October 22, 2008

Mr. Charles G. Pardee President and Chief Nuclear Officer (CNO) Exelon Nuclear Chief Nuclear Officer (CNO) AmerGen Energy Company, LLC 4300 Winfield Rd. Warrenville, IL 60555

SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2 - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000352/2008009 AND 05000353/2008009

Dear Mr. Pardee:

On September 12, 2008, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Limerick Generating Station, Units 1 and 2. The enclosed report documents the inspection results discussed on September 12, 2008, with Mr. C. Mudrick and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems and compliance with the Commission's rules and regulations and the conditions of your license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel.

The inspectors concluded that Exelon was generally effective in identifying, evaluating, and resolving problems. Exelon personnel identified problems and entered them into the corrective action program at a low threshold. Exelon prioritized and evaluated issues commensurate with the safety significance of the problems and corrective actions were generally implemented in a timely manner.

Based on the results of this inspection one finding of very low safety significance (Green) was identified. The finding was associated with an inadequate problem evaluation, but did not involve a violation of NRC requirements.

C. Pardee

In accordance with Title 10 of the Code of Federal Regulations, Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web Site at <u>http://www.nrc.gov/reading-rm/adams.html</u> (the Public Electronic Reading Room).

Sincerely,

/**RA**/

Raymond J. Powell, Chief Technical Support & Assessment Branch Division of Reactor Projects

Docket Nos: 50-352, 50-353 License Nos: NPF-39, NPF-85

Enclosure: Inspection Report 05000352/2008009 and 05000353/2008009 w/Attachment: Supplemental Information

<u>cc w/encl</u>:

C. Crane, President and Chief Operating Officer, Exelon Corporation

- M. Pacilio, Chief Operating Officer, Exelon Nuclear
- C. Mudrick, Site Vice President, Limerick Generating Station
- E. Callan, Plant Manager, Limerick Generating Station
- R. Kreider, Regulatory Assurance Manager, Limerick
- R. DeGregorio, Senior Vice President, Mid-Atlantic Operations
- K. Jury, Vice President, Licensing & Regulatory Affairs
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- B. Fewell, Associate General Counsel, Exelon
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- D. Allard, Director, PA Dept of Environmental Protection
- J. Johnsrud, National Energy Committee, Sierra Club
- Chairman, Board of Supervisors of Limerick Township
- J. Powers, Director, PA Office of Homeland Security
- R. French, Dir, PA Emergency Management Agency

C. Pardee

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-352, 50-353
License No.:	NPF-39, NPF-85
Report No.:	05000352/2008009 and 05000353/2008009
Licensee:	Exelon Generation Company, LLC (Exelon)
Facility:	Limerick Generating Station, Units 1 and 2
Location:	Sanatoga, PA 19464
Dates:	August 25, 2008 through September 12, 2008
Team Leader:	Leonard Cline, Senior Project Engineer, DRP
Inspectors:	Carey Bickett, Resident Inspector, DRP Nicole Sieller, Project Engineer, DRP Ross Moore, Project Engineer, DRP
Approved by:	Raymond J. Powell, Chief Technical Support & Assessment Branch Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000352/2008009 and 05000353/2008009; 08/25/2008 - 09/12/2008; Limerick Generating Station, Units 1 and 2; Identification and Resolution of Problems, One finding was identified in the area of corrective action program effectiveness.

This NRC team inspection was performed by one resident inspector and three regional inspectors. One finding of very low safety significance (Green) was identified by the NRC during this inspection. The finding did not involve a violation of NRC requirements. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using NRC Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Identification and Resolution of Problems

The inspectors concluded that Exelon was generally effective in identifying, evaluating, and resolving problems. Specifically, Exelon personnel identified problems, entered them into the corrective action program at a low threshold, and prioritized issues commensurate with the safety significance. For most cases, Exelon appropriately screened issues for operability and reportability and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. However, for one issue reviewed by the inspectors, an inadequate evaluation resulted in an NRC-identified finding. Corrective actions taken to address the problems identified in Exelon's corrective action process were typically implemented in a timely manner.

The inspectors also concluded that, in general, Exelon adequately identified, reviewed, and applied relevant industry operating experience to Limerick Generating Station (LGS) operations. In addition, based on those items selected for review by the inspectors, Exelon's audits and self-assessments were thorough and probing.

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 employees concerns program issues, the inspectors did not identify any concerns that site personnel were not willing to raise safety issues nor did they identify conditions that could have had a negative impact on the site's safety conscious work environment.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

<u>Green</u>. The inspectors identified a finding of very low safety significance for Exelon's failure to complete the testing described in the Updated Final Safety Analysis Report (UFSAR) for one of the third stage feedwater heater bleeder trip valves. Exelon entered this issue into the corrective action program under issue reports (IRs) 772753, 812344, 817399, and 817443, and on August 28, 2008, started testing bleeder trip valve XV-002-108B at the desired frequency stated in the UFSAR.

The inspectors determined that this finding is greater than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and has the potential to adversely affect the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Not testing the bleeder trip valves in accordance with the statements in the LGS UFSAR adversely impacted the assumptions in LGS's turbine missile probability analysis thereby potentially increasing the probability for damage to safety-related plant equipment caused by the release of high-energy turbine components. The inspectors evaluated this finding using IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings," and determined the finding is of very low safety significance.

The inspectors also determined that this issue has a problem identification and resolution cross-cutting aspect in the corrective action area because LGS did not thoroughly evaluate the potential impact of an identified problem on the operability of safety-related equipment. Specifically, Exelon did not evaluate the impact that deferred bleeder trip valve testing may have had on the probability that the operability of safety-related equipment could have been impacted by turbine missiles. (P.1(c))

B. Licensee-Identified Violations

None.

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (71152B)

.1 Assessment of the Corrective Action Program (CAP) Effectiveness

a. <u>Inspection Scope</u>

The inspectors reviewed the procedures that describe Exelon's CAP at Limerick Generating Station (LGS). Exelon identified problems for evaluation and resolution by initiating and processing issue reports (IRs) using the Passport web-based computer application. Problems were screened for operability and reportability, categorized based on significance (1 to 5) and assigned the level for the cause evaluation (A to D) based on significance and the level of uncertainty for the cause. When work was necessary to correct a problem, the work request (PIMS) system was used to generate action requests (ARs) or work orders. As such, at LGS, the work management and engineering change processes were part of the CAP and were utilized to correct identified conditions when deemed appropriate.

To assess the effectiveness of the CAP at LGS, the inspectors reviewed performance in three primary areas: problem identification; prioritization and evaluation; and corrective action implementation. The inspectors compared performance in these three areas to the requirements and standards contained in 10 CFR 50 Appendix B Criterion XVI and Exelon procedure, LS-AA-125, "Corrective Action Program Procedure." The scope of the inspectors' review for each of these areas at LGS is described below. The IRs and other documents reviewed for the inspection are listed in the Attachment.

