



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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August 9, 2010

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Rd.
Warrenville, IL 60555

SUBJECT: LIMERICK GENERATING STATION - NRC INTEGRATED
INSPECTION REPORT 05000352/2010003 AND 05000353/2010003

Dear Mr. Pacilio:

On June 30, 2010, 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 July 9, 2010, with Mr. W. Maguire 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 Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

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 05000352/2010003 and 05000353/2010003
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

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Sincerely,
 /RA/
 Paul G. Krohn, Chief
 Projects Branch 4
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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: 05000352/2010003 and 05000353/2010003

Licensee: Exelon Generation Company, LLC

Facility: Limerick Generating Station, Units 1 & 2

Location: Sanatoga, PA 19464

Dates: April 1, 2010 through June 30, 2010

Inspectors: E. DiPaolo, Senior Resident Inspector
N. Sieller, Resident Inspector
J. Bream, Acting Resident Inspector
P. McKenna, Acting Resident Inspector
E. Burket, Reactor Inspector
T. Moslak, Health Physicist
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Approved by: Paul G. Krohn, Chief
Projects Branch 4
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Enclosure

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SUMMARY OF FINDINGS

IR 05000352/2010003; 05000353/2010003; 04/01/2010-06/30/2010; Limerick Generating Station, Units 1 and 2; routine integrated report.

The report covered a three-month period of inspection by resident inspectors and announced inspections by regional reactor inspectors. 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.

No findings of significance were identified.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period in Operational Condition (OPCON) 5 (Refueling) for refueling outage 1R13. On April 12, Unit 1 entered OPCON 2 (Startup). Operators synchronized the unit to the electrical grid ending refueling outage 1R13 on April 13. Full rated thermal power (RTP) was achieved on April 15.

On April 17, operators reduced Unit 1 power to approximately 65 percent in response to an electro-hydraulic control system fluid leak on an instrument line from the number 2 turbine control valve. Following repairs, operators returned Unit 1 to full RTP on April 18. On May 15, operators reduced power to approximately 70 percent to facilitate main turbine valve testing and secondary plant maintenance. The unit was returned to full RTP on May 16. On June 2, Unit 1 began to exhibit indications of a fuel assembly cladding leak.

On June 4, Unit 1 power was reduced to approximately 60 percent to facilitate fuel leak power suppression testing. Following the successful location and suppression of the leak (i.e., control rod insertion), power was returned to full RTP on June 9.

On June 23, operators manually scrammed Unit 1 per procedural requirements in response to the trip of both recirculation pump motor-generator sets. This was caused by a loss of the operating main generator stator water cooling pump when its power supply was lost as a result of an underground cable fault and the standby pump failed to start due to a control power problem. Unit 1 was taken to OPCON 4 (Cold Shutdown) to facilitate forced outage 1F44. A reactor startup was commenced on June 26 following reviews and the completion of other maintenance activities. Operators synchronized the unit to the electrical grid on June 27 and achieved full RTP on June 29. Unit 1 remained at full RTP for the remainder of the inspection period.

Unit 2 began the inspection period operating at full RTP. On May 29, operators reduced power to approximately 65 percent to facilitate main turbine valve testing, control rod scram time testing, and main condenser waterbox cleaning. The unit was returned to full RTP later that day. Unit 2 remained at full RTP, except for periods of high condensate temperature due to environmental conditions (i.e., high outside temperatures), for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems and Barrier Integrity

1R01 Adverse Weather Protection (71111.0 - 1 sample)

Summer Readiness of Offsite and Alternating Current (AC) Power Systems

a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate AC power system to evaluate the

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readiness of the systems prior to seasonal high grid loading. The inspectors reviewed Exelon's procedures affecting these areas and the communications protocols between the transmission system operator and Exelon. This review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether appropriate procedures and protocols were established and implemented to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible system manager, reviewing issue reports (IRs) and open work orders, and walking down portions of the offsite and AC power systems including the 500 kilo-volt and 220 kilo-volt switchyards. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

