

October 31, 2006

Mr. Christopher M. Crane
President and CNO
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way
Kennett Square, PA 19348

SUBJECT: LIMERICK GENERATING STATION - NRC INTEGRATED INSPECTION
REPORT 05000352/2006004 AND 05000353/2006004

Dear Mr. Crane:

On September 30, 2006, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Limerick Generating Station Units 1 and 2. The enclosed inspection report documents the inspection results which were discussed on October 10, 2006, 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.

Based on the results of this inspection, no findings of significance were identified.

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 NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

James M. Trapp, Chief
Projects Branch 4
Division of Reactor Projects

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

Enclosure: Inspection Report 05000352/2006004 and 05000353/2006004
w/Attachment: Supplemental Information

C. Crane

2

cc w/encl:

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U.S. NUCLEAR REGULATORY COMMISSION

REGION 1

Docket Nos: 50-352, 50-353

License Nos: NPF-39, NPF-85

Report No: 05000352/2006004 and 05000353/2006004

Licensee: Exelon Generation Company, LLC

Facility: Limerick Generating Station, Units 1 & 2

Location: Sanatoga, PA 19464

Dates: July 1, 2006 through September 30, 2006

Inspectors: S. Hansell, Senior Resident Inspector
C. Bickett, Resident Inspector
J. Kulp, Reactor Inspector
M. Snell, Reactor Inspector
G. Meyer, Reactor Inspector
S. Barr, Reactor Engineer
F. Bower, Senior Resident Inspector
K. Diedrich, Reactor Inspector
C. Khan, Senior Project Engineer

Approved by: James M. Trapp, Chief
Projects Branch 4
Division of Reactor Projects

TABLE OF CONTENTS

SUMMARY OF FINDINGS	iii
REPORT DETAILS	1
REACTOR SAFETY	1
1R01 Adverse Weather Protection	1
1R04 Equipment Alignment	2
1R05 Fire Protection	3
1R07 Heat Sink Performance	4
1R11 Licensed Operator Requalification Program	4
1R12 Maintenance Effectiveness	5
1R13 Maintenance Risk Assessments and Emergent Work Control	7
1R15 Operability Evaluations	7
1R19 Post-Maintenance Testing	8
1R22 Surveillance Testing	8
OTHER ACTIVITIES	9
40A1 Performance Indicator (PI) Verification	9
40A2 Identification and Resolution of Problems	10
40A3 Event Followup	11
40A6 Meetings, Including Exit	12
ATTACHMENT: SUPPLEMENTAL INFORMATION	12
KEY POINTS OF CONTACT	A-1
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED	A-1
LIST OF DOCUMENTS REVIEWED	A-2
LIST OF ACRONYMS	A-11

SUMMARY OF FINDINGS

IR 05000352/2006-004, 05000353/2006-004; 07/01/2006 - 09/30/2006; Limerick Generating Station, Units 1 and 2; Routine Integrated Report.

The report covered a 3-month period of inspection by resident inspectors and announced inspections by an emergency preparedness inspector and reactor inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations.

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 began this inspection period operating at 100% rated thermal power. On September 2, 2006, reactor power was reduced to 65% to perform post summer readiness maintenance and returned to 100% power later in the day. Unit 1 remained at or near 100% reactor power for the rest of the period.

Unit 2 began this inspection period operating at 100% rated thermal power. On September 8, 2006, reactor power was reduced to 65% power to perform post summer readiness maintenance. On September 9, reactor power was restored to 100%. Unit 2 remained at or near 100% reactor power for the rest of the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Site Readiness (1 sample)

a. Inspection Scope

On July 17 and 18, the inspectors reviewed Limerick Generating Station's preparation and response to abnormally high ambient temperatures in the area. The inspectors reviewed operator logs, surveillance tests, and related issue reports. The inspectors also conducted walkdowns of various areas, including the main control room, and reviewed various station procedures including E-5, "Grid Emergency." These inspection activities constitute completion of one site readiness sample. Documents reviewed during this inspection period are listed in applicable sections of the Attachment.

- Station Preparation and response to abnormally high ambient temperatures on July 17 and 18.

b. Findings

No findings of significance were identified.

.2 Summer Seasonal Readiness (2 samples)

a. Inspection Scope

The inspectors reviewed Exelon's overall preparations and protection for warm weather this quarter. The inspectors walked down portions of the emergency service water spray pond (ultimate heat sink) system during a heat wave and evaluated the Unit 1 and 2 main generator during a PJM grid maximum emergency generation alert. These systems were selected because their safety functions could be affected by warm weather. Documents reviewed for each applicable section of this report are listed in the

Attachment. This inspection satisfied two inspection samples for review of risk significant systems.

- System Review - Emergency Service Water Spray Pond (Ultimate Heat Sink) temperature during heat wave
- System Review - Unit 1 and 2 Main Generator during a PJM Grid Maximum Emergency Generation Alert

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown (71111.04Q - 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of plant systems to verify operability of redundant or diverse trains and components when safety equipment in the opposite train was either inoperable, undergoing surveillance testing, or potentially degraded. The inspectors used plant Technical Specifications (TSs), Exelon operating procedures, plant piping and instrumental 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 material conditions and general housekeeping of the system and adjacent spaces. The inspectors reviewed the following plant system alignments:

- 2B Core Spray (CS) During the 2A CS System Outage Window
- D12 Emergency Diesel Generator (EDG)
- U2 High Pressure Coolant Injection (HPCI) after Maintenance and Surveillance Test

b. Findings

No findings of significance were identified.

.2 Complete Walkdown (71111.04S - 1 sample)

The inspectors conducted one complete walkdown of the Unit 1 loop 'B' core spray system. The inspectors chose this system for inspection due to the fact that loop 'A' of the core spray system was out-of-service for a planned maintenance period. The core spray system is an important safety-related system that provides core make-up in the event of a loss-of-coolant accident.

The inspectors used plant TS, Exelon operating procedures, P&IDs, and the UFSAR as guidance for conducting the complete system walkdown. 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 material conditions and general housekeeping of the system and adjacent spaces. The walkdown included evaluation of system piping, supports, and component foundations to ensure they were not degraded.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

Fire Protection - Tours (71111.05Q - 9 samples)

a. Inspection Scope

The inspectors conducted a tour of the nine 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 available for use, and that passive fire barriers were maintained in good material condition. The inspectors also verified that compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with Exelon's fire plan.

- Auxiliary Equipment Room
- Unit 2 Safeguard System Isolation Valve Area
- EDG Fuel Oil Tank Enclosure
- Unit 1 Cable Spreading Room
- Unit 2 Cable Spreading Room
- Unit 2 HPCI
- Room13.2 KV Switchboard Room 336
- 12 Diesel Generator Room & Fuel Oil & Lube Oil Tank Room
- Unit 2 HPCI and Core Spray Injection Valve Room

b. Findings

No findings of significance were identified.

1R07 Heat Sink PerformanceBiennial Heat Sink Performance (71111.07B - 2 samples)a. Inspection Scope

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

- Unit 1 D core spray unit coolers (1DV211 & 1HV211)
- Unit 2 B residual heat removal (RHR) heat exchanger (2BE205)

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 inspector discussed 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 inspector assessed the internal condition of the Unit 2 "A" reactor enclosure cooling water (RECW) heat exchanger and observed its inspection. The inspectors reviewed applicable issue reports (IRs) to confirm that identified problems and degraded conditions had been resolved properly.

The inspectors assessed the condition of the spray pond (ultimate heat sink) and intake structure while two spray networks were in service and reviewed two evaluations of spray pond sediment depth (before and after a Fall 2005 dredging). 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 RHR service water system engineer.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11 - 1 sample)Resident Inspector Quarterly Reviewa. Inspection Scope

On August 9, 2006, the inspectors observed two licensed operator requalification simulator scenarios. The inspectors assessed the licensed operator performance and the training evaluator's critique. The review included the satisfactory completion of all critical tasks that measure operator actions required to ensure the safe operation of the

reactor and the protection of the nuclear fuel and primary containment. The inspectors discussed the results with operators, operations management, and training instructors.

The scenarios were as follows:

- Simulated security event and a small break loss of coolant accident
- Simulated failure to scram scenario with an inadvertent safety relief valve opening

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12 - 7 samples)

.1 Routine Maintenance Effectiveness Inspection (71111.12Q - 3 samples)

a. Inspection Scope

The inspectors evaluated Exelon's work practices and follow-up corrective actions for selected systems, structure, or component (SSC) issues to assess the effectiveness of Exelon's maintenance activities. The inspectors reviewed the performance history of those SSCs and assessed Exelon's extent-of-condition determinations for those issues with potential common cause or generic implications to evaluate the adequacy of Exelon'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 classification, performance criteria and goals, and Exelon's corrective actions that were taken or planned, to verify whether the actions were reasonable and appropriate. The inspectors reviewed the following issues:

- Reactor Protection System (System 42) Problems and Issues. The following problems and issues were documented as part of Exelon's corrective action program (CAP) in the following IRs: 429654, 515974, 520173, 469101, and 522098
- Control Enclosure Chilled Water (System 090) Problems and Issues. The following problems and issues were documented as part of CAP in the following IRs: 474188 and 497626
- Back-up Diesel Fire Pump (System 22B) monitoring criteria and maintenance rule scoping error. The following problems and issues were documented as part of Exelon's CAP in the following IRs: 534181 and 346867

b. Findings

No findings of significance were identified.

.2 Triennial Periodic Evaluation Inspection (71111.12T - 4 samples)

a. Inspection Scope

The inspectors reviewed and assessed the effectiveness of Exelon's 10 CFR 50.65 (a)(3) periodic evaluation, and the adjustments or corrective action performed since the last inspection. The periodic evaluation covered the period from March 2004 to February 2006, and the inspectors confirmed that it met the periodicity requirements, and that it adequately evaluated performance monitoring activities, associated goals, and preventive maintenance activities.

To aid in determining the effectiveness of Exelon's (a)(3) activities, four maintenance rule in-scope SSCs that had experienced degraded performance or condition were reviewed, based on SSC performance or condition, plant specific risk assessment, past inspection results, and operating experience. The following SSCs were reviewed:

- Primary Containment Isolation System (PCIS) (Sys 72)
- Nuclear Boiler, Safety Relief Valves (SRVs) (Sys 41A)
- Toxic Gas (Sys 78G)
- Fire Protection (Sys 22A)

The inspectors conducted the review to verify that: required SSCs were included in the scope of the program; that performance of SSCs was being effectively monitored against Exelon established goals which took into account industry operating experience where practical; that goals and performance criteria were appropriate; that balancing of reliability and availability was given adequate consideration; that corrective action plans were adjusted appropriately when performance of SSCs did not meet established goals; that the monitoring was sufficient to provide reasonable assurance that SSCs are capable of fulfilling their intended functions; that monitoring plans were closed appropriately; that performance of SSCs was being controlled effectively through the performance of appropriate preventive maintenance; and that problem identification and resolution of maintenance rule related issues were addressed.

The inspectors walked down accessible portions of the selected SSCs, interviewed the maintenance rule coordinator and system engineers, and reviewed documentation for the applicable systems. The documents that were reviewed are listed in the Attachment.

The inspectors reviewed a sample of condition reports (CR) related to maintenance effectiveness and to selected SSCs to ensure that problems were identified at an appropriate threshold, characterized, and that adequate corrective actions were implemented.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 6 samples)a. Inspection Scope

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

- Replacement of the D12 EDG Jacket Water Pressure Switch; IR-507509
- Unit 1 "D" Core Spray Response Time Exceeds Administrative Limit IR-508628
- Emergency Service Water Valve (011-1010) Freeze Seal to Replace Leaking Valve; Action Request (AR)1565145
- Unit 1 "5C" Feedwater Heater Drain Valve Failed Closed; IR-519860
- Unexpected Response During Step 4.4.2.2 of ST-2-042-634-1, "Feedwater/Main Turbine Trip System Actuation - Reactor Vessel Water Level - High Level 8"
- Emergency Diesel Generator Low Sulfur Fuel Oil, IR-534647 and IR-534386

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 5 samples)a. Inspection Scope

For the five operability evaluations described in the issue reports listed below, the inspectors evaluated the technical adequacy of the evaluations to ensure that Exelon properly justified TS operability and 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 function. In addition, the inspectors reviewed compensatory measures implemented to ensure that the measures worked and were controlled adequately. The inspectors also reviewed a sample of issue reports to verify that Exelon was identifying and correcting any deficiencies associated with operability evaluations.

- D14 EDG Does not Begin to Roll Within 200 Seconds (IR 513031)
- Unit 2 T-103 Emergency Operating Procedure (EOP) Entry for High Temperature in the HPCI Pipeway (IR 515891)
- "2A" Standby Liquid Control System (SLC) Heat Trace Energized Causing High Suction Temperatures (IR 516360)

- Emergency Service Water System (ESW) Check Valve has Excessive Leakage (AR A1565145)
- “2A” Core Spray System High Pressure Alarm During Pump Start (IR 523035 and IR 523020)

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 6 samples)

a. Inspection Scope

The inspectors reviewed the six post-maintenance tests 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 applicable criteria in the procedure were consistent with information in the licensing basis and design basis documents. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- D21 EDG Synchroscope Selector Switch Repair Post Maintenance Test (PMT)
- Unit 1 “A” CS Pump, Valve and Flow Test following planned maintenance
- Remote Shutdown Panel High Contact Resistance PMT
- Unit “2B” RHR Pump, Valve and Flow Test Following Electrical Breaker Contactor Testing
- Unit 1 Reactor Core Isolation Cooling (RCIC) Pump Valve and Flow Test Following a Planned Maintenance Outage
- Unit 2 RCIC Pump Valve and Flow Test Following the Pump Flow Controller Replacement

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 6 samples)

a. Inspection Scope

The inspectors witnessed the performance and/or reviewed test data for the following six surveillance tests that are associated with selected risk-significant SSCs. The review verified that Technical Specification requirements were followed and that acceptance criteria were appropriate. The inspectors also verified that proper test conditions were established as specified in the procedures, that no equipment preconditioning activities occurred, and that acceptance criteria had been met.

- ST-6-092-312-1, "D12 EDG Slow Start Operability Test Run"
- RT-2-011-252-0, "ESW Loop 'B' Flow Balance"
- RT-2-011-254-0, "ESW Loop 'B' D/P Flow Data Collection"
- RT -2-011-256-1, "Delta Pressure vs. Flow Data Collection Unit 1 'B' Loop"
- ST-6-051-234, "2D RHR Pump, Valve, and Flow Test"
- ST-6-011-231-0, "A" Loop ESW Pump, Valve and Flow Test"

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

40A1 Performance Indicator (PI) Verification (71151 - 8 samples)

a. Inspection Scope

The inspectors sampled Exelon submittals for the Performance Indicators (PIs) listed below to verify the accuracy of the PI data recorded during that period. PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Rev. 2, were used to verify the basis in reporting for each data element. The inspectors reviewed selected portions of operator logs, monthly operating reports, and Licensee Event Reports (LERs). Additionally, the inspectors discussed the PI data with Exelon personnel responsible for collection of the data.

Cornerstone: Initiating Events (5 samples)

The inspectors reviewed the accuracy and completeness of the data for the initiating events PIs. The inspection activity included five samples:

- Unit 1 Unplanned Scrams per 7000 Critical Hours (2005 & 2006)
- Unit 2 Unplanned Scrams per 7000 Critical Hours (2005 & 2006)
- Unit 1 Scrams with Loss of Normal Heat Removal (2005 & 2006)
- Unit 2 Scrams with Loss of Normal Heat Removal (2005 & 2006)
- Unit 1 Unplanned Power Changes per 7000 Critical Hours (2005 & 2006)

Cornerstone: Emergency Preparedness (3 samples)

The inspectors reviewed supporting documentation from drills and tests in the second, third, and fourth quarters of 2005 and the first two quarters of 2006, 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 3, "Regulatory Assessment Performance Indicator Guidelines."

- Drill and Exercise Performance (DEP)
- Emergency Response Organization (ERO) Drill Participation
- Alert and Notification System (ANS) Reliability

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered into the Corrective Action Program

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 performed a screening of all items entered into Exelon's corrective action program. Inspectors accomplished this by reviewing the description of each new issue report, attending daily screening meetings, and accessing Exelon's computerized database.

.2 Annual Sample: Units 1 and 2 Emergency Diesel Generator Fuel Oil Level

a. Inspection Scope

The inspectors reviewed Exelon's corrective actions in response to Issue Report (IR) 516562, "Technical Specification Value for Minimum EDG Fuel Oil Level Determined to be Non-Conservative." The diesel fuel oil storage tanks provide onsite storage and delivery of fuel oil to the diesel generators, if needed, for at least seven days of continuous operation. The diesel fuel oil storage tanks are required by TSs to have a minimum of 33,500 gallons of fuel. During an update by a contract engineer to calculation LM-007 to determine the required amount of diesel fuel oil and the corresponding tank level, it was determined that the 33,500 gallon TS value was not sufficient to provide seven days of independent continuous diesel operation. The inspectors reviewed various issue reports, action requests and procedures, and performed walkdowns and interviews to determine if Exelon adequately addressed the issue. The inspectors evaluated Exelon's actions that were documented in the corrective action program. The inspectors verified that operations procedures were in place to assure that a sufficient fuel oil supply could be transferred between emergency diesel generator fuel oil storage tanks to supply the diesels for seven days of continuous operation, in the event of a loss of offsite power (LOOP) and loss of coolant accident (LOCA). The inspectors reviewed the interim corrective actions to assure the new higher administrative limit of 36,312 gallons was maintained, and verified fuel oil storage tank levels were checked weekly, until Exelon completes their long term corrective actions.

b. Findings and Observations

No findings of significance were identified.

Exelon performed operability evaluation OPE-06-006 of the diesel fuel oil storage tank levels and appropriately considered regulatory requirements for a non-conservative fuel oil storage tank level TS value. Based on conservative administrative limits, manual

actions, procedural guidance, and evaluation of design basis documents, Exelon correctly determined that the non-conservative diesel fuel oil level did not affect the ability of the diesel generators to perform their design function.

Exelon considered NRC Administrative Letter 98-10 that allows imposing short term administrative controls for an inadequate TS while performing an evaluation for a TS change. Exelon also considered NRC Inspection Manual 9900, "Technical Guidance, Licensee Technical Specifications Interpretations," which states that when an error is found in the TS, the licensee should restrict operations until an amendment is processed or other acceptable actions are taken. Exelon imposed a higher administrative limit on the diesel fuel oil storage tanks of 36,312 gallons and also increased the level verification frequency from once per month to once per week until long term corrective actions could be completed.

Inspectors reviewed Exelon's operability evaluation which credits the higher tank levels, as well as manual operator actions after seven days to transfer fuel between diesel fuel oil storage tanks as described in the UFSAR sections 9.5.4.2 and 9.5.4.3. Inspectors reviewed procedure S92.30, "Transferring Diesel Oil From One Storage Tank to Another Storage Tank or Day Tank," to verify procedures were in place and were adequate to cross-tie the diesel fuel oil storage tanks.

During a review of the short term corrective actions, inspectors determined that Exelon had raised the administrative limit of the fuel oil storage tanks to 36,312 gallons, but only verified tank level using a dipstick approximately once per month. Further, Exelon had not raised the low level alarm setpoint in the control room to ensure that any draining of the tanks due to leakage would be detected prior to exceeding the new minimum tank level. The non-conservative alarm setpoint was identified in IR 518376. To address the concerns of potential tank leakage, Exelon increased the frequency of level verification by dipstick to once per week. Also, the inspectors verified current diesel fuel oil storage tank levels to ensure the level was greater than the Exelon administrative limit.

The inspector found that the new administrative limit of 36,312 gallons, verified by dipping the tank to determine level weekly, was reasonable to ensure an adequate supply of diesel fuel oil until long term corrective actions are completed.

4OA3 Event Followup (71153)

- .1 (Closed) LER 05000352/01-06-002, SRV Position Indication on the Remote Shutdown Panel Inoperable

On March 19, 2006, in refueling outage 1R11, a surveillance test of the safety relief valves (SRVs) was being performed from the remote shutdown panel (RSP). Exelon discovered that the open indication lights for the RSP SRVs (C, A, and N) work the first time the SRVs are opened, but the open indication lights do not work if the SRVs are subsequently closed and re-opened from the RSP, because the bulbs burn out when they are re-opened. The loss of indication did not affect the ability of the SRVs to be operated. The cause of the event was a faulty circuit design, which appears to have existed since initial plant startup. Therefore, the station operated in a condition that was

prohibited by Technical Specifications, Table 3.3.7.4-1, which requires RSP SRV position instrumentation be available in Modes 1 and 2.

This surveillance test was the first time that the SRV solenoids were operated using the handswitches at the RSP, rather than testing the handswitch and indication lights using an ohm meter with the circuit de-energized (i.e., contact resistance methodology). The testing methodology was changed based on the results of an unrelated evaluation performed by Exelon. Exelon implemented a modification to correct the faulty circuit design. The inspectors identified no new findings in their review. This condition would not have prevented the SRVs from operating as required and there was no transient requiring use of the remote shutdown panel. Lastly, this condition does not occur when the SRVs are operated from the main control room. This finding constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. Exelon documented this issue and its associated corrective actions in IR 468189. This LER is closed.

40A6 Meetings, Including Exit

Exit Meeting Summary

On October 10, 2006, 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 provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

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J. Hunter, Manager, Operations Training
P. Chase, Shift Operations Superintendent
E. Kelly, Engineering Programs Manager
R. Mandik, Emergency Preparedness
M. Kowalski, Maintenance Rule Coordinator
R. Harding, Regulatory Assurance
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C. Markle, OPS Self-Assessment Support
W. Astbury, System Manager, ESW
N. Chand, System Manager, RHRSW
G. Sprissler, Sr. Technician, Chemistry

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Open

NONE

Opened and Closed

NONE

Closed

05000352/01-06-002

LER SRV Position Indication on Remote Shutdown Panel

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

IR 515798 "U2 H2 Coolers Not Able to Support MAX VAR Loading"
3.7.1.3 Ultimate Heat Sink
IR 509924, "Need to Evaluate OREX Garments for Heat Stress"
A1101130, "Perform Program / Procedure Review"
E-5, "Grid Emergency," Revision 4
GP-5, "Steady State Operations," Revision 121
S32.3.A, "Main Generator Inspection During Heavy Grid Load," Revision 6
ST-6-107-590-0, "Daily Surveillance Log," Revision 73
OP-AA-108-107-1001, "Station Response to Grid Capacity Conditions," Revision 2
Operator Logs dated 07/17/06 through 07/18/06

Section 1R04: Equipment Alignment

Partial Walkdowns

Operator Logs dated 08/21/2006 and 08/22/2006
8031-M-52, "Core Spray Unit 2," Revision 16, Sheet 3
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F-A-542, "Auxiliary Equipment Room 542 (El. 289) Fire Area 25," Revision 10
F-R-376, "Unit 2 Safeguard System Isolation Valve Area Room 376 (El. 217) Fire Area 66,"
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IR 359971, "PR Board Terminal Strip TB1-4 Screw Threads Degraded"
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Section 1R07: Biennial Heat Sink Performance

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Section 1R12: Maintenance Effectiveness

Routine Maintenance Effectiveness Inspection

Issue Reports and Action Requests

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AR00530002 "Maintenance Screen/QRT Review - 15 day-10-P402 BDDFP Hi Vib."
AR00346867 "Evaluate 10-P402 Pump Curve from RT-6-022-253-0
AR1583525 "10-P402 Backup Diesel Driven Fire Pump HI Vibration
IR534181, "Reverse Mrule Bases Document for fire Protection 22A/22B"
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 IR 534647 "Diesel Fuel Oil Delivery Concerns - Ultra Low Sulfur
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 IR 508628, "'1D' Core Spray Response Time Exceeds Administrative Limit"
 IR 508982, "NOS ID'D Deficiencies With St-2-052-802-1"
 IR 516425, "HV-052-1F015A Failed to Close From Handswitch"
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IR 484642, "D14 Slower than Normal to Achieve Required Frequency"

IR 484649, "The Start Time for the D14 Diesel Requires Further Review"

IR 487356, "ESW Check Valve Has Excessive Leakage"

IR 499785, "Pentaborate Crystal Buildup on 2A SLC Pump"

IR 513031, "D14 Does Not Begin to Crank Within 200 Seconds"

IR 515891, "T-103 Entry for High HPCI Pipeway Temperature"

IR 516360, "2A SLC Heat Trace Causing High Suction Temperatures"

A1375757, "Received SLC Tank / Piping Hi / Lo Temperature Early"

A1436998, "TSL-CC-232-1 Thermostat Stuck On"

A1552477, "1A SLC Pump Suction Temperature High"

A1564719, "D14 Air Start Solenoids Failed to Open in the Required Time"

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Section 1R19: Post Maintenance Testing

ST-6-049-230-1 "RCIC Pump, Valve and Flow Test"

ST-6-049-230-1 "RCIC Pump, Valve and Flow Test"

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IR 340394, "HV-49-1F031 Did Not Stroke During ST-2-088-320-1"
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IR 468189, "Closure of C,A,N SRVs at RSP Results in Blown Red Bulb"
IR 491998, "Valve Failed to Stroke from MCR Handswitch"
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M-093-004, "480VAC MCC Breaker Assembly and Cubicle Terminal Maintenance," Revision 8
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A1371902, "HV-049-2F080 Failed to Close from Handswitch"
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Procedures

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Issue Reports and Action Requests

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IR 515571, "Unit Cooler Cleaning Not Scheduled Correctly"
IR 518531, "LTA Scheduling Results in ESW Flow Balance Schedule Change"
IR 518657, "Potential for Mispositioning of ESW Throttle Valves"
IR 519680, "Valve 011-1005D Would Not Fully Close"
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Section 40A1: Performance Indicator (PI) Verification

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Section 40A2: Other

Issue Reports and Action Requests

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IR 184170, "SSDI Readiness - EDG Fuel Oil Consumption Rate Calculation"
IR 198603, "D11 Fuel Oil Leaks on Duplex Filter after System Return"
IR 214444, "D-23 Fuel Injection Nozzle Leaks (4)"
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IR 516562, "TS Value for Minimum EDG Fuel Oil Level Determined to be Non-Conservative"
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IR 519680, "Valve 011-1005D Would Not Fully Close"

Procedures

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S92.3.N, "Receiving Diesel Fuel Oil Delivery," Revision 25
ST-6-092-311-1, "D11 Diesel Generator Slow Start Operability Test Run," Revision 74
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Drawings

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Miscellaneous

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Safeguards and Selected Non-Safeguard Loads"

UFSAR Table 8.3-3, "Assignment of Safeguard and Selected Non-Safeguard Loads to Diesel
Generators and Emergency Buses"

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Section 4OA3: Event Followup

Issue Reports and Action Requests

IR 507509, "Spurious D12 Diesel Running Alarm"

IR 507662, "Generic Implications on D/G jacket Water Pump Discharge Pressure"

A1582542, "D12 D/G jacket Water Lo Pressure Alarm"

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Instruments Calibration/Functional Test"

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LIST OF ACRONYMS

ADAMS	Agencywide Documents Access Management System
ADS	Automatic Depressurization System
ANS	Alert and Notification System
AR	Action Request
ATMI	Advanced Technology Materials, Inc
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CS	Core Spray System
DEP	Drill and Exercise Performance
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedure
EPIX	Equipment Performance Information Exchange
ERO	Emergency Response Organization
ESW	Emergency Service Water
FMCT	Failure Mode Causal Table
HPCI	High Pressure Coolant Injection
HVAC	Heating, Ventilation, and Air Conditioning
IR	Issue Report
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
LOOP	Loss of Offsite Power
MSRV	Main Steam Relief Valve
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PCIS	Primary Containment Isolation System
PDU	Power Distribution Unit
PI	Performance Indicator
P&ID	Plant Piping and Instrumental Drawings
PMT	Post Maintenance Test
RCIC	Reactor Core Isolation Cooling
RECW	Reactor Enclosure Cooling Water
RHR	Residual Heat Removal
RPS	Reactor Protection System
SLC	Standby Liquid Control System
SRV	Safety Relief Valve
SSC	Structure, System, Component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report