on the operator's ability to safely operate the plant this past year and there were no identified concerns regarding exam compromise.

Inspection Report# : [2004002\(pdf\)](#)**G****Significance:** Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Lack of Documentation of Adequate Remediation Plans for Senior Reactor Operators and Reactor Operators

An NCV was identified for non-adherence to an established Exelon/AmerGen licensed operator requalification program procedure for documenting remediation plans for Senior and Reactor Operators developed as a result of failures on 2003 biennial written and annual operating exams and as required by 10 CFR 55.59(c)(5).

The finding is greater than minor because the performance deficiency affected the mitigating systems cornerstone objective to ensure mitigating system reliability and availability, and its related attribute on human performance (Human Error (Pre-Event and Post-Event)). The finding is of very low safety significance because the discrepancy did not have an adverse impact on the operator's ability to safely operate the plant this past year.

Inspection Report# : [2004002\(pdf\)](#)**G****Significance:** Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Simulator Did Not Replicate Expected Plant Response to Steady State Conditions

An NCV was identified for simulator modeling discrepancies that should have been identified and corrected during required steady state performance testing as required by ANSI/ANS 3.5-1985 and 10 CFR 55.46. [The issue is an example of the substantive cross-cutting issue in the area of problem identification and resolution, because it shares a common theme of plant staff being aware of deficiencies or should have been aware of plant deficiencies and not entering them into the corrective action process.]

This finding is more than minor because it affects the human performance (human error) attribute of the mitigating systems cornerstone. The finding is of very low safety significance because the discrepancy did not have an adverse impact on operator actions such that safety-related equipment was made inoperable during normal operations or in response to a plant transient.

Inspection Report# : [2004002\(pdf\)](#)

Barrier Integrity

G**Significance:** Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely Investigation and Repair of a Degraded Control Building Ventilation Exhaust Fan AH-E-19B

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for not investigating and repairing a degraded control building air return ventilation fan AH-E-19B in a timely manner. Elevated fan vibrations were identified in December 2001, but not sufficiently evaluated until September 2004, following concerns raised by the inspectors. This untimely response resulted in a cracked hub where the bolt holes penetrate the hub and attach to the motor. A contributing cause of this finding is related to the cross-cutting area of problem identification and resolution, because engineers and component maintenance optimization personnel missed several opportunities to evaluate, and prevent or correct the degraded condition based on prior internal and external operating experience with similar fans. Corrective actions include complete replacement of the fan/motor assembly and entering this issue into the corrective action program as issue reports 258108 and 197544.

This issue is considered more than minor because it affected the control room envelope Barrier Integrity cornerstone since the cracked fan hub could cause a partial loss of control building ventilation. This finding is of very low safety significance since the condition did not result in an actual failure of the control room ventilation system.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Computer-calculated Reactor Power Malfunctions Not Promptly Corrected

A self-revealing, non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions" occurred on February 6, 2004, when the reactor had an unplanned power increase from full power, in which reactor power increased 0.9 percent over 17 minutes. The power increase resulted when the input signal for calculated reactor power was removed from the integrated control system with reactor power control in automatic. A contributing cause of this finding is related to the cross-cutting area of problem identification and resolution, because problems with computer-calculated reactor power had occurred previously, but corrective actions to address the problem were untimely, and corrective actions to address the consequences of the problem were ineffective. Additionally operators were slow to identify and respond to the overpower condition.

This finding is more than minor because it potentially affected the reactivity control attribute of the barrier integrity cornerstone objective of providing reasonable assurance that physical barriers (i.e., fuel cladding) protect the public from radionuclide releases caused by overpower events. Specifically, the integrated control system escalated reactor power automatically upon loss of an input signal during scheduled maintenance. This finding is considered to be of very low safety significance, because all mitigating systems remained functional and other barriers would not have been affected.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Testing of the Reactor River Water Pumps in Accordance with ASME OM Code

The inspectors identified a self-revealing non-cited violation of 10 CFR 50.55a.(f)(4)(ii) "Codes and Standards" which requires, in part, that testing of safety-related pumps meet the requirements of the American Society of Mechanical Engineers (ASME) Operation and Maintenance Code. Contrary to this requirement, AmerGen did not perform quarterly Inservice Testing of the reactor river water (RR) pumps in accordance with the ASME OM-6 Code. Specifically, the quarterly test procedure did not set pump differential pressure or flow at a reference value which was readily duplicated during subsequent tests. Additionally, the test throttle valve position, which could significantly influence pump d/p, was not monitored, documented or analyzed. The inspectors determined that over the last five years, the quarterly RR pump test was not in accordance with the Code and would not have detected a degraded pump hydraulic condition.

This issue is more than minor because it affected the Barrier Integrity cornerstone objective and the containment barrier performance attribute. Failure to test the pumps in accordance with the code did not ensure the availability of the RR system's safety function to provide containment cooling and pressure suppression in the event of a design basis accident. However, because full flow testing had been satisfactorily conducted in November 2003 and testing performed subsequent to the identification of the issue determined that the pumps were operable, this violation was determined to have a very low safety significance. Corrective actions included revision of the test method to meet code requirements as documented in Issue Report 244066.

Inspection Report# : [2004004\(pdf\)](#)

Emergency Preparedness

Significance: SL-IV Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Plant Modification Decreased Effectiveness of Emergency Plan Without Prior NRC Approval, Deficient 10 CFR 50.54(q) Evaluation

A non-cited violation of 10 CFR 50.54(q) was identified for not properly maintaining the TMI Radiological Emergency Plan (the Plan) up-to-date to address a modification made within the owner controlled area. Specifically, plant modifications which blocked the south gate access bridge resulted in a decrease in effectiveness in the Plan without prior NRC approval. Corrective actions included discussions with the local railroad company to establish a memorandum of understanding, establishment of a shift night order, training for emergency directors, reassessment of south gate accessibility, and entry of the issue into the licensee's corrective action program as issue reports 260849, 260697, 266937, 269032, 282239 and 282851.

A contributing cause of this finding is related to the cross-cutting area of problem identification and resolution, because (1) the 10 CFR 50.54 (q) evaluation did not identify the potential that a train (or crossing gate) malfunction could occur and cause delays in accessing or leaving the site, despite several such occurrences; (2) evaluation of the issue following three train (or crossing gate) malfunctions in October 2004 was cursory in that it did not take positive actions to verify contingency actions were identified, understood, and trained upon; and (3) substantive

corrective actions such as establishing a memorandum of understanding with the railroad and establishing written guidance shift manager/emergency director guidance for this contingency were not developed until repeatedly questioned by the inspectors. This finding was of very low safety significance, because it did not constitute a loss of a planning standard function required by 10 CFR 50.47(b)(2) or (b)(3).
Inspection Report# : [2004005\(pdf\)](#)

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A May 10, 2004

Identified By: NRC

Item Type: FIN Finding

Identification and Resolution of Problems - Team Summary

The team concluded that AmerGen Energy Company, LLC (AmerGen) was generally effective at identifying problems and entering them into the corrective action program. AmerGen's effectiveness at problem identification was evidenced by the relatively few deficiencies identified by external organizations (including the NRC) that had not been previously identified by AmerGen during the review period. AmerGen effectively used risk in prioritizing the extent to which individual problems would be evaluated and in establishing schedules for implementing corrective actions. Corrective actions, when specified, were generally implemented in a timely manner. AmerGen audits and assessments were found to be effective and identified areas for improvement. On the basis of interviews conducted during this inspection, workers at the site utilized the corrective action program to identify problems.

Inspection Report# : [2004006\(pdf\)](#)

Last modified : March 09, 2005