Partial Walkdown (71111.04Q - 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the plant systems listed below to verify operability following realignment after a system outage window or while safety-related equipment in the opposite train was inoperable, undergoing surveillance testing, or potentially degraded. The inspectors used Technical Specifications (TS), Exelon operating procedures, plant piping and instrumentation diagrams (P&ID), 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 walkdowns, the inspectors evaluated the material condition and general housekeeping of the systems and adjacent spaces. The documents reviewed are listed in the Attachment. The inspectors performed walkdowns of the following areas:

- Motor-driven and diesel-driven fire pumps when Unit 1 high pressure coolant injection (HPCI) system was out-of-service (OOS) on April 22, 2010;
- Emergency diesel generators (EDGs) D22 and D24 when D21 was inoperable due to testing and D23 was unavailable due to maintenance on May 10, 2010; and
- EDG D23 following return-to-service on May 24, 2010.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Protection - Tours (71111.05Q - 4 samples)a. Inspection Scope

The inspectors conducted a tour of the four areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that combustible materials and ignition sources were controlled in accordance with Exelon's 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 OOS, degraded, or inoperable fire protection equipment in accordance with the station's fire plan. The documents reviewed are listed in the Attachment. The inspectors toured the following areas:

- Unit 1, Emergency Core Cooling System Corridor, Fire Area 40;
- Unit 1, D14 Diesel Generator and Fuel Oil-lube Oil Tank Room, Fire Area 82
- Unit 2, Class IE Battery Room, Fire Area 5; and
- Unit 2, D23 Diesel Generator and Fuel Oil-Lube Oil Tank Room, Fire Area 84.

b. Findings

No findings of significance were identified.

.2 Fire Protection – Drill Observation (71111.05A - 1 sample)a. Inspection Scope

The inspectors observed one unannounced fire drill conducted on Unit 1 Reactor Building, Elevation 201, Room 207 on June 15, 2010. The inspectors observed the drill to evaluate the readiness of the plant fire brigades to fight fires. The inspectors observed the fire brigade drill critique and assessed whether appropriate evaluator feedback was provided. The documents reviewed are listed in the Attachment. Specific attributes evaluated were:

- Proper donning of fire fighting turnout gear and self-contained breathing apparatus;
- Proper use and layout of fire hoses;
- Employment of appropriate fire fighting techniques;
- Sufficient firefighting equipment brought to the scene;
- Effectiveness of fire brigade leader communications, command, and control;
- Search for propagation of fire into other plant areas;
- Utilization of pre-planned strategies;
- Adherence to the pre-planned drill scenario; and
- Licensee self critique and drill evaluation.

b. Findings

No findings of significance were identified.

1R08 In-Service Inspection (71111.08 - 1 sample)

a. Inspection Scope

From March 29-April 2, 2010, the inspectors performed a review of Exelon's implementation of their risk-informed in-service inspection (ISI) program activities for monitoring degradation of the reactor coolant system boundary and risk significant piping system boundaries for Limerick Unit 1 using the criteria specified in the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI.

The sample selection was based on the inspection procedure objectives and risk priority of those components and systems where degradation would result in a significant increase in risk of core damage. The inspectors reviewed documentation, observed in-process non-destructive examinations (NDE) and interviewed inspection personnel to verify that the activities were performed in accordance with the ASME Boiler and Pressure Vessel Code Section XI requirements.

Activities inspected during the Unit 1 refueling outage 1R13 included direct observations of in process ultrasonic testing (UT) including both automated phased array and manual UT techniques on the nozzle to safe-end dissimilar metal welds of N2J and N2H. The inspectors also observed magnetic particle testing (MT) of welds 1008 and 1009 which are flange to spool piece welds in the piping section of the residual heat removal service water (RHRSW) system that was replaced during 1R13.

The inspectors reviewed three sets of radiographic testing (RT) films from the repair of the residual heat removal (RHR) heat exchanger bypass valve, HV-C-051-1F048B. The inspectors also examined portions of videos and pictures of in-vessel visual inspections (IVVI) of the jet pumps, the feedwater sparger, and the steam dryer to verify that Exelon is inspecting and monitoring in-vessel components in accordance with Boiling Water Reactor Vessel and Internals Project (BWRVIP) guidelines.

The inspectors performed direct visual inspection of the accessible portions of the drywell liner and reviewed visual inspection records of the components examined during Exelon's walk down.

