



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

November 13, 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 - NRC INTEGRATED INSPECTION
REPORT 05000352/2008004 AND 05000353/2008004**

Dear Mr. Pardee:

On September 30, 2008, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your Limerick Generating Station Units 1 and 2. The enclosed integrated inspection report documents the inspection results which were discussed on October 2, 2008, with Mr. C. Mudrick and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding of very low safety significance (Green). The finding was determined to involve a violation of an NRC requirement. However, because of the very low safety significance and because it is entered into your corrective action program (CAP), the NRC is treating the finding as a non-cited violation (NCV), consistent with Section VI.A.1. of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administration, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-001; and the NRC Resident Inspector at the Limerick facility.

In accordance with 10 CFR 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

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Sincerely,

/RA/

Paul G. Krohn, Chief
Projects Branch 4
Division of Reactor Projects

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

Enclosure: Inspection Report 05000352/2008004 and 05000353/2008004
w/Attachment: Supplemental Information

cc w/encl:

C. Crane, President and Chief Operating Officer, Exelon Generation
M. Pacilio, Chief Operating Officer, Exelon Generation Company, LLC
C. Mudrick, Site Vice President - Limerick Generating Station
E. Callan, Plant Manager, Limerick Generating Station
R. Kreider, Regulatory Assurance Manager
R. DeGregorio, Senior Vice President, Mid-Atlantic Operations
K. Jury, Vice President, Licensing and Regulatory Affairs
P. Cowan, Director, Licensing
D. Helker, Licensing
B. Fewell, Associate General Counsel
Correspondence Control Desk
D. Allard, Director, PA Department 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, Director, PA Emergency Management Agency

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Sincerely,
/RA/
Paul G. Krohn, Chief
Projects Branch 4
Division of Reactor Projects

Distribution w/encl: (via E-mail)
S. Collins, RA
M. Dapas, DRA
D. Lew, DRP
J. Clifford, DRP
P. Krohn, DRP
R. Fuhrmeister, DRP
T. Setzer, DRP
E. DiPaolo, DRP, Senior Resident Inspector
N. Sieller, DRP, Resident Inspector
L. Pinkham, Resident OA
S. Williams, RI, OEDO
P. Bamford, PM, NRR
E. Miller, NRR, Backup
R. Nelson, NRR
H. Chernoff, NRR
ROPreportsResource@nrc.gov
Region I Docket Room (with concurrences)

SUNSI REVIEW COMPLETE: TCS (Reviewer's Initials)

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 50-352, 50-353

License Nos: NPF-39, NPF-85

Report No: 05000352/2008004 and 05000353/2008004

Licensee: Exelon Generation Company, LLC

Facility: Limerick Generating Station, Units 1 & 2

Location: Sanatoga, PA 19464

Dates: July 1, 2008 through September 30, 2008

Inspectors: E. DiPaolo, Senior Resident Inspector
C. Bickett, Resident Inspector
N. Sieller, Resident Inspector
R. Fuhrmeister, Senior Project Engineer
J. D'Antonio, Senior Operations Engineer
S. Barr, Senior Emergency Preparedness Inspector
J. Tiff, Reactor Inspector
R. Rolph, Health Physicist
G. Meyer, Senior Reactor Inspector
M. Gotch, Reactor Inspector

Approved by: Paul G. Krohn, Chief
Projects Branch 4
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000352/2008004, 05000353/2008004; 07/01/2008 - 09/30/2008; Limerick Generating Station, Units 1 and 2; Flood Protection Measures.

The report covered a three-month period of inspection by resident inspectors and announced inspections by regional reactor inspectors. One NRC-identified Green finding, determined to be a non-cited violation (NCV), was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a NCV of Technical Specification (TS) 6.8.1, "Administrative Controls – Procedures," because Exelon did not maintain adequate procedures in that Emergency Operating Procedure T-103, "Secondary Containment Control," contained an inappropriate high maximum safe operating flooding level for the Unit 2 High Pressure Coolant Injection (HPCI) room.

The inspectors determined that this finding was greater than minor because it affected the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective of ensuring availability, reliability, and capability of the HPCI system. Emergency Operating Procedure T-103, "Secondary Containment Control," delineated an incorrect value of 40 inches for the Unit 2 HPCI room maximum safe operating (MSO) flooding level. Water at this height in the Unit 2 HPCI room would submerge the auxiliary oil pump and would render the HPCI system inoperable. This finding is of very low safety significance because it did not represent 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 TS allowed outage time, or a total loss of any safety function that contributes to external event-initiated core damage sequences. The inspectors determined that this violation has a cross-cutting aspect in the area of problem identification and resolution because Limerick did not perform a thorough extent-of-condition review following a 2005 NCV for a similar issue for the Unit 1 RCIC room MSO level (NCV 05000352/2005003-01). Although the station identified that the Unit 2 HPCI auxiliary oil pump and its associated junction box were located below the MSO level during the review, Limerick did not thoroughly evaluate the impact of the elevation difference on the operation of the HPCI system (P.1(c)). (Section 1R06)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period operating at full rated thermal power (RTP). On September 6, 2008, operators reduced power to approximately 80 percent to facilitate main steam isolation and main turbine valve testing, control rod scram time testing, and a control rod sequence exchange. Full RTP was achieved on September 7, 2008. Unit 1 operated at full RTP for the remainder of the inspection period.