Effectiveness of Problem Identification

The inspectors reviewed a sample of plan of the day (POD) meeting packages and meeting minutes for a sample of plant operations review committee (PORC), nuclear safety review board (NSRB), and maintenance rule expert panel meetings. The inspectors also attended one performance improvement committee meeting and a number of POD, management review committee (MRC), and station ownership committee (SOC) meetings. The inspectors verified that identified issues discussed at these meetings were entered into the CAP for evaluation and corrective action as appropriate.

The inspectors reviewed the condition of the emergency diesel generator (EDG), the emergency service water (ESW), the high pressure coolant injection (HPCI), and the residual heat removal (RHR) systems. The inspectors reviewed system health reports, a sample of completed preventative and corrective maintenance work orders and completed surveillance test procedures. The inspectors also completed a field walkdown of the accessible portions of these systems. The inspectors verified that conditions adverse to quality identified through this review were entered into the CAP as appropriate.

The inspectors reviewed a random sample of security, operations, chemistry, and radiation protection logs. The inspectors verified that problems identified in these logs were entered into the CAP as appropriate.

The inspectors reviewed the LGS 2008 Training Drill Series Evaluation Report dated August 29, 2008, and verified that drill performance deficiencies identified in this report were entered into the CAP as appropriate.

The inspectors reviewed the results of Exelon periodic trend analyses including CAP quarterly performance trending reports, quarterly equipment readiness and reliability (EQR2) trend analyses, and proactive maintenance (PAM) quarterly assessment reports. The inspectors verified that identified trends were entered into the CAP for further evaluation and corrective action as appropriate. The inspectors also reviewed the CAP trend code backlogs and verified the applicability of trend codes entered for a sample of CAP IRs.

The inspectors also verified that issues identified through internal self-assessments and audits and the operating experience (OE) program were entered into the CAP for evaluation and corrective action as appropriate.

Effectiveness of Prioritization and Evaluation of Issues

The inspectors reviewed the evaluation and prioritization for a sample of IRs issued since the last NRC problem identification and resolution inspection that was performed in June 2006. The inspectors considered risk insights from the station's risk analysis and ensured that the selected IRs were appropriately distributed across the seven cornerstones of safety and the emergency preparedness, engineering, maintenance, operations, physical security, and radiation safety functional areas. Inspectors' samples in this area were focused on the EDGs, HPCI, RHR, ESW, offsite power, and security equipment, but were not limited to them.

The inspectors also observed three daily IR screening meetings conducted by the SOC during the onsite weeks, and reviewed the packages for a random sample of nine SOC meetings conducted since the last inspection. During these meetings Exelon personnel reviewed new IRs for prioritization and assignment. The issues and IRs reviewed encompassed the full range of evaluations, including root cause analyses (RCA), apparent cause evaluations (ACEs), and common cause analyses (CCAs). IRs that were assigned lower levels of significance that did not include formal cause evaluations were also reviewed by the inspectors to ensure they were appropriately classified. The inspectors' review included the appropriateness of the assigned significance, the scope and depth of the causal analysis, and the timeliness of resolution. The inspectors assessed whether the evaluations identified likely causes for the issues and developed appropriate corrective actions (CAs) to address the identified causes. Further, the inspectors reviewed equipment operability determinations, reportability assessments, and extent-of-condition reviews for selected problems to verify these processes adequately addressed equipment operability, reporting of issues to the NRC, and the extent of problems. The inspectors also observed three Management Review Committee (MRC) meetings during which Exleon managers reviewed completed RCAs, as well as selected ACEs and corrective action assignments.

Effectiveness of Corrective Actions

The inspectors verified completion of CAs for a sample of IRs issued since the last NRC problem identification and resolution inspection that was performed in June 2006. The inspectors considered risk insights from the station's risk analysis and ensured that the selected IRs were appropriately distributed across the seven cornerstones of safety and the emergency preparedness, engineering, maintenance, operations, physical security, and radiation safety functional areas. Inspectors' samples in this area were focused on the EDGs, HPCI, RHR, ESW, offsite power, and security equipment, but were not limited to these areas. CAs were verified to have been completed through documentation and in some cases field walkdowns. The inspectors also reviewed a sample of corrective actions for IRs greater than two years old. The inspectors selected these items based on risk significance, and verified appropriate interim actions were in place and that the basis for not completing the specified CAs was appropriately documented and well supported.

The inspectors reviewed IRs for adverse trends and repetitive problems to determine whether CAs were effective in addressing the broader issues. The inspectors reviewed Exelon's timeliness in implementing CAs and effectiveness in precluding recurrence for significant conditions adverse to quality. The inspectors also reviewed a sample of IRs associated with selected non-cited violations, findings, and licensee event reports to verify that Exelon personnel properly evaluated and resolved these issues. In addition the corrective action review was expanded to five years to evaluate Exelon's actions related to security equipment performance, equipment obsolescence, and safety relief valve (SRV) leakage.

b. Assessment

Effectiveness of Problem Identification

Based on the samples selected, the inspectors determined that Exelon identified problems and entered them into the CAP at a low threshold. Exelon personnel at LGS initiated approximately 33,000 IRs between June 2006 and August 2008. The inspectors also determined that in most cases, but not all, Exelon appropriately documented identified problems in IRs that resulted in an evaluation and/or corrective action assignment or completion.

The inspectors identified one undocumented degraded condition. The condition identified was a degraded flood barrier; specifically, a section of caulk was missing from a floor plug above the RHR pump room on the Unit 2, reactor building, 217 ft elevation. Exelon immediately entered the condition into the CAP as IR 812412 and the inspectors verified that Exelon assigned appropriate significance and priority to the issue, and that actions were identified to restore the degraded condition. The inspectors also determined that Exelon did not have a specific preventative maintenance task to monitor the condition of this flood barrier. Exelon noted that a preventative maintenance task to perform structural inspections of the reactor building, which was completed on a six-year frequency, had previously identified floor penetrations with degraded caulk in the past, but that this was not the intent of the inspection. This was a performance deficiency

because Exelon's programs did not ensure identification of the flood barrier degradation. As a result, Exelon generated an action (IR 817889) to evaluate the need for a specific preventative maintenance task to maintain the integrity of the penetration. The inspectors determined that because the identified degree of degradation to the flood barrier did not significantly impact the function of the barrier and, as such, did not affect the operability of the safety-related equipment protected by the barrier, this performance deficiency was minor and not subject to enforcement action in accordance with the NRC's Enforcement Policy.

The inspectors verified that Exelon trended equipment and programmatic issues in order to identify emerging issues at a low level. The trending process at LGS for the period reviewed was controlled by Exelon procedure LS-AA-125-1005, "Coding and Analysis Manual," Revision 5. The inspectors concluded that, in accordance with Exelon procedures, Exelon personnel identified emerging trends at a low level and used the CAP to conduct evaluations and implement corrective actions when appropriate. The inspectors also did not identify trends or repetitive issues that Exelon had not self-identified through its trending process.

Effectiveness of Prioritization and Evaluation of Issues

The inspectors determined that, in general, Exelon appropriately prioritized and evaluated issues commensurate with the safety significance of the identified problem. IRs were screened for operability and reportability, categorized by significance, and assigned to a department for evaluation and resolution. The various IR screening and management review groups considered human performance issues, radiological safety concerns, repetitiveness, adverse trends, and potential impact on the safety conscious work environment (SCWE) during the conduct of reviews.

Items reviewed by the inspectors during the inspection were categorized for evaluation and resolution commensurate with the significance of the issues. Guidance provided by Exelon procedure LS-AA-120, "Issue Identification and Screening Process," for categorization appeared sufficient to ensure consistent implementation based on the sample of IRs reviewed by the inspectors. In general, issues were appropriately screened and prioritized commensurate with their safety significance. The inspectors noted that the focused area self assessment (FASA) performed in June 2008 in preparation for this inspection identified one deficiency related to IR prioritization, some significance level (SL) 4 IRs were inappropriately assigned a SL 5. Specifically, the FASA reviewed 100 SL 5 IRs and determined that five of the IRs reviewed should have been assigned a SL 4. IR 784044 was initiated to evaluate and correct this problem and verify extent of condition. The inspectors reviewed a sample of 15 SL 5 IRs initiated for the EDGs, ESW, HPCI and RHR systems and did not identify any that should have been SL 4. The inspectors also verified that for the SL 5 IRs identified by the FASA, there was no significant impact on site trend analysis or the adequacy of corrective actions taken.

The inspectors reviewed 4 root cause analyses, 24 apparent cause analyses, 3 common cause evaluations, and approximately 13 work group evaluations. For the evaluations reviewed, the inspectors noted that Exelon's evaluations were generally thorough and appropriately considered extent of condition, generic issues, and previous occurrences.

However, for two of the 24 apparent cause evaluations reviewed, specifically IR 516708 and IR 730424, the evaluation documentation did not meet the Exelon standard described in LS-AA-125-1003, "Apparent Cause Evaluation Manual." Specifically, the documentation did not clearly support the bases for the conclusions of the completed evaluation. This was a performance deficiency. For both of these IRs, the inspectors reviewed the corrective actions taken to address the identified issues and determined that effective corrective actions were implemented for the identified problems and, therefore, the less than adequate cause evaluation documentation for these two IRs was a minor performance deficiency and not subject to enforcement action in accordance with the NRC's Enforcement Policy. Exelon documented this deficiency in IR 828305.

Exelon procedure, LS-AA-125, "Corrective Action Program Procedure," stated that all IRs should evaluate and document any immediate extent of condition concerns in accordance with the Exelon training and reference manual, LS-AA-125-1003, "Apparent Cause Evaluation Manual." Exelon guidance defined extent of condition as the extent to which an identified condition has the potential to impact other plant equipment, organizations, or processes in the same manner identified in the IR. In reviewing the selected cause analyses the inspectors identified two examples of less than adequate extent of condition reviews for the issue identified in the IR. For the examples discussed below the inspectors determined that the extent of condition performed did not meet the standard discussed in the Exelon guidance for this area.

IR 558461 - On November 14, 2006, an LGS engineer identified that the Unit 2 RHR stress analysis modeled a portion of system piping as schedule 120 pipe, when the installed thickness, in accordance with the piping drawing, was schedule 80. The engineer documented that the condition was likely caused by contractor oversight during completion of the original stress analysis, but, in response to the issue, the Exelon extent of condition review was limited to three similar piping sections in the remaining RHR loops. The inspectors determined, based on a review of the available documentation, that because the cause of the issue was identified as contractor oversight during completion of the initial stress analysis, the extent of condition review should have considered a more widespread sample of stress analyses performed by the contractor. This was a performance deficiency. Based on the inspectors' observations, Exelon extended its review to other susceptible piping sections of the RHR and core spray systems (IR 558461 task 6). This expanded the extent of condition review from three piping sections to an additional 29 piping sections and did not identify any additional concerns. Because no additional concerns were identified through the expanded extent of condition review, the inspectors determined that this performance deficiency was of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy.

IR 587932 - This IR described a condition in which Exelon identified foreign material • in the 12 EDG crankcase manometer. The IR stated that the foreign material appeared to be "rust-colored scaling," and that the condition did not affect the operability of the 12 EDG because: based on the results of recent testing, the foreign material did not affect the capability of the EDG to start and load, and with the EDG fully loaded the manometer indicated as expected despite the presence of the foreign material. However, the IR did not address the potential causes of the foreign material in the manometer or the extent of condition for the other seven EDGs. The inspector noted during walkdowns that the other EDGs also had the same condition. Exelon wrote 14 additional IRs (listed in Attachment) to address each occurrence of foreign material in the EDG manometers and the system manager initiated AR A1602909-01 to determine the source of the foreign material. The inspectors determined that the inadequate extent of condition relative to the foreign material identified in the 12 EDG manometer was a performance deficiency. However, because, as explained above, the foreign material did not affect the operability of the EDG and each of the manometers were scheduled to be cleaned out during the next applicable EDG maintenance overhaul, the inspectors determined that the deficiency was of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy.

Exelon procedure LS-AA-120, "Issue Identification and Screening Process" stated that the operating shift must determine whether the reported deficiency affected the operability of the system and document the basis for the determination. In addition in cases where additional information was necessary to support the basis for operability, an action must be assigned to complete the evaluation. For each of the IR cause analyses reviewed, the inspectors looked at the completed operability and reportability screenings and determined that in general these screenings were appropriately performed. However, for two of the IRs reviewed, the inspectors identified the following observations with respect to the adequacy of the documented operability evaluation that was completed.

- IR 812412 The inspectors identified a gap in the caulking for a floor plug on the Unit 2 reactor building 217 ft elevation. The initial operability evaluation for this issue stated that the degraded caulk barrier was not required by design or analysis and no operability evaluation action was assigned. The inspectors questioned the conclusion of the initial operability call, and after additional evaluation, Exelon determined that the caulk was required by design. The inspectors determined that the inaccurate basis for the initial operability call was a performance deficiency and Exelon generated IR 816051 to document the deficiency. Because the overall conclusion of the operability evaluation did not change - the identified degree of degradation to the flood barrier did not significantly impact the function of the barrier - the inspectors considered this performance deficiency minor and not subject to enforcement action in accordance with the NRC's Enforcement Policy.
- IR 761066 This IR identified that the pilot temperature for the 1C SRV was lower than normal. The operability evaluation stated, in part, "pilot valve leakage, if present, will not prevent mitigation of over-pressurization of the reactor coolant system that could lead to failure of the RCPB. The 1C SRV will still function to open

to relieve RPV pressure to the suppression pool if RPV pressure rises to the 1C SRV lift set point of 1190 psig." Operating experience reviewed by the inspectors stated that lower pilot temperature could indicate a pilot leak, internal or external to the valve, and that external leakage from the pilot bellows was a concern because it can lower the SRV set point and cause a premature SRV lift. Exelon's operability evaluation documentation did not evaluate the potential that the lower pilot temperature could indicate leakage from the pilot bellows. The inspectors requested additional information related to this issue and determined, based on available indications, specifically tail pipe temperature and drywell leakage, that any pilot valve bellows leakage, if actually present, was not high enough to affect the SRV lift set point, and therefore, the 1C SRV was operable. In addition after the leakage was identified, Exelon had implemented an adverse condition monitoring plan to monitor for continued degradation of the 1C SRV. The inspectors determined that the inadequate operability evaluation documentation for the 1C SRV pilot temperature was a performance deficiency; however, because engineering ultimately determined that the SRV remained operable, the inspectors also determined that the deficiency was of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy. Exelon documented this deficiency in IR 828359.

Effectiveness of Corrective Actions

The inspectors concluded that corrective actions for identified deficiencies were typically timely and adequately implemented. The inspectors also concluded that Exelon performed in-depth effectiveness reviews for significant issues to verify that implemented CAs were effective. However, the inspectors' review of the IR disposition documentation and verification of CA implementation through a review of work orders and discussions with personnel involved identified the following observations regarding CA timeliness.

IR 249232 - In September 2004 engineers identified the potential for column separation and subsequent water hammer in the safequard piping fill system. Specifically, the IR identified that a water hammer event could result on a subsequent pump start if column separation occurred in the piping section between the safequards piping fill pump and the feedwater check valves. Engineering completed a preliminary evaluation of the effects of a potential water hammer event that assumed column separation occurred. The evaluation determined that no significant damage would occur. As a result, Engineering was assigned a CA to perform a detailed analysis of the piping and to incorporate the results into the safeguard piping fill system's design basis. The original due date for this corrective action was November 3, 2004. Four years later in 2008, due to manpower and coordination issues, engineering finally determined that a hydraulic transient analysis would not be performed because it would require field testing to validate the analysis assumptions. As a result, Engineering recommended revising system test procedures to monitor the safeguard piping fill system for column separation. Therefore, as of September 2008, approximately four years after identifying a concern that had the potential to impact the operability of the safety-related piping fill system, corrective actions were not completed. The inspectors determined, based on a review of the available documentation and discussions with the responsible engineer that the corrective actions for this issue were not timely. This was a

performance deficiency. The inspectors concluded that this performance deficiency was minor and not subject to enforcement action in accordance with the NRC's Enforcement Policy because the results of the preliminary calculation indicated that any water hammer that resulted if column separation occurred would not damage the system piping and because the results of system surveillance testing to date, which started the pump on a quarterly basis, did not document any water hammer events. Exelon documented this deficiency in IR 828734.

- IR 425826 On November 21, 2005, operations identified a 30 drop per minute leak on the inlet drain for the 1A RHR pump room unit cooler. The IR documented an operability evaluation and determined that the unit cooler remained operable as long as piping leakage remained below one gallon per minute. An action request was generated to repair the leaking pipe and Exelon originally scheduled the repair for mid-2006. The inspectors determined that Exelon did not complete the repair in accordance with the original schedule due to resource concerns and that the repair was now scheduled for mid-2009. However, the inspectors also determined that even given the potential for the piping leakage to increase and exceed the systems operability requirements, Exelon did not update the operability evaluation and no formal monitoring plan was put in place to ensure that the repairs were made before the RHR pump room unit cooler became inoperable. The inspectors determined that rescheduling completion of the specified maintenance without appropriate evaluation could have resulted in untimely corrective actions. This was a performance deficiency. The inspectors determined based on a review of the available documentation and discussions with the responsible engineer that this issue was minor and not subject to enforcement action in accordance with the NRC's Enforcement Policy because the system engineer was aware of the issue, was monitoring the degradation during system testing, and observations to date indicated that the piping leakage had not changed significantly indicating that the RHR pump room unit cooler remained operable. Exelon documented this deficiency in IR 820039.
- c. Findings
- (1) <u>Introduction</u>. The inspectors identified a Green finding for Exelon's failure to complete the testing described in the Updated Final Safety Analysis Report (UFSAR) for one of the third stage feedwater heater bleeder trip valves. Not testing this valve in accordance with the statements in the UFSAR adversely impacted the assumptions in LGS's turbine missile probability analysis thereby potentially increasing the probability for damage to safety-related plant equipment caused by the release of high-energy turbine components.

<u>Description</u>. The feedwater heater bleeder trip valves close following a turbine trip to isolate extraction steam lines to the feedwater heaters. This prevents the backflow of steam from the feedwater heaters to the turbine following a turbine trip and minimizes the potential for a turbine overspeed event that could result in turbine missiles. The licensing basis for LGS maintains the probability for damage to safety-related plant equipment caused by turbine missiles to less than 1×10^{-5} in accordance with NRC requirements.

The results of the missile probability analysis, as described in the LGS UFSAR, define the turbine missile probability at LGS. The frequency of turbine overspeed protection system testing is one of many inputs to this analysis. Section 10.2.3.6 of the UFSAR states, in part, that "the turbine overspeed protection system will be routinely tested in conformance with the assumptions of the missile probability analysis, as follows: the power-assisted extraction check valves (bleeder trip valves) will be routinely exercised to ensure full freedom of motion at a frequency of once per week. Testing will be performed to verify that each valve is capable of being actuated by its power cylinder."

Following the completion of work on bleeder trip valve XV-002-108B during the March 2008 Unit 1 refueling outage, Limerick performed post-maintenance testing. This valve failed its post-maintenance test due to a suspected limit switch/valve position indication issue. Test procedure RT-6-002-761-1, "Extraction Steam Bleeder Trip Valve Exercising," allowed any of the bleeder trip valves to be considered "not available for testing" if the valve could not be tested in accordance with the procedure. As a result, because of the suspected limit switch/valve position indication issue, Exelon considered bleeder trip valve XV-002-108B "not available for testing" and marked the applicable steps "N/A."

In May 2008, Engineering created IR 772753 that documented that the practice of not testing the bleeder trip valve due to suspected limit switch/valve position indication issues was contrary to the UFSAR statements regarding overspeed protection system testing. The IR recommended that the associated test procedure be changed to ensure that testing in accordance with the UFSAR was performed. Exelon closed the IR without creating any assignments or taking action to evaluate the condition. The only action assigned by IR 772753 was troubleshooting the suspected position indication equipment deficiency, which was tracked by AR A1658231. As a result, contrary to the turbine overspeed protection system testing described in the UFSAR, between April and September 2008, Exelon did not complete testing of bleeder trip valve XV-002-108B, and did not evaluate the impact of not performing this testing or implement compensatory actions to mitigate any potential increase in overall plant risk.

The inspectors determined that not completing the weekly testing described in UFSAR Section 10.2.3.6 for bleeder trip valve XV-002-108B between April and September 2008 was a performance deficiency. It was reasonable for Exelon to foresee and correct this condition because, even though the test procedure allowed the steps to be N/A'd, the UFSAR clearly stated that the testing was necessary to support the assumptions of the missile probability analysis and Exelon did not evaluate the impact that the lack of testing could have on plant safety. Exelon entered this issue into the corrective action program under IRs 772753, 812344, 817399, and 817443, and as of August 28, 2008, started testing bleeder trip valve XV-002-108B at the frequency stated in the UFSAR by using a camera to monitor valve position locally.

<u>Analysis</u>. The inspectors determined that this finding was greater than minor because it was associated with the equipment performance 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. Not testing the bleeder trip valves in accordance with the statements in the LGS UFSAR adversely impacted the assumptions in LGS's

turbine missile probability analysis thereby potentially increasing the probability for damage to safety-related plant equipment caused by the release of high-energy turbine components. The inspectors evaluated this finding using Inspection Manual Chapter (IMC) 0609, Attachment 4, "Initial Screening and Characterization of Findings." This finding was determined to be of very low safety significance because it is not a design or qualification deficiency, a loss of safety system function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or a total loss of any safety function that contributes to external event-initiated core damage sequences.

The inspectors also determined that this issue had a problem identification and resolution cross-cutting aspect in the corrective action area because LGS did not thoroughly evaluate the potential impact of an identified problem on the operability of safety-related equipment. Specifically, Exelon did not evaluate the impact that deferred bleeder trip valve testing may have had on the probability that the operability of safety-related equipment could have been impacted by turbine missiles. (P.1(c))

<u>Enforcement</u>. No violation of regulatory requirements occurred. However, not completing the specified testing on the bleeder trip valves was considered a finding and was entered into the corrective action program under IR 812344. (FIN 05000352/2008009-01, Failure to Perform Bleeder Trip Valve Testing)

.2 Assessment of the Use of OE

a. <u>Inspection Scope</u>

The inspectors selected a sample of industry OE issues to confirm that Exelon evaluated the OE information for applicability to LGS and took appropriate actions when warranted. The inspectors reviewed OE documents to verify that Exelon appropriately considered the underlying problems associated with the issues for resolution via their CAP. The inspectors also observed plant activities to determine if industry OE was considered during the performance of routine and infrequently performed activities. A list of the documents reviewed is included in the Attachment.

b. Assessment

The inspectors determined that Exelon appropriately considered industry OE information for applicability, and used the information for corrective and preventive actions to identify and prevent similar issues. The inspectors assessed that, in general, OE was appropriately applied and lessons learned were communicated and incorporated into plant operations. However, the inspectors identified two instances where actions developed through the review of OE had repetitive deferrals and had not been implemented or evaluated for revision or re-disposition.

 IR 533514 – Exelon wrote this IR in September 2006 to document OE from Peach Bottom. Specifically, at Peach Bottom in 2003, undetected pin-hole leaks in a safety-related motor oil cooler caused cooling water to leak into the affected pumps lubricating oil system. The issue remained undetected at Peach Bottom until the pin hole leaks resulted in oil with 75% water content. The issue was identified during a

semi-annual oil sample and Peach Bottom declared the pump inoperable. The purpose of the 2006 LGS IR was to schedule replacement of the 1A RHR pump motor cooler during 1R12. This conclusion was based on an engineering evaluation that determined that the 1A RHR pump at LGS was most susceptible to the failure mode experienced at Peach Bottom. The issue was prioritized as a 4D and closed to the AR that scheduled the work for the next outage, 1R12. Later, as a result of planning and scheduling, the work was removed from 1R12 and scheduled to be performed online in 2008. Currently the pump motor cooler replacement is scheduled for 1R13. The basis for this move was that the identified corrective action was a proactive replacement and was not required to correct an identified issue with the 1A RHR pump motor cooler. Due to the similarities between the motor cooler configuration at Peach Bottom and LGS, the age of the pumps at Unit 1 when compared to the pumps at Peach Bottom, the fact that eddy current testing of the pumps could not be performed, and the risk significance of the RHR pumps at LGS, the inspectors questioned the lack of a documented basis for rescheduling this work to ensure that the coolers remained fully operable. The inspectors concluded that this could have resulted in untimely corrective action and was a performance deficiency. Exelon documented this deficiency in IR 818566 and performed an evaluation that determined that it was not necessary to change the scheduled replacement date. As a result the inspectors concluded that this performance deficiency was minor and not subject to enforcement action in accordance with the NRC's Enforcement Policy because the resulting engineering evaluation was thorough and established a supportable basis for rescheduling the motor replacement until 1R13.

- IR 149431 This IR was initiated in 2003 in response to a 1999 feedwater heater shell rupture at Point Beach Unit 1. Exelon's evaluation of this OE determined that inspections of certain feedwater heaters at both LGS units were necessary. Inspections at Unit 1 were completed and identified no significant issues. The inspections of the associated feedwater heaters at Unit 2 were originally scheduled to be completed in 2005 during 2R08, however, as of September 2008, five years after the original corrective action was assigned, two of the heaters originally identified for inspection were still not inspected. In addition, in one case the documentation that justified extension of the inspections, specifically related to the second stage heaters at Unit 2, was not complete. The inspectors determined that implementation of corrective actions related to this issue was not timely and was a performance deficiency. This performance deficiency was of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy because, based on the available documentation and discussions with the responsible system engineers, the feedwater heater shells were expected to maintain integrity through the next Unit 2 refueling outage, where the inspections and replacement were scheduled to occur. Exelon documented this deficiency in IR 820039.
- c. Findings

No findings of significance were identified.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors reviewed a sample of audits, including the most recent audit of the CAP, departmental self-assessments, and assessments performed by independent organizations. These reviews were performed to determine if problems identified through these assessments were entered into the CAP, when appropriate, and whether CAs were initiated to address identified deficiencies. The effectiveness of the audits and assessments was evaluated by comparing audit and assessment results against self-revealing and NRC-identified observations made during the inspection. A list of documents reviewed is included in the Attachment to this report.

b. Assessment

The inspectors concluded that self-assessments, audits, and other internal Exelon assessments were generally critical, probing, thorough, and effective in identifying issues. The inspectors observed that these audits and self-assessments were completed in a methodical manner by personnel knowledgeable in the subject. The audits and self-assessments were completed to a sufficient depth to identify issues that were entered into the CAP for evaluation. In general, corrective actions associated with the identified issues were implemented commensurate with their safety significance.

c. Findings

No findings of significance were identified.

- 4. Assessment of Safety Conscious Work Environment
- a. <u>Inspection Scope</u>

The inspectors reviewed the SCWE at LGS through conduct of the following activities.

- During interviews with staff personnel, the inspector's questioned individuals regarding: willingness to raise safety concerns, knowledge of the avenues available for raising safety concerns, the effectiveness of actions taken by management to foster a SCWE at the site, and knowledge of individuals who had experienced a negative reaction for raising a safety concern.
- The inspectors reviewed implementation of the site employee concerns program (ECP). The inspectors compared the number and type of issues documented in the LGS ECP between June 2006 to July 2008 to the number and type of issues documented as LGS NRC allegations for that same period. The inspectors reviewed the site procedure for conducting ECP investigations and reviewed a sample of ECP files to assess the program's effectiveness at addressing potential safety issues.
- The inspectors reviewed the results of site nuclear safety culture surveys performed in 2006 and 2008, and a vendor survey conducted in the site security organization in April 2008.

b. Assessment

Based on interviews, observations of plant activities, and reviews of the CAP and the ECP, the inspectors determined that in general site personnel were willing to identify and raise safety issues. All persons interviewed demonstrated an adequate knowledge of the avenues available for raising safety concerns including CAP and ECP. In addition, comparisons of LGS ECP files to NRC allegation information did not identify any impediments to the free flow of information at LGS.

The inspectors determined that the results of the nuclear safety culture surveys conducted in 2006 and 2008 provided Exelon insights into the safety culture of the site workforce. Based upon the results of these surveys, Exelon determined that overall LGS was generally aligned with the principles of a strong nuclear safety culture.

The inspectors reviewed the results of the department specific vendor survey of the SCWE in the LGS security organization. The results of this survey appeared consistent with the results of the 2006 and 2008 site-wide surveys conducted by Exelon. The inspectors noted that Exelon had just received the survey results and had not yet completed their evaluation of the data as provided by the vendor.

c. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On September 12, 2008, the inspectors presented the inspection results to Mr. C. Mudrick, Site Vice President, and other members of the LGS staff. The inspectors confirmed that proprietary information was reviewed by inspectors and returned to the licensee during the course of the inspection, but the content of this report includes no proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

A-1

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

C. Mudrick, Site Vice President

- E. Callan, Plant Manager
- D. DiCello, Manager, Radiation Protection
- R. Dickinson, Director, Engineering
- P. Gardner, Director, Operations
- R. Kreider, Manager, Regulatory Assurance
- M. Jesse, Manager, Nuclear Oversight
- S. Bobyock, Manager, Plant Engineering
- K. Pederson, Corporate Employee Concerns Program
- M. Klick, Regulatory Assurance, Site CAPCO
- D. Hamilton, Senior Manager, Design Engineering
- D. Doran, Senior Manager, System Engineering
- C. Rich, Director, Training
- C. Gerdes, Director, Security
- P. Colgan, Director, Maintenance
- T. Moore, Director, Work Management

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000352/2008009-01

FIN

Failure to Complete Bleeder Trip Valve Testing (Section 4OA2.1.c.(1))

LIST OF DOCUMENTS REVIEWED

Section 4OA2: Identification and Resolution of Problems

Audits and Self-Assessments SA Emergency Preparedness Program, 5/4/2007 (IR 567527) SA Procedure Adherence & Place Keeping (IR 567593) SA Preparation for NRC Problem Identification and Resolution (PI&R) Inspection (IR 640849) SA Operations Technical Human Performance, 6/20/2008 NOSA-LIM-06-09, Fire Protection Program Audit Report, 8/31/2006 NOSA-LIM-07-01, Corrective Action Program Audit Report, 5/2/2007 NOSA-LIM-07-04, EP Audit, 5/16/2007 NOSA-LIM-08-01, Maintenance Audit Report, 2/6/2008

Attachment

Issue Reports	(IR) full review			
IR 605345	IR 587941	IR 755047	IR 472046	IR 636406
IR 149477	IR 600245	IR 756914	IR 431824	IR 657596
IR 455225	IR 602042	IR 758198	IR 609796	IR 659050
IR 429351	IR 609626	IR 761066	IR 060952	IR 661700
IR 296683	IR 618558	IR 762557	IR 181364	IR 664901
IR 284373	IR 620861	IR 768704	IR 294809	IR 670938
IR 340588	IR 621597	IR 769756	IR 458143	IR 676359
IR 652359	IR 622053	IR 772753	IR 496764	IR 678340
IR 611886	IR 624632	IR 774394	IR 500109	IR 733959
IR 661734	IR 629025	IR 780146	IR 502283	IR 744213
IR 567593	IR 631789	IR 785124	IR 516708	IR 744446
IR 605424	IR 661000	IR 785407	IR 518734	IR 744719
IR 605424	IR 663870	IR 785461	IR 523015	IR 746237
IR 605529	IR 664060	IR 792483	IR 523723	IR 746343
IR 351014	IR 679045	IR 798279	IR 523637	IR 746691
IR 656185	IR 712348	IR 803086	IR 533514	IR 747049
IR 198618	IR 713476	IR 806972	IR 534749	IR 749237
IR 192216	IR 715332	IR 811851	IR 535967	IR 751686
IR 359693	IR 717267	IR 294809	IR 547835	IR 754943
IR 296626	IR 729702	IR 762607	IR 558461	IR 774127
IR 302786	IR 729705	IR 425826	IR 567527	IR 787475
IR 317437	IR 729716	IR 605938	IR 576100	IR 787788
IR 377693	IR 729717	IR 516708	IR 586165	IR 788442
IR 471520	IR 729720	IR 605345	IR 588053	IR 788478
IR 484641	IR 730027	IR 141513	IR 601360	IR 788507
IR 531226	IR 734487	IR 249232	IR 605765	IR 788603
IR 564039	IR 738565	IR 149431	IR 605894	IR 788629
IR 568904	IR 748276	IR 215705	IR 610156	IR 810527
IR 587932	IR 749085	IR 313440	IR 620856	

NRC-Identified IRs for Inspection

IR 812344, Premature auto-closure of IR 772753 for Unit 1 bleeder trip valve testing

- IR 812412, Floor plug east of door 290 on Unit 2 217 is missing caulk
- IR 814296, Less than adequate documentation of work performed for troubleshooting an MOV that failed to stroke
- IR 817889, Floor plug caulking east of door 290 PM evaluation
- IR 558461, Assignment no. 06, Expanded extent of condition review for RHR testable check valve piping
- IR 812476, D22 manometer appears to have scale deposit in u-tube
- IR 812481, D22 manometer appears to have scale deposit in u-tube
- IR 812487, D21 manometer appears to have scale deposit in u-tube
- IR 812490, D21 manometer appears to have scale deposit in u-tube
- IR 812492, D23 manometer appears to have scale deposit in u-tube
- IR 812493, D23 manometer appears to have scale deposit in u-tube
- IR 812496, D24 manometer appears to have scale deposit in u-tube
- IR 812497, D24 manometer appears to have scale deposit in u-tube

IR 812630, D11 manometer appears to have scale deposit in u-tube

- IR 812632, D11 manometer appears to have scale deposit in u-tube
- IR 812633, D13 manometer appears to have scale deposit in u-tube
- IR 812636, D13 manometer appears to have scale deposit in u-tube
- IR 812637, D14 manometer appears to have scale deposit in u-tube
- IR 812638, D14 manometer appears to have scale deposit in u-tube
- IR 816051, NRC identified operability determination deficiency related to flood control penetration
- IR 828359, Inadequate documentation for SRV operability evaluation
- IR 820039, Inadequate documentation of corrective action disposition for the following issues: feedwater heater inspections (IR), EDG cooling water relief valve leakage (IR), RHR room cooler threaded connection leak (IR).
- IR 828734, Corrective action timeliness for safeguard fill piping

IRs partial review

IR 379094	IR 676847	IR 771472	IR 249830	IR 599504
IR 379101	IR 694624	IR 772651	IR 794811	IR 527197
IR 380270	IR 699453	IR 778486	IR 703489	IR 481557
IR 380278	IR 721692	IR 779310	IR 484101	IR 151159
IR 518734	IR 722147	IR 782539	IR 433905	IR 174208
IR 536469	IR 726238	IR 787016	IR 494296	IR 605438
IR 563802	IR 739295	IR 787021	IR 454403	IR 605563
IR 578236	IR 741677	IR 792689	IR 450912	IR 605494
IR 605938	IR 751515	IR 793093	IR 370575	IR 605536
IR 616032	IR 759220	IR 797853	IR 340782	IR 472049
IR 646126	IR 760111	IR 798720	IR 208270	
IR 651655	IR 762557	IR 807278	IR 466345	
IR 654021	IR 763498	IR 807294	IR 162780	
IR 664291	IR 763950	IR 807302	IR 753856	
Action Requests	<u> </u>			
A1285538	A1610221	A1658808	A1511898	A1637662
A1511180	A1612165	A1659888	A1542979	A1637812
A1564719	A1613817	A1660113	A1547697	A1637813
A1583839	A1616309	A1670034	A1216839	A1637814
A1586000	A1638022	A1670042	A0383800	
A1594856	A1643402	A1673861	A1608385	
A1594881	A1651639	A1608315	A1610225	
A1602909	A1655757	A1541039	A1620668	

<u>Drawings</u>

Drawing C-607, Project Civil Standards Hatch & Plug Details, Revision 28 Drawing C-788, Reactor Building Hatch Plugs Units 1 & 2, Revision 8

Miscellaneous

E-mail correspondence between Russ Green and Brain Tracy titled "Sludge Sample Results", last dated 04/02/2008

Vital Area Door Failure Trending, last dated 9/2008

Limerick's Operating Narrative Logs, dated 03/03/2008 - 03/04/2008

Limerick's Chemistry Daily Logs, dated 03/03/2008 - 03/04/2008 LGS PORC Meeting Minutes, dated 02/16/2007 NSRB Memorandum, Limerick Generating Station Actions to Address Nuclear Safety Review Board Meeting, April 12-13, 2007 Executive Summary comments, dated 07/13/2007 Maintenance Rule Expert Panel Meeting Minutes, dated 06/17/08 NSRB Memorandum, Limerick Nuclear Safety Review Board Meeting, dated, 07/19/2008 MRC Review Meeting Minutes, dated 08/26/2008 ESW System Health Overview Report, dated 03/2008 Security System Overview Health Report, dated 08/06/2008 Security System Overview Health Report, dated 03/2008 Security System Health Report, dated 08/25/2008 SOC Meeting Minutes, dated 3/18/2007 Adverse Condition Monitoring and Contingency Plan: 1C SRV Temperature Adverse Condition Monitoring and Contingency Plan: 1F SRV Tailpipe Leakage Monitoring Plan Adverse Condition Monitoring and Contingency Plan: Unit 2A SRV Temperature D11 and D21 EDG Crankcase Pressures from 2006 through 2008 Exelon Nuclear Limerick Generating Station Recordable Event Summary, Second Quarter 2008 Letter from C. Mudrick to D. Eisenhut, Limerick Generating Station Actions to Address Nuclear Safety Review Board Meeting, February 7-8, 2008, dated 05/29/2008 Limerick Generating Station PORC Meeting Minutes, dated 05/09/2008 Limerick Plan of the Day Meeting Agenda, dated 08/26/2008 Limerick Station Ownership Committee Agenda, dated 03/30/2007 Limerick Station Ownership Committee Agenda, dated 05/14/2008 Limerick Station Ownership Committee Agenda, dated 06/18/2008 Limerick Station Ownership Committee Agenda, dated 07/15/2008 Maintenance Rule Expert Panel Meeting Minutes, dated 07/15/2008 Management Review Committee Agenda, dated 08/26/2008 Radiation Protection Log, dated 04/24/2008 Troubleshooting, Rework, and Testing Control Form 08-136 Unit 1 and Unit 2 SRV As-Found Setpoint Data for 2007 and 2008 Limerick Generating Station Excellence Plan, Revision 08/19/08 EQR2 Quarterly Data Review and Trending For Limerick, 1st Quarter 2008 EQR2 Quarterly Data Review and Trending For Limerick, 1st Quarter 2007 Proactive Maintenance Assessment for Limerick, 1st Quarter 2008 Proactive Maintenance Assessment for Limerick, 1st Quarter 2007 LGS Performance Trending 2nd Quarter 2008, 07/30/08 25-LA-0005, Supresta Technical Service Report, Version 2-940125, dated 8/6/2008 ECR 96-04176, 2R04 Modification to Mounting of PS-001-202A, status date 2/10/97 EQR2 Quarterly Data Review and Trending for Limerick, 4th Quarter 2007 Report Issue I0008758, EHC Tubing Failure / MCR Reduced Pwr to 18%, Tripped Turbine, last updated 01/16/2001 Limerick Generation Station 2008 Training Drill Series Evaluation Report Limerick Generating Station Actions to Address NSRB Meeting of October 11-12, 2007, memorandum dated 1/26/2008

Limerick Generating Station PORC Meeting Minutes, dated 10/19/2007 Limerick Plan of the Day package for 8/27/2008

Attachment

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Limerick's Archival Daily Logs, dated 3/18/2008

Limerick's Archival Operations LCO Logs, dated 3/18/2008

Limerick's Archival Operations Narative Logs, dated 3/20/2008

Maintenance Rule Expert Panel Meeting Minutes for 5/27/2008

Maintenance Rule Expert Panel Meeting Minutes for 5/30/2008

MRC Meeting package for 8/27/2008

NOSA-LIM-06-09, Fire Protection Program Audit Report, 8/31/2006 Limerick Station Oversight Committee (SOC) package for 3/23/2007 Limerick Station Oversight Committee (SOC) package for 8/26/2008

Non-Cited Violations

LER 05000353/2007-003, Automatic Actuation of Reactor Protection System at Power, dated 4/24/2007

LER 05000353/2008-001, Valid Actuation of the D23 Emergency Diesel Generator Bus Undervoltage Logic, dated 01/12/2008

- LER 05000353/2007-001, Scram Discharge Volume Vent and Drain Valves Opened due to Fuse Removal, dated 3/10/2007
- NCV 05000352;353/2007006-01, Inadequate Fire Safe Shutdown Procedure for Securing HPCI (IR 656185)

NCV 05000352;353/2007007-01, Required Voltage for Load Tap Changer Motor (IR 688135) NCV 05000352;353/2006006-01, Failure to Implement Effective Procedure Changes (IR 502283)

Operating Experience

GE Services Information Letter (SIL) 420, Vibration Failures of Recirc Sensing Lines, Rev 1 NRC Information Notice 2008-05, Fires Involving Emergency Diesel Generator Exhaust Manifolds GE SIL 657, Standby Liquid Control System Accumulator Bladder NRC Information Notice 2007-36, EDG Voltage Regulator Problems (IR 703489)

Procedures

LS-AA-120, Issue Identification and Screening Process, Revision 8

LS-AA-125, Corrective Action Program Procedure, Revision 11

LS-AA-125-1003, Apparent Cause Evaluation Manual, Revision 7

LS-AA-125-1004, Effectiveness Review Manual, Revision 3

LS-AA-125-1005, Coding and Analysis Manual, Revision 5

OP-AA-300-1540, Reactivity Management Administration, Revision 4

EI-AA-101-1002, Employee Concerns Program Trending and Reporting Tools, Revision 5

EI-AA-101-1001, Employee Concerns Program Process

LS-AA-1012, Safety Culture Monitoring

ST-6-052-760-1, Safeguard Piping Fill Quarterly Valve Test

ST-6-052-760-2, Safeguard Piping Fill Quarterly Valve Test

MA-MA-716-010-1002, Equipment Deficiency Tag Initiation and Processing, Revision 4 OP-AA-108-115, Operability Determinations, Revision 6

ST-2-051-103-2, Div III RHR (LPCI) LSF/SAA – Outage, Revision 4, completed 3/14/2007

ST-6-051-205-2, B Loop RHR Cold Shutdown Valve Test, Revision 21, completed 3/29/07

ST-6-051-232-2, B RHR Pump, Valve and Flow Test, Revision 55, completed 2/26/08

ST-6-055-200-1, HPCI Valve Test, Revision 56, completed 3/17/2006

ST-6-055-205-2, HPCI Cold Shutdown Valve Test, Revision 19, completed 3/19/2007

ST-6-055-230-2, HPCI Pump, Valve and Flow Test, Revision 65, completed 6/17/2008

Attachment

Completed Surveillances

- RT-6-002-761-1, Extraction Steam Bleeder Trip Valve Exercising, Revision 18, completed 08/09/2008
- RT-6-002-761-1, Extraction Steam Bleeder Trip Valve Exercising, Revision 17, completed 01/25/2008
- RT-6-002-761-1, Extraction Steam Bleeder Trip Valve Exercising, Revision 17, completed 01/11/2008
- RT-6-002-761-1, Extraction Steam Bleeder Trip Valve Exercising, Revision 17, completed 01/05/2008
- RT-6-002-761-1, Extraction Steam Bleeder Trip Valve Exercising, Revision 18, completed 08/29/2008
- RT-6-002-761-2, Extraction Steam Bleeder Trip Valve Exercising, Revision 11, completed 12/22/2006
- ST-2-092-321-2, 4KV Emergency D21 Bus Undervoltage Channel/Functional Test, Revision 23, completed 07/23/2008
- ST-4-092-914-1, 14 Diesel Generator 24-Month Inspection, Revision 10, completed 06/30/2008
- ST-6-092-116-2, D22 Diesel Generator 4KV SFGD Loss of Power LSF/SAA and Outage Testing, Revision 12, completed 03/29/2007
- ST-6-092-118-1, D14 Diesel Generator 4KV SFGD Loss of Power LSF/SAA and Outage Testing, Revision 9, completed 03/11/2008
- ST-6-092-313-2, D23 Diesel Generator Slow Start Operability Test Run, Revision 62, completed 02/27/2008
- ST-6-092-318-1, D14 Diesel Generator Fast Start Operability Test Run, Revision 37, completed 05/19/2008
- ST-6-092-322-2, D22 Diesel Generator LOCA/Load Reject Testing and Fast Start Operability Test Run, Revision 10, completed 01/02/2008
- SI-311, Security System Equipment Operational Test of X-Ray Machines, Metal and Explosive Detectors, Revision 13, completed 08/17/2008
- SI-352, Security Equipment Inspection, Revision 5, completed 06/17/2008
- SI-350, Security Key Inventory, Revision 5, completed 05/12/2008
- SI-931, Security System Equipment Operational Test of X-Ray Machines, Metal and Explosive Detectors, Revision 10, completed 08/27/2008
- ST-6-011-363-2, D23 DG ESW IST Valve Indicator Verification Test, Revision 7, completed 1/10/2008
- ST-6-011-461-0, A Loop ESW Lineup Verification, Revision 43, completed 07/25/2008
- ST-6-011-232-0, B Loop ESW Pump Valve & Flow Test, Revision 65, completed 3/16/2008
- ST-6-011-206-2, B Loop ESW Valve Test, Revision 24, completed 04/26/2008
- ST-2-051-103-2, Div III RHR (LPCI) LSF/SAA Outage, Revision 4, completed 3/14/2007
- ST-6-051-205-2, B Loop RHR Cold Shutdown Valve Test, Revision 21, completed 3/29/07
- ST-6-051-232-2, B RHR Pump, Valve and Flow Test, Revision 55, completed 2/26/08
- ST-6-055-200-1, HPCI Valve Test, Revision 56, completed 3/17/2006
- ST-6-055-205-2, HPCI Cold Shutdown Valve Test, Revision 19, completed 3/19/2007
- ST-6-055-230-2, HPCI Pump, Valve and Flow Test, Revision 65, completed 6/17/2008

Work Orders (WO)			
WO R0997860	WO C0220204	WO C0225246	WO C0220995
WO R1077469	WO C0222717	WO M1643002	WO C0221343
WO R1067968	WO C0220919	WO R1024458	WO M1574969
WO C0221117	WO C0223289	WO R1104562	WO R0874361
WO R1073694	WO C0223290	WO C0218102	WO R1030525
WO R0728465	WO C0223773	WO C0220689	WO R1040174
			WO R1030525

LIST OF ACRONYMS

ACE	apparent cause evaluation
ADAMS	Agency-wide Documents Access and Management System
AR	action request
CA	corrective action
CAP	corrective action program
CAQ	condition adverse to quality
CCAs	common cause analyses
CFR	Code of Federal Regulations
ECP	employee concerns program
EDG	emergency diesel generator
EDT	equipment deficiency tag
ESW	emergency service water
EQR2	equipment readiness and reliability
FASA	focused area self assessment
FMS	fundamentals management system
HPCI	high pressure coolant injection
IMC	Inspection Manual Chapter
IR	issue report
LGS	Limerick Generating Station
MRC	management review committee
NCV	non-cited violation
NDE	Nondestructive Examination
NRC	Nuclear Regulatory Commission
NSRB	nuclear safety review board
OE	operating experience
PAM	proactive maintenance
PARS	publicly available records system
POD	plan of the day
PORC	plant operations review committee
RCA	root cause analysis
RHR	residual heat removal
SCWE	safety conscious work environment
SDP	significance determination process
SL	significance level
SOC	station ownership committee
SRV	satety relief valve
UFSAR	Updated Final Safety Analysis Report
WR	work request