Repair/Replacement Consisting of Welding Activities

The inspectors reviewed three repair and replacement activities to verify that welding activities and applicable NDE were performed in accordance with ASME Code requirements. These activities included testing, removing, and replacing of 'A' and 'D' core spray pump relief valves and replacing the reactor core isolation cooling (RCIC) system barometric condenser relief valve, PSV-050-1F033, and adjacent piping. Additionally, the inspectors reviewed the engineering change package, ECR LG-10-00099, for the replacement of a five and one-half foot RHRSW piping section (HBC-091-01) which contained flaws in excess of minimum wall thickness previously evaluated under Code Case N-513-2. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program

Resident Inspector Quarterly Review (71111.11 Quarterly - 1 sample)

a. Inspection Scope

On April 26, 2010, the inspectors observed licensed operator simulator just-in-time training and on May 5, 2010, the inspectors observed licensed operator simulator proficiency training on the operations department staff. The just-in-time training tested the operator's ability to decrease reactor power with both recirculation pumps having their scoop tubes locked. The May 5 training scenario tested the operators' ability to respond to an electro-hydraulic pressure regulator failure and to control reactor water level with the HPCI system. Another scenario on May 5 tested the operators' ability to respond to a steam leak in the drywell complicated by a scram with an anticipated transient without scram. The inspectors observed licensed operator performance including operator critical tasks, which are required to ensure the safe operation of the reactor and protection of the nuclear fuel and primary containment barriers. The inspectors also assessed crew 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 training instructor critiques and assessed whether appropriate feedback was provided to the licensed operators.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12 - 3 samples)

a. Inspection Scope

The inspectors evaluated Exelon's work practices and follow-up corrective actions for two issues within the scope of the maintenance rule. The inspectors reviewed the performance history of these structures, systems, and components (SSCs) and assessed the effectiveness of Exelon's corrective actions, including any extent-of-condition determinations to address potential common cause or generic implications. 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 Part 50.65, "Requirements for Monitoring the Effectiveness of Maintenance." In addition, the inspectors reviewed the maintenance rule classifications, performance criteria, and goals for these SSCs and evaluated whether they appeared reasonable and appropriate. The documents reviewed are listed in the Attachment. The inspectors reviewed the following issues:

- IR1065596, EDG D23 failure;
- IR 1022255, Residual heat removal service water radiation monitor functional failures due to low flow); and
- IR1045832, Operator for HPCI system valve HV-055-1F001 failed to shut-off.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 5 samples)

a. Inspection Scope

The inspectors evaluated the effectiveness of Exelon's maintenance risk assessments required by Part 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. The inspectors reviewed the following samples:

- IR 1051889, Unit 1 outage risk and Unit 2 on-line risk when the Unit 1 'A' reactor protection inverter supply breakers tripped, causing multiple engineered safety feature activations and inoperable equipment on April 2, 2010;
- Unit 1 on line risk when 'A' standby gas treatment train, Unit 'A' reactor enclosure recirculation train, and an offsite power source were unavailable on April 19, 2010;
- Recovery from heavy lift of Unit 2 spare main transformer on April 27, 2010;
- Unit 2, on-line risk when EDG D23 was OOS due to emergent repairs from May 4 to May 24, 2010; and
- A1269310, Unit 1, balance of plant battery ground and ground isolation activities on June 23, 2010.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 7 samples)

a. Inspection Scope

The inspectors assessed the technical adequacy of a sample of seven operability 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 IRs to verify that Exelon identified and corrected deficiencies associated with operability evaluations. The documents reviewed are listed in the Attachment. The inspectors reviewed the following evaluations:

- IR 1055781, Abnormal color oil sample from Unit 1 HPCI booster pump bearings;
- IR 1065596, Operation Technical Decision Making Process (OTDM) for site EDG's following the failure of EDG D23 and IR 1065596,
- OTDM for returning EDG D23 to service following maintenance prior to completion failure root cause evaluation;
- IR 1075555, Fire system flow switch (FS-022-146-01) pipe connection broken;
- IR 1077831, Emergency service water valve HV-011-077 valve hung up while opening;
- IR 1080029, Unit 1 'A' (RHRSW) flow indication with no flow to heat exchanger; and
- IR 1081840, Unit 1 core spray loop 'B' high pressure during HPCI pump, valve, and flow test.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