Unit 2 began the inspection period operating at full RTP. On September 12, 2008, operators reduced power to approximately 60 percent to facilitate main condenser tube leak detection and tube plugging, main steam isolation and main turbine valve testing, control rod scram time testing, and a control rod sequence exchange. Full RTP was achieved on September 15, 2008. Unit 2 operated at full RTP for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

Impending Adverse Weather Conditions (71111.01 - 1 sample)

a. Inspection Scope

The inspectors evaluated implementation of adverse weather preparation procedures and compensatory measures as a result of severe thunderstorms and associated high winds experienced on July 24, 2008. The inspectors toured risk-significant and susceptible plant areas to verify preparation procedures and compensatory measures before the onset of the adverse weather conditions. The inspectors verified that Exelon reviewed emergency response capabilities following the storm. The inspectors reviewed associated issues entered into the corrective action program (CAP) to verify that they were properly characterized for resolution. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Walkdown (71111.04Q - 3 samples)

a. Inspection Scope

The inspectors performed a partial walkdown of the plant systems listed below to verify the operability of risk significant systems or redundant trains and components when safety-related equipment in the opposite train was either inoperable, undergoing surveillance testing, or potentially degraded. The inspectors used TS's, Exelon operating procedures, plant piping and instrumentation drawings (P&IDs), and the

Updated Final Safety Analysis Report (UFSAR) as guidance for conducting partial system walkdowns. The inspectors reviewed the alignment of system valves and electrical breakers to ensure proper in-service or standby configurations as described in plant procedures and drawings. During the walkdown, the inspectors evaluated the material condition and general housekeeping of the system and adjacent spaces. The documents reviewed are listed in the Attachment. The inspectors performed walkdowns of the following areas:

- Unit 2 HPCI system;
- 'A', 'B', and 'C' Residual Heat Removal Service Water (RHRSW) pumps when 'D' RHRSW pump was out-of-service; and
- Unit 2 RCIC system when Unit 2 HPCI system was out-of-service.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown (71111.04S - 1 sample)

a. Inspection Scope

The inspectors conducted one complete system walkdown of the Unit 1 HPCI system to verify that equipment was properly aligned. The walkdown included reviews of valve positions, major system components, electrical power availability, and equipment deficiencies. The inspectors reviewed system check-off lists, system operating procedures, the system P&IDs, and the UFSAR. The inspectors reviewed outstanding maintenance activities and issue reports (IRs) associated with the Unit 1 HPCI system to determine if they would adversely affect system operability. The inspectors reviewed a sample of IRs dating back to 2003 associated with the system to verify that Exelon evaluated and implemented appropriate corrective actions. The walkdown also included an evaluation of system piping, supports, and component foundations to ensure they were not degraded. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

Fire Protection - Tours (71111.05Q - 6 samples)

a. Inspection Scope

The inspectors conducted a tour of the six areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that combustibles and ignition sources were controlled in accordance with Exelon's administrative procedures. Fire detection and suppression equipment was verified to be available for use, and passive fire barriers were verified to be maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out-of-service, degraded, or inoperable fire protection

equipment in accordance with the station's fire plan. The inspectors toured the following areas:

- Unit 1 'A' Battery Room;
- D11 Switchgear Room;
- Unit 1 Cable Spreading Room;
- Unit 2 Cable Spreading Room;
- Unit 1 Inverter Room; and
- Unit 2 Inverter Room.

a. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - 1 sample)

a. Inspection Scope

The inspectors reviewed the UFSAR and related flood analysis documents to identify areas that can be affected by internal flooding, to identify features designed to alert operators of a flooding event, and to identify features designed for coping with internal flooding. The inspectors performed a walkdown of the Unit 1 and Unit 2 HPCI rooms. The inspectors observed flood protection features to assess their ability to minimize the impact of a flooding event. The inspectors performed a review of operator actions contained in off-normal and emergency operating procedures for flooding to verify that they can reasonably be used to achieve desired actions. Documents reviewed are listed in the Attachment.

b. Findings

Introduction. The inspectors identified a Green NCV of TS 6.8.1, "Administrative Controls – Procedures," because Exelon did not maintain adequate procedures in that Emergency Operating Procedure T-103, "Secondary Containment Control," Revision 20 contained an inappropriately high maximum safe operating (MSO) flooding level for the Unit 2 HPCI room.

Description. The bases document for Emergency Operating Procedure T-103, "Secondary Containment Control," describes the MSO level as "the highest value of a parameter, at which neither (1) equipment necessary for the safe shutdown of the plant will fail, nor (2) personnel access necessary for the safe shutdown of the plant will be precluded." Limerick defined the MSO value for flooding of the Unit 2 HPCI room to be 40 inches above the room floor surface in Emergency Operating Procedure T-103. Determination of this level was based on a letter from the vendor, dated June 24, 1988, which stated that the limiting component in the Unit 2 HPCI room, with regards to rising water level, would be a junction box on the HPCI turbine located at a height of 40 inches.

The inspectors performed a walkdown of the Unit 2 HPCI room to verify that there were no components required for operation of HPCI that were located at a height less than the MSO level and discovered that the HPCI auxiliary oil pump and its associated junction box were located below the MSO level. The HPCI auxiliary oil pump provides control oil pressure during system startup for proper functioning of the hydraulic control system to

open the turbine stop and control valves. Disabling the auxiliary oil pump prior to system startup would render the HPCI system inoperable and not capable of performing its intended safety function. The inspectors concluded that the MSO level was incorrect because operating at this level would render HPCI inoperable due to partial submergence of the auxiliary oil pump motor. The inspectors also determined that Exelon had a previous opportunity to identify this discrepancy in 2005 following an NRC-identified NCV (NCV 05000352/2005003-01) for a similar issue associated with the Unit 1 RCIC room MSO level. As part of the extent of condition review for the 2005 NCV, Exelon evaluated the Unit 2 HPCI room. The review identified that the HPCI auxiliary oil pump and its associated junction box were located below the MSO level. However, the impact of the elevation difference was not fully evaluated and dispositioned.

This finding is a performance deficiency because Limerick did not designate an appropriate MSO level for the Unit 2 HPCI room in Emergency Operating Procedure T-103, "Secondary Containment Control," Revision 20. The station determined that a new MSO level value of 29 inches would be more appropriate. Limerick implemented a temporary change to T-103 to reflect this new value as an interim measure until the procedure is permanently revised. Additionally, Limerick is planning an extent of condition review on the other Unit 1 and Unit 2 emergency core cooling system rooms. Exelon documented these items in IR 804992.

Analysis. The inspectors determined that this finding was greater than minor because it affected the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective of ensuring availability, reliability, and capability of the HPCI system. Emergency Operating Procedure T-103, "Secondary Containment Control," delineated an incorrect value of 40 inches for the Unit 2 HPCI room MSO flooding level. Water at this height in the Unit 2 HPCI room would submerge the auxiliary oil pump and would render the HPCI system inoperable. Inspectors evaluated this finding using IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings." This finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of safety system function, did not result in an actual loss of safety function of a single train for greater than its TS allowed outage time, or a total loss of any safety function that contributes to external event-initiated core damage sequences.

The inspectors determined that this violation has a cross-cutting aspect in the area of problem identification and resolution because Limerick did not perform a thorough extent-of-condition review following a 2005 NCV for a similar issue for the Unit 1 RCIC room MSO level (NCV 05000352/2005003-01). Although the station identified that the HPCI auxiliary oil pump and its associated junction box were located below the MSO level during the review, Limerick did not thoroughly evaluate the impact of the elevation difference on the operation of the HPCI system (P.1(c)).

Enforcement. TS 6.8.1 states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures as recommended in NRC Regulatory Guide 1.33, Appendix A, February 1978. NRC Regulatory Guide 1.33, Appendix A, Section 6.0, includes procedures for combating emergencies and other significant events, including flooding. Contrary to the above, Emergency Operating Procedure T-103, "Secondary Containment Control," Revision 20 was inadequate in that it delineated an incorrect value for the Unit 2 HPCI room MSO for flooding. Specifically, the value described in T-103 for the Unit 2 HPCI room was 40 inches. Water at this

height in the Unit 2 HPCI room would submerge the HPCI auxiliary oil pump and would render the HPCI system inoperable. Because this finding is of very low safety significance and Exelon has entered this finding into their corrective action program (IR 804992), this violation is being treated as a non-cited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000353/2008004001, Inadequate Secondary Containment Control Procedure)**

1R07 Biennial Heat Sink Performance (71111.07B – 2 samples)

a. Inspection Scope

Based on safety significance and prior inspection history, the inspectors selected the following heat exchangers to evaluate Exelon's means (inspection, cleaning, maintenance, and performance monitoring) of ensuring adequate heat sink performance:

- Unit 2 'A' Residual Heat Removal (RHR) heat exchanger (2AE205); and
- Unit 2 'D' Emergency diesel generator intercooler heat exchanger (2DE586); Unit 2 'D' Emergency diesel generator jacket water cooler (2DE507); and Unit 2 'D' Emergency diesel generator lube oil cooler (2DE506).

The inspectors assessed the external condition of the above heat exchangers in the field; reviewed the eddy current, surveillance test, and inspection results; and reviewed the applicable system health reports to confirm that results were acceptable and that design basis assumptions for flow rate, plugged tube percentage, and heat transfer capability had been met. The inspectors discussed cathodic protection, piping corrosion, and heat exchanger practices, including the specifications and procedures for heat exchanger maintenance, with the Generic Letter 89-13 program engineer, applicable system engineers, and chemistry personnel. The inspectors reviewed applicable corrective action program documents to confirm that identified problems and degraded conditions had been resolved properly. Also, the inspectors inspected equipment conditions in Units 1 and 2 Pipe Tunnel, 2B RHR Room, and 2D Core Spray Room.

The inspectors assessed the condition of the spray pond (ultimate heat sink) and the pump house, and reviewed the 2007 evaluation of spray pond sediment depth. The chemical treatment programs for the spray pond were reviewed to verify that potential bio-fouling mechanisms were being addressed, including ongoing treatment and monitoring. The review included discussions with chemistry personnel and the RHRSW system engineer. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11 - 2 samples)

.1 Quarterly Licensed Operator Requalification Program (71111.11Q - 1 sample)

a. Inspection Scope

On August 5, 2008, the inspectors evaluated licensed operator requalification simulator scenarios on two operating crews. The scenario tested the operators' ability to respond to engineered safety feature actuations and various failures, including a recirculation pump trip, a loss of coolant accident, and site structure damage. The inspectors observed licensed operator performance including operator critical tasks that measured operator actions required to ensure the safe operation of the reactor and protection of the nuclear fuel and primary containment barriers. The inspectors also assessed group dynamics and supervisory oversight to verify the ability of operators to properly identify and implement appropriate TS actions, regulatory reports, and notifications. The inspectors observed and reviewed the training evaluators' grading and critiques and assessed whether appropriate feedback was provided to the licensed operators. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Limited Licensed Operator Requalification Program (71111.11B - 1 sample)

a. Inspection Scope

The requalification program for Senior Reactor Operators Limited to Fuel Handling (LSRO) was evaluated using NUREG 1021, Revision 9, "Operator Licensing Examination Standards for Power Reactors" and Inspection Procedure Attachment 7111111, "Licensed Operator Requalification Program."

A review was conducted of recent operating history documentation regarding fuel handling found in inspection reports, licensee event reports, the licensee's corrective action program, and the most recent NRC plant issues matrix. The inspectors also reviewed specific events from the licensee's corrective action program to determine if possible training deficiencies existed.

The inspectors evaluated the Limerick 2008 and Peach Bottom 2007 operating tests and the Limerick 2008 and Peach Bottom 2006 written examinations for quality and compliance with the Examiner's Standards. Administration of the five job performance measure operating examinations at Limerick was observed.

On August 12, 2008, the results of the biennial written examination and annual operating tests for 2008 were reviewed to determine whether pass/fail rates were consistent with the guidance of NUREG-1021, Revision 9, "Operator Licensing Examination Standards for Power Reactors." Performance of all individuals over two years was reviewed to check for adverse trends.

Two years of records for requalification training attendance and license reactivation for all four LSROs were reviewed for compliance with license conditions and NRC regulations. Medical records for three individuals were reviewed.

A sampling of feedback was reviewed and training materials were evaluated for response to this feedback. These materials were also reviewed for incorporation of plant modifications and industry events. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12 - 2 samples)

a. Inspection Scope

The inspectors evaluated Exelon's work practices and follow-up corrective actions for structures, systems, and components (SSCs) and identified issues to assess the effectiveness of Exelon's maintenance activities. The inspectors reviewed the performance history of risk significant SSCs and assessed Exelon's extent-of-condition determinations for those issues with potential common cause or generic implications to evaluate the adequacy of the station's corrective actions. The inspectors assessed Exelon's problem identification and resolution actions for these issues to evaluate whether Exelon had appropriately monitored, evaluated, and dispositioned the issues in accordance with Exelon procedures and the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance." In addition, the inspectors reviewed selected SSC classifications, performance criteria and goals, and Exelon's corrective actions that were taken or planned, to evaluate whether the actions were reasonable and appropriate. The documents reviewed are listed in the Attachment. The inspectors performed the following samples:

- IR 516425, "Unit 1 Core Spray Test Bypass Valve Failed to Close;" and
- IR 798687, "Emergency Diesel Generator (EDG) D14 Unresponsive to Main Control Room Controls Coincident with Voltage Swings."

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 4 samples)

a. Inspection Scope

The inspectors evaluated the effectiveness of Exelon's maintenance risk assessments required by 10 CFR 50.65(a)(4). This inspection included discussion with control room operators and risk analysis personnel regarding the use of Exelon's on-line risk monitoring software. The inspectors reviewed equipment tracking documentation, daily work schedules, and performed plant tours to gain assurance that the actual plant configuration matched the assessed configuration. Additionally, the inspectors verified that Exelon's risk management actions, for both planned and emergent work, were consistent with those described in Exelon procedure, ER-AA-600-1042, "On-Line Risk Management." The documents reviewed are listed in the Attachment. Inspectors reviewed the following samples:

- C0225355, "Installation of Gag on Unit 2 'A' Recirculation Pump Motor-Generator Controls;"
- IR 798188, "B.5.b Pump Run;"
- IR 798687, "EDG D14 Load and Voltage Transient During a 24-hour Endurance Run on July 21, 2008;" and
- IR 808608, "Unit 2 Online Risk with 'D' Emergency Service Water (ESW), 'B' RHR, and 'D' RHRSW Pumps Out-of-Service."

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 7 samples)a. Inspection Scope

For the seven operability evaluations described below, the inspectors assessed the technical adequacy of the evaluations to ensure that Exelon properly justified TS operability and verified that the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors reviewed the UFSAR to verify that the system or component remained available to perform its intended safety function. In addition, the inspectors reviewed compensatory measures implemented to ensure that the measures worked and were adequately controlled. The inspectors also reviewed a sample of issue reports to verify that Exelon identified and corrected deficiencies associated with operability evaluations. The inspectors performed the following evaluations:

- IR 794500, "Ultrasonic Test Results for RHRSW Piping in Manhole 212;"
- IR 792556, "Wiring Discrepancy Identified on Unit 2 'D' Core Spray Pump Suction Primary Containment Isolation Valve (HV-052-2F001D) Controller;"
- IR 798687, "EDG D14 Voltage and Load Transient During Testing on July 21, 2008;"
- IR 800086, "Control Room Fresh Air Supply System Operability with Compensatory Measure to Start 'B' Supply Fan With Dedicated Operator;"
- IR 799896, "Flat Washers on Safeguard Systems Blowout Panel (secondary containment);"
- IR 808608, "D ESW Instrument Tap Piping Leak;" and
- IR 772343, "EDG D12 Voltage Swings with EDG Paralleled to Offsite Power Source."

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 - 2 samples).1 Temporary Modificationsa. Inspection Scope

The inspectors reviewed a temporary plant modification documented in Temporary Change 08-00231, "RHRSW Compensatory Actions for Minimum Wall Condition in Manhole 212." This modification changed the normal operating configuration of system components. The inspectors reviewed the change to ensure that it did not adversely affect systems important to safety. The inspectors compared the temporary change with the UFSAR and TS's to verify that the modification did not affect system operability or availability. The inspectors ensured that station personnel implemented the modification in accordance with the applicable temporary configuration change process. The inspectors also reviewed the impact on existing procedures to verify Exelon made appropriate revisions to reflect the temporary configuration change. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors reviewed a permanent plant modification documented in Engineering Change LG 04-00185, "AVCO Scram Solenoid Pilot Valve Upgrade." The inspectors verified that the modification met the design bases and design assumptions, and that the modification preparation, staging, and implementation did not impair emergency or abnormal operating procedure actions and key safety functions. The inspectors also reviewed the modification to verify that the post-modification testing would establish operability, that unintended system interactions would not occur, and that testing demonstrated that the modification acceptance criteria were met. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 5 samples)

a. Inspection Scope

The inspectors reviewed the five post-maintenance tests (PMTs) listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed Exelon's test procedures to verify that the procedures adequately tested the safety functions that may have been affected by the maintenance activity, and that the acceptance criteria in the procedures were consistent with information in the licensing and design basis documents. The inspectors also witnessed the test or reviewed test data to verify that the results adequately demonstrated restoration of the affected safety functions. The documents reviewed are listed in the Attachment. The inspectors performed the following samples:

- C0225781, "Troubleshoot and Repair EDG D14 Following Voltage and Load Surges During Testing;"
- C0225896, "Rework Control Room Supply Fan Flow Switch, FSL-078-029B;"
- C0226039, "D ESW Pump Discharge Instrument Line Through Wall Leak Repair;"
- R0947845, "Perform Calibration of 20 Regulating Transformer Automatic Controls;" and
- C0226215, "Unit 1A Reactor Enclosure Recirculation System Inoperable Due to System Dampers Cycling."

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 7 samples)

a. Inspection Scope

The inspectors witnessed the performance and reviewed test data for seven surveillance tests (STs) that are associated with risk-significant SSCs. The review verified that Exelon personnel followed TS requirements and that acceptance criteria were appropriate. The inspectors also verified that the station established proper test conditions, as specified in the procedures, that no equipment preconditioning activities occurred, and that acceptance criteria had been met. The documents reviewed are listed in the Attachment. The inspectors reviewed STs for the following systems and components:

- ST-6-092-313-1, "EDG D13 (slow start) Test;"
- ST-6-098-230-2, "2B Standby Liquid Control Pump, Valve and Flow Test;"
- ST-6-012-231-0, "A Loop RHRSW Pump, Valve and Flow Test;"
- ST-6-092-365-0, "Inoperable Unit 1 Safeguard Power Supply Actions for Both Units;"
- ST-6-051-233-1, "C RHR Pump, Valve and Flow Test;"
- ST-6-020-814-2, "EDG D24 Diesel Fuel Oil Analysis," and
- ST-6-092-312-2, "EDG D22 Diesel Generator Slow Start Operability Test Run."

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 -1 Sample)

a. Inspection Scope

Prior to this inspection, the NRC had received and acknowledged changes made to the Limerick Generating Station Emergency Plan and its implementing procedures. Exelon developed these changes in accordance with 10 CFR 50.54(q), and determined that the changes did not result in a decrease in effectiveness of the Emergency Plan. The licensee also determined that the Emergency Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR 50. During this inspection, the inspectors conducted a review of Exelon's 10 CFR 50.54(q) screenings for all the changes made to the Emergency Action Level (EAL) Plan, and all of the changes made to the Emergency Plan from August 2007 through July 2008 that could have potentially resulted in a decrease in effectiveness of the Emergency Plan. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 4. The requirements in 10 CFR 50.54(q) were used as reference criteria. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151- 9 samples)

.1 Mitigating System and Initiating Events Performance Indicators

a. Inspection Scope

The inspectors sampled Exelon's submittal of the initiating events and mitigating systems performance indicators listed below to verify the accuracy of the data recorded from the fourth quarter of 2007 through the first quarter of 2008. The inspectors utilized performance indicator definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 5, to verify the basis in reporting for each data element. The inspectors reviewed various documents, including portions of the main control room logs, issue reports, power history curves, work orders, and system derivation reports. The inspectors also discussed the method for compiling and reporting performance indicators with cognizant engineering personnel and compared graphical representations from the most recent performance indicator (PI) report to the raw data to verify that the report correctly reflected the data. The documents reviewed are listed in the Attachment.

Cornerstone: Mitigating Systems (2 samples)

- Units 1 and 2 RHR Mitigating Systems Performance Index.

Cornerstone: Initiating Events (4 samples)

- Units 1 and 2 Unplanned Scrams per 7000 Critical Hours; and
- Units 1 and 2 Unplanned Scrams with Complications.

b. Findings

No findings of significance were identified.

.2 Emergency Preparedness (EP) Performance Indicators (3 samples)

a. Inspection Scope

The inspectors reviewed data for the Limerick EP PIs, which included: Drill and Exercise Performance (DEP); Emergency Response Organization (ERO) Drill Participation; and Alert and Notification System (ANS) Reliability. The inspectors reviewed the PI data, its supporting documentation, and the information Exelon reported for the third and fourth quarters of 2007, and the first and second quarters of 2008, to verify the accuracy of the reported data. The review of these PIs was conducted in accordance with NRC Inspection Procedure 71151. The acceptance criteria used for the review were 10 CFR 50.9 and NEI 99-02, Revision 5, "Regulatory Assessment Performance Indicator Guidelines."

Additionally, the inspectors performed NRC Temporary Instruction (TI) 2515/175, "Emergency Response Organization, Drill/Exercise Performance Indicator Program Review," which ensured the completeness of the licensee's completed Attachment 1 from the TI, and forwarded that data to NRC Headquarters. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 - 3 samples)

.1 Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors screened all items entered into Limerick's corrective action program. The inspectors accomplished this by reviewing each new condition report, attending management review committee meetings, and accessing Exelon's computerized database.

.2 Annual Sample – Load Tap Changer Timing

a. Inspection Scope

The inspectors reviewed Exelon's evaluation and corrective actions associated with load tap changer timing verification. The inspectors reviewed condition reports and the associated actions against the requirements of Exelon's corrective action program to ensure that the full extent of the issues were identified, appropriate evaluations were performed, and appropriate corrective actions were specified and prioritized. The inspectors interviewed relevant station personnel and reviewed applicable station procedures to ensure that the issues were addressed appropriately. The documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified.

The inspectors determined that Exelon's proposed corrective actions were reasonable with respect to the load tap changer timing issue. Exelon performed an appropriate extent-of-condition review and implemented calculation updates that reflected the current plant configuration. Exelon has scheduled tests to verify the mechanical times for each tap changer in order to validate the voltage calculation study. The inspectors determined that Exelon's conclusion was appropriate. Namely, that although sufficient voltage may exist, there is little margin. Exelon entered this condition into the station margin management program for future action.

.3 Annual Sample – RHRSW Corrosion Issues

a. Inspection Scope

The inspectors reviewed implementation of the licensee's corrective action program as it related to ESW and RHRSW pipe wall thinning. The inspectors reviewed corrective action program IRs, work orders, and associated documents. The inspectors reviewed the problem identification documentation including the evaluations of operability and reportability for accuracy and completeness. The inspectors reviewed the extent-of-condition determinations and common cause evaluations. The inspectors reviewed the classification and prioritization of the resolutions to correct the problem. The inspectors interviewed engineering personnel and toured the RHR rooms in Units 1 and 2 to observe the replacement of carbon steel piping with stainless steel piping. The

inspectors noted that more testing, evaluation, and corrective actions are scheduled for the near term. The documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified.

The inspectors determined that Exelon's proposed corrective actions were reasonable with respect to the pipe wall thinning issue. Exelon contracted with a vendor to perform an appropriate extent-of-condition and to develop a flaw handbook. Exelon has scheduled tests to verify the condition of buried RHRSW piping using Guided Wave Examination (G-scan) methods. The inspectors observed that one due date out of thirty (30) was changed without fully assessing the impact to other corrective actions. The due date was for an action to develop contingencies to address the results of the Guided Wave Examinations. Exelon agreed to re-evaluate and assign a due date more representative of the overall corrective action schedule.

.4 Operator Workarounds

a. Inspection Scope

The inspectors performed an in-depth annual review of plant operator workarounds as documented in Exelon's operator workaround program and corrective action documents. This review was performed to verify that the licensee identified operator workarounds at an appropriate threshold, entered the issues into the CAP, and planned or implemented appropriate corrective actions. The documents reviewed are listed in the Attachment. The inspectors reviewed the actions taken to verify that the licensee had adequately addressed the following attributes:

- Complete, accurate, and timely identification of the problem;
- Evaluation and disposition of operability and reportability issues;
- Consideration of previous failures, extent-of-condition, generic or common cause implications;
- Prioritization and resolution of the issue commensurate with the safety significance;
- Identification of the root cause and contributing causes of the problem; and
- Identification and implementation of corrective actions commensurate with the safety significance of the issue.

b. Findings and Observations

No findings of significance were identified. The inspectors determined that the issues reviewed did not adversely affect the capability of the operators to implement abnormal or emergency operating procedures and had been appropriately classified and prioritized.

the inspectors performed routine screening of issues entered into Limerick's CAP. The review was accomplished by selectively reviewing copies of Issue Reports (IRs) and accessing Limerick's computerized database.

4OA3 Event Follow-up (71153 - 1 sample)a. Inspection Scope

The inspectors observed plant parameters and evaluated performance of mitigating systems when a section of RHRSW loop 'A' return piping indicated below American Society of Mechanical Engineers (ASME) minimum wall thickness measurements. The inspectors communicated the event to appropriate regional personnel and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of additional reactive inspection activities. The inspectors reviewed Exelon's follow-up actions related to the event to assure that appropriate corrective actions were implemented commensurate with their safety significance.

b. Findings

No findings of significance were identified.

4OA5 Other ActivitiesQuarterly Resident Inspector Observations of Security Personnel and Activitiesa. Inspection Scope

During the inspection period the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including ExitExit Meeting Summary

On October 2, 2008, the resident inspectors presented the inspection results to Mr. C. Mudrick and other members of his staff. The inspectors confirmed that proprietary information was not included in the inspection report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION**KEY POINTS OF CONTACT**Exelon Generation Company

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. Bobbyock, Manager, Plant Engineering
 M. Crim, Manager, Operations Services
 C. Gray, Manager, Radiological Engineering
 R. Harding, Engineer, Regulatory Assurance
 J. Berg, System Manager, HPCI
 J. George, System Manager, RHR
 M. Gift, System Manager, Radiation Monitoring Systems
 L. Lail, System Manager, EDG
 R. Gosby, Radiation Protection Technician, Instrumentation
 D. Malinowski, Simulator Instructor
 J. Sprucinski, Senior Radiation Protection Technician

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSEDOpened

None

Closed

2515/175	TI	Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review (Section 40A1.2)
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Opened and Closed

05000353/2008004-01	NCV	Inadequate Secondary Containment Control Procedure (Section 1R06)
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Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 3
SE-9, Preparation for Severe Weather, Revision 26

Issue Reports and Action Requests

IR 799853, Security Canopy Moved During High Winds

Section 1R04: Equipment Alignment

Procedures

Design Basis Document L-T-109, Internal Hazards, Revision 5
Design Basis Document L-S-03, High Pressure Coolant Injection, Revision 19

Issue Reports and Action Requests

HPCI System IRs 2003-2008

Miscellaneous

List of Non-recurring Work Orders for HPCI System
HPCI System Health Report, March 2008

Section 1R06: Flood Protection Measures

Procedures

T-103 Bases, Secondary Containment Control, Revision 20
BLP 41454, Modification No. 5566, Reactor Enclosure Elevation 177'-0" Flood Levels
BLP 44164, Unit 2 Reactor Enclosure Elevation 177'-0" and 217'-0" Flood Levels
ARC-MCR-217 A5, HPCI Pump Room Flood, Revision 1
SE-4, Flood, Revision 6
SE-4-1, Reactor Enclosure Flooding, Revision B

Issue Reports and Action Requests

AR 1610225, Document Walkdown Findings for HPCI Room Flooding

Section 1R07: Biennial Heat Sink Performance

Procedures

ER-AA-340, GL 89-13 Program Implementing Procedure, Revision 4
ER-AA-340-1001, GL 89-13 Program Implementation Instructional Guide, Revision 6
ER-AA-5400, Buried Pipe and Raw Water Corrosion Program Guide, Rev, 1
ER-AA-5400-1001, Raw Water Corrosion Program Guide, Revision 0
ER-AA-5400-1002, Buried Piping Examination Guide, Revision 1
Limerick GL 89-13 Program Basis Document, Revision 0
CY-LG-120-828, Clam Control Activities, Revision 5
CY-LG-120-1102, Outside Chemistry/NPDES related Sampling and Analysis Schedule, Revision 18
CY-LG-120-1117, Spray Pond Chemistry Guide, Revision 2
ST-2-011-390-0, ESW/Diesel Generator Heat Transfer Test, Revision 4

M-011-001, LGS Preventive Maintenance Procedure for Diesel Generator Heat Exchanger
Cleaning and Examination, Rev 12
Standing work order R0920468-01, EDG heat exchangers

Drawings

SIM-M-12, Emergency Service Water/ RHR Service Water Overview, Revision 9
8031-M-11, Sh. 1-5, Emergency Service Water, Revision 68, 81, 53, 50, 48, respectively
8031-M-12, Sh. 1-2, Residual Heat Removal Service Water, Revision 62, 6, respectively
8031-E-1045, Cathodic Protection Plan – Spray Pond & Cooling Towers Area, Revision 14
8031-E-1046, Cathodic Protection Plan – PCMU, RHR & ESW Piping, Units 1 & 2, Revision 14
Unit 2 RHR Heat Exchanger Assembly & Cross Section Drawings, April 1972

Condition & Action Reports

654500, 654548, 683817, 698972, 718198, 742927, 780592, 798818, 807193, 807322, 816251,
816784, 824496, 825137, A899130

Inspections and Evaluations

Health Reports for Limerick GL 89-13 Program, First Quarter 2007 to Second Quarter 2008
System Health Reports for ESW, First Quarter 2007 to Second Quarter 2008
System Health Reports for RHRSW, First Quarter 2007 to Second Quarter 2008
Focused Area Self-Assessment, 2008 NRC Heat Sink Inspection Preparation, August 13, 2008
Spray Pond Sediment Map, November 13, 2007
Spray Pond Chemistry Results for October 2007 to September 2008
Spray Pond Inspection Report, November 13, 2007
Zebra Mussel & Asiatic Clam Survey, November 6, 2007
ECT Test Report for Heat Exchanger 2A-E205, March 2005
WO R0966553, Clean and Eddy Current Test 2A-E205, performed May 19, 2005
IC-C-11-02021, Testing of Cathodic Protection System, performed September 4, 2007
RT-1-012-390-0, RHR Heat Exchanger Heat Transfer Performance Computation Test,
performed Feb. 15, 2005
RT-2-011-251-0, ESW Loop A Flow Balance, Revision 15, performed April 26, 2008
RT-6-012-390-2, 2A-E205 Heat Exchanger Heat Transfer Test, performed Feb. 9, 2005
RT-6-109-001-0, Cathodic Protection Monthly Inspection, performed September 4, 2007
ST-1-012-901-0, Spray Pond Structural Inspection, performed September 5, 2002,
August 10, 2003, August 10, 2005, and July 27, 2007
ST-6-011-231-0, A Loop ESW Pump, Valve, and Flow Test, performed May 9, 2008,
and August 8, 2008
ST-6-012-232-0, A Loop RHRSW Pump, Valve, and Flow Test, performed May 16, 2008,
and August 7, 2008
Structural Integrity Associates, Inc., Limerick ESW/RHRSW Pre-Outage Support, May 7, 2008
Nuclear Event Report NC-07-044, Essential Service Water Piping Degradation, Revision 0 & 1
Operational Event Review – Degradation of Essential Service Water Piping, January 15, 2008
Technical Evaluation - Cumulative Leakage from the ESW System (CR 714581-02)
Technical Evaluation – EDG Permissible Fouling Factors as a Function of ESW Flow and
Plugged Tubes (IR 691841)
Apparent Cause Evaluation – Internal Corrosion of RHRSW System Piping (CR 731389)
Apparent Cause Evaluation – Increased Frequency of ESW Throttle Valve Silting (11/14/05)
Apparent Cause Evaluation - Diesel Heat Exchanger GL 89-13 Heat Transfer Test Performed
Too Soon After Cleaning (CR 174574)
RHRSW Pipe Minimum Wall Thickness Action Plan (IR 693495-32)
1D-G501, EDG Heat Exchanger Inspection Report, June 23, 2008

2D-G501, EDG Heat Exchanger Inspection Report, December 10, 2007
LG 96-02349-000, Undersized Lube Oil Cooler
LG 01-01096-000, LGS Unit 1 & 2 GL 98-13 Program Recommendation –
Heat Exchanger Cleaning
LG 01-00968-000, Final Report on DG Heat Exchanger Performance Tests GL 89-13
Calculation LM-0225, Performance Curve for EDG Heat Exchanger for GL 89-13
Engineering Analysis LEAM-0007, Emergency Diesel Heat Exchanger Performance Tests
GL 89-13, September 10, 2001.
Evaluation of D-22 EDG Heat Exchanger Performance Test of August 26, 2003
Evaluation of D-22 EDG Heat Exchanger Performance Test of July 24, 2004
Evaluation of lube oil cooler fouling factor increases in winter, October 1, 2008
Commitment Change Evaluation 2006-002
ECR LG 96-02349, Undersized Lube Oil Cooler
ECR LG 01-01096, GL 98-13 Program Recommendation – Heat Exchanger Cleaning
ECR LG 01-00968, Final Report on DG Heat Exchanger Performance Tests GL 89-13
ECR LG 04-00433, Licensing Basis of RHRSW Flow
Summary of RHRSW/ESW Valve Pit Inspections

Section 1R11: Licensed Operator Regualification Program

Procedures

LSTS-2052, Limerick Generating Station Training Scenario, Revision 000

Section 1R12: Maintenance Effectiveness

Procedures

ER-AA-31-1004, Maintenance Rule, Performance Monitoring, Revision 7
ER-AA-310-1004, Functional Failure Cause Determination Evaluation, Revision 5

Issue Reports and Action Requests

IR 786390, Re-evaluate IR 516425 for MPFF

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

CO225355
Paragon Risk Profile for 07/01/2008

Section 1R18: Plant Modifications

Procedures

A-1665750, External Corrosion of RHRSW Piping in MH212
ECR LG 08-00231, External Corrosion of RHRSW Piping in MH212

Issue Reports and Action Requests

IR 794500, UT Results for MH212 on RHRSW
IR 796109, UT Data Results Affected by Surface Condition of Pipe

Section 1R19: Post Maintenance Testing

Procedures

IC-11-00340, Calibration of Fluid Components Single Switch Plant Flow Switches
ST-6-092-934-1, D14 Diesel Generator Governor and Voltage Regulator Post Maintenance
Testing

Issue Reports and Action Requests

IR 816856, Prompt Investigation of Unit 1A Reactor Enclosure Recirculation System
Inoperability

Section 1R22: Surveillance Testing

Procedures

ST-6-012-231-0, 'A' Loop RHRSW Pump, Valve and Flow Test, Revision 55,
Completed 6/25/2008

Issue Reports and Action Requests

IR 798818, 'C' RHRSW Pump TDH in Alert Range during ST-6-012-231-0
IR 718918, 'A' RHRSW Pump TDH in alert Range during ST-6-012-230-0
IR 808401, 0A RHRSW Pump in Alert Range for TDH
IR 807742, 1C RHR Pump In Alert Range

Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes

Procedures

Limerick Generating Station Emergency Plan Annex (Revision 14)
LS-AA-104, Exelon 50.59 Review Process (Revision 5)
LS-AA-104-1000, Exelon 10CFR50.59 Resource Manual (Revision 4)
EP-AA-120, Emergency Plan Administration (Revision 9)
EP-AA-120-1001, 10CFR50.54(q) Change Evaluation (Revision 5)
10CFR50.54(q) screenings and reviews, dated between August 2007 and July 2008

Section 4OA1: Performance Indicator (PI) Verification

Procedures

LS-AA-2001, Collecting and Reporting of NRC Performance Indicator Data (Revision 11)
LS-AA-2110, Monthly Data Elements for NRC Emergency Response Organization (ERO) Drill
Participation (Revision 6)
LS-AA-2120, Monthly Data Elements for NRC Drill/Exercise Performance (Revision 4)
LS-AA-2130, Monthly Data Elements for NRC Alert and Notification System (ANS) Reliability
(Revision 5)
DEP PI data, July 2007 - June 2008
ERO Drill Participation PI data, July 2007 - June 2008
Public Notification System PI data, July 2007 - June 2008
NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 5

Issue Reports and Action Requests

IR 753306, Unit 1 Turbine Trip Reactor Scram
IR 754166, Relay 350-G101 'B' Phase Failed
IR 730021, Automatic Unit 2 Reactor Scram at 0445 on 02/01/2008
IR 753286, GP-18 Issue Tracking
IR 730116, Control Rod 46-47 Did Not Initially Show Full-in

Miscellaneous

MSPI Derivation Reports for Unit 1 RHR System
MSPI Derivation Reports for Unit 2 RHR System
Operator Logs, dated 10/2007 – 06/2008
Unavailability Data for Unit 1 and Unit 2 RHR Systems

Section 40A2: Identification and Resolution of Problems

Procedures

ER-AA-5400, Buried Piping and Raw Water Corrosion Program(BPRWCP) Guide, Revision 0
ER-AA-5400-1002, Buried Piping Examination Guide, Revision 0
HU-AA-1212, Technical Task Risk/Rigor Assessment, Pre-Job Brief, Independent Third Party Review, and Post-Job Debrief, Revision 2
LS-AA-125, Corrective Action Program (CAP) Procedure, Revision 11
LS-AA-125-1003, Apparent Cause Evaluation Manual, Revision 7
ER-AA-2007, Evaluating Margins, Revision 1
LS-AA-125, Corrective Action Program Procedure, Revision 10

Issue Reports and Action Requests

IR 673843, IR688135, IR694845, IR 695408
A1524780, A1508621, A1645805, A1645806, A1645807, A1645814

Calculations

6300E.20, Voltage Regulation Study, Revision 11B
EE-11-LGS, Automatic Voltage Control Settings for the #10 Station Auxiliary, #20 Regulating, and #101 and #201 Safeguard Transformers, Revision 7

Condition Reports

IR-117920, IR-356438, IR-716872, IR-731389

Miscellaneous

Main Control Room Deficiency List
OP-A-A-102-103, Operator Work-Around Program, Revision 2
OTDM Decision Detail for IR 758788

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access Management System
ANS	alert and notification system
AR	action request
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CNO	Chief Nuclear Officer
DEP	drill and exercise performance
EAL	emergency action level
EDG	emergency diesel generator
ERO	emergency response organization
ESW	emergency service water
HPCI	high pressure coolant injection
IMC	Inspection Manual Chapter
IR	issue report
JPM	job performance measure
LER	Licensee Event Report
LSRO	limited senior reactor operator
MSO	maximum safe operating
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
P&ID	pipng and instrumentation drawing
PARS	Publicly Available Records
PI	performance indicator
PIM	plant issues matrix
PMT	post-maintenance test
RCIC	reactor core isolation cooling
RHR	residual heat removal
RHRSW	residual heat removal service water
RTP	rated thermal power
SDP	significance determination process
SSC	structure, system, component
ST	surveillance test
TI	temporary instruction
TS	technical specification
UFSAR	updated final safety analysis report