.1 Temporary Modifications (71111.18 - 2 samples)

a. Inspection Scope

The inspectors reviewed the two temporary plant modifications listed below to ensure that installation of the modifications did not adversely affect systems important to safety. The inspectors compared the modifications with the UFSAR and TS's to verify that the modification did not affect system operability, availability, or adversely affect plant operations. The inspectors ensured that station personnel implemented the modification, in accordance with the applicable temporary configurations change process. The impact on existing procedures was reviewed to verify Exelon made appropriate revisions to reflect the temporary changes. The documents reviewed are listed in the Attachment. The inspectors reviewed the following samples:

- Engineering Change LG 10-00132, Residual Heat Removal Service Water Hanger HBC-091-H003 Not Carrying Load; and
- Engineering Change LG 07-00413, Unit 1 Standby Liquid Control 'C' Pump Auto Start Inhibit Modification to HS-048-104C.

b. Findings

No findings of significance were identified.

.2 Permanent Modifications (71111.18 - 1 sample)

a. Inspection Scope

The inspectors reviewed a permanent plant modification documented in Engineering Change LG 09-00096, "Leading Edge Flow Meter Checkplus Installation." The modification installed a Caldon leading edge flow meter ultrasonic flow measurement system to monitor the Unit 1 feedwater system to support measurement uncertainty recapture power uprate. The object of the modification was to recover lost megawatts

due to fouling and inaccuracies present in the existing feedwater flow measuring devices.

The inspectors discussed the change with the responsible design engineer to assess any potential impacts on system operation and to ensure the design functions were not adversely affected. The inspectors verified affected procedures and design documents had been appropriately updated to incorporate the modification. 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 the testing demonstrated that the modification acceptance criteria were met. A field walkdown of the system was performed to verify the installed configuration was as described in the design change documentation. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed six post-maintenance tests 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 reviewed the following samples:

- C0232551, Repair Unit 1 HPCI steam supply valve actuator (HV-055-1F001);
- R1032159, Replace AC and direct current solenoid valves on main steam isolation valve HV-041-1F022A activator;
- C0233125, Repair EDG D23 piston damage;
- R1111856, Calibrate HPCI turbine speed control governor;
- C0233701, Investigate Unit 1 recirculation pump lubricating oil A2 failure to start on A1 pump trip; and
- R0795109, EDG D14 six-year overhaul and D23 extent-of-condition inspections.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20 - 2 samples)

1 Unit 1 Maintenance and Refueling Outage

a. Inspection Scope

At the beginning of the inspection period, Unit 1 was in OPCON 5 (Refueling) with the reactor cavity flooded for refueling outage 1R13. On April 12, Unit 1 entered OPCON 2 (Startup). Operators synchronized the unit to the electrical grid ending completing the refueling outage on April 13. Full RTP was achieved on April 15. During the inspection period, the inspectors conducted several containment walkdowns and monitored plant startup and heatup activities. The documents reviewed are listed in the Attachment. The inspectors reviewed Exelon's controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable TS when taking equipment out of service;
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing;
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting;
- Status and configuration of electrical systems and switchyard activities to ensure that TS were met;
- Monitoring of decay heat removal operations;
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system;
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss;
- Activities that could affect reactivity;
- Maintenance of secondary containment as required by TS;
- Refueling activities, including fuel handling and fuel receipt inspections;
- Fatigue management; and
- Identification and resolution of problems related to refueling outage activities.

b. Findings

No findings of significance were identified.

2. Unit 1 Manual Scram

a. Inspection Scope

The inspectors evaluated the activities associated with the forced outage (1F44) that occurred as a result of a Unit 1 manual reactor scram on June 23, 2010. Operators inserted a manual scram per procedural requirements in response to the trip of both recirculation pump motor-generator sets. The recirculation pump motor-generators tripped as designed when the operating main generator stator water cooling pump lost its power supply as a result of an underground cable fault and the standby pump failed to start due to a control power problem. Unit 1 was taken to OPCON 4 (Cold Shutdown) to facilitate forced outage. A reactor startup was commenced on June 26 following reviews and the completion of other maintenance activities. The documents reviewed are listed in the Attachment. From June 23 through June 27, 2010, the inspectors monitored the activities listed below:

- Limerick's forced outage plan, including appropriate consideration of risk, industry operating experience, and previous site-specific problems;
- Plant Operations Review Committee and Outage Control Center meetings;
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss;
- Monitoring of decay heat removal operations;
- Identification and resolution of problems related to refueling outage activities; and
- Portions of the reactor startup and ascension to full-power operation.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 6 samples; 3 routine surveillances; 2 in-service testing (IST); and 1 containment isolation valve)

a. Inspection Scope

The inspectors either witnessed the performance of, or reviewed test data, for six surveillance tests (STs) associated with risk-significant SSCs. The reviews 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 were met. The documents reviewed are listed in the Attachment. The inspectors reviewed the following samples:

- ST-6-041-202-1, MSIV Cold Shutdown Valve Test (containment isolation valve);
- RT-6-401-490-01, Suppression Pool Gross Input Leak Rate Determination;
- ST-6-055-230-01, HPCI Pump, Valve and Flow Test (IST);
- ST-6-052-232-2, 'B' Loop Core Spray Pump, Valve and Flow Test (IST);
- ST-6-095-918-2, Unit 2, Division 4, Safeguards Battery Inspection; and
- ST-6-092-113-2, D23 Diesel Generator, 24 Hour Endurance Test.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS01 Radiological Hazard Assessment and Exposure Controls (71124.01 - 1 sample)

a. Inspection Scope

During the period April 5 - 9, 2010, the inspectors conducted the following activities to verify that the licensee was evaluating, monitoring, and controlling radiological hazards for work performed in locked high radiation areas (LHRA) and other radiological controlled areas, and that workers were adhering to these controls when working in these areas, during the 1R13 refueling outage. Implementation of these controls was

reviewed against the criteria contained in 10 CFR Part 20, TS, and the licensee's procedures.

Radiological Hazards Control and Work Coverage

The inspectors identified exposure significant work areas in Unit 1. Specific work activities included demobilization activities in the Unit 1 drywell and reactor cavity draindown/decontamination. The inspectors reviewed radiation survey maps and radiation work permits (RWP) associated with these areas to determine if the associated controls were acceptable. The inspectors also attended the pre-job RWP briefing for cavity decontamination to determine if the workers were informed of the radiological conditions at the job site, respiratory protection requirements, electronic dosimeter alarm setpoints, and actions to be taken if a dosimeter alarms.

The inspectors toured the accessible radiological controlled areas in Unit 1, including the drywell, reactor building, waste processing building, and turbine building, and with the assistance of a radiation protection supervisor performed independent surveys of selected areas to confirm the accuracy of survey data and the adequacy of postings. During this tour, the inspectors verified that selected LHRAs were properly secured and posted.

In evaluating the RWPs, the inspectors reviewed electronic dosimeter dose/dose rate alarm set points to determine if the setpoints were consistent with the survey indications and plant policy. The inspectors verified that workers were knowledgeable of the actions to be taken when the dosimeter alarms, or malfunctions, for tasks being performed under selected RWPs.

The inspectors reviewed the licensee's procedure for measuring personnel exposure using the effective dose equivalent (EDE) method. The inspectors confirmed that the method was approved by the NRC and that the implementing procedure appropriately specified the placement of whole body and extremity dosimeters on the worker.

Problem Identification and Resolution

A review of a Nuclear Oversight objective evidence report, Personnel Contamination Event Reports, Issue Reports, and an Apparent Cause Evaluation, was performed to determine if identified problems and negative performance trends were entered into the corrective action program and evaluated for resolution.

IRs associated with radiation protection control access, initiated between January 2010 through March 2010, were reviewed and discussed with the licensee staff to determine if the follow up activities were being conducted in an effective and timely manner, commensurate with their safety significance.

High Radiation Area and Very High Radiation Area Controls

Procedures for controlling access to Locked High Radiation Areas (LHRA) and Very High Radiation Areas (VHRA), (e.g. the drywell and the traversing incore probe (TIP) room) were reviewed to determine if the administrative and physical controls were adequate. The inspectors also reviewed the physical and procedural controls for securing and removing highly contaminated/activated materials stored in the spent fuel

pool. The inspectors discussed with radiation protection management, the adequacy of current LHRA/VHRA controls, including prerequisite communications and authorizations, and verified that any changes made to relevant procedures did not substantially reduce the effectiveness and level of worker protection.

Radiation Worker Performance and Radiation Protection Technician Performance

The inspectors observed and questioned radiation workers and radiation protection technicians regarding radiological controls applied to various tasks, including equipment surveillance testing and maintenance tasks. The inspectors determined that the workers were aware of current RWP requirements, radiological conditions, access controls, and that the skill level was appropriate with respect to the potential radiological hazards and the work involved.

The inspectors reviewed the IRs related to radiation worker and radiation protection technician errors and personnel contamination event reports to determine if an observable pattern traceable to a similar cause was evident.

Contamination and Radioactive Material Control

The inspectors observed workers surveying and releasing potentially contaminated materials for unrestricted use. The inspectors verified that the counting instrumentation was located in a low background area and that the instruments sensitivity was appropriate for the type of contamination being measured.

During the period June 7 - 14, 2010, the inspectors conducted the following activities to verify that the licensee was evaluating, monitoring, and controlling radiological hazards for work performed in LHRAs and other radiological controlled areas. In particular, the inspectors conducted an in-depth review of the circumstances surrounding the temporary disabling of electromagnetic locks for four (4) locked high radiation areas, contained in IR 1039368, in March 2010, and the subsequent apparent cause evaluation, and resulting corrective actions. Implementation of these controls was reviewed against the criteria contained in 10 CFR Part 20, TS, and the licensee's procedures.

On March 5, 2010, an isolated incident occurred at Limerick, while performing an upgrade to security systems. Electromagnetic locks to four LHRAs (door nos. 248, 266, 244, and 275) were de-energized for a short time period. The de-energization occurred during the swap over of power supplies, performed as part of a plant modification. The de-energization of the door locks was fortuitously, and coincidentally, identified at the time during which the weekly verification that LHRA doors were locked was being performed. At the time the swap over was being done, a radiation protection (RP) technician was performing his LHRA checks and found that the door opened upon challenging the door. The technician immediately notified supervision and guarded the door, until power was restored minutes later. Upon investigating the incident, the licensee determined that four LHRA doors were unlocked for about 15 minutes during the swap over. The doors are water tight hatches that normally require an (RP) technician to unlock the electromagnetic lock and turn a large handwheel to undog the hatch. Subsequently, the RP tech remains there as a door guard until the task in the area(s) is completed.

Based on reviewing the licensee's investigation into this matter and conducting a walkdown of the affected doors, the inspectors determined that:

- The condition was self-identified by the licensee, during a routine verification process. Actions were immediately taken to control the situation and re-energize the locks. The condition was immediately entered into the corrective action program for cause evaluation. The condition was of short duration, with no safety consequence, during which no inadvertent entry or unplanned dose resulted.
- Established controls for entry into the affected areas were in-place during the swap over. The doors were well posted indicating that the area(s) were LHRA(s), requiring logging on a dedicated RWP, a pre-job briefing, an RP escort/guard, and use of a dedicated key prior to entry.
- The cause was thoroughly evaluated and comprehensive programmatic corrective actions were implemented including revisions to electrical procedures to include RP concurrence prior to any future swap over, and installation of robust secondary locking devices on the affected doors. Provisions were established to assure that an alternative means of egress from these areas was available, should the need arise.
- The licensee complied with two of three requirements contained in the TS Administrative Section 6.12.2 in that the LHRAs were conspicuously posted and that the keys to these areas were under supervisory control. The only additional action that the licensee should have taken, during the period that the LHRAs were de-energized, was to have door guards present at the disabled doors.

b. Findings

The failure to fully comply with Technical Specification Administrative Section 6.12.2, in that unlocked LHRAs were unguarded, constitutes a violation of minor significance that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. This issue was entered into the Exelon CAP as IR 1039368.

2RS02 Occupational ALARA Planning and Controls (71124.02 - 1 partial sample)

a. Inspection Scope

During the period April 5 - 9, 2010, the inspectors conducted the following activities to verify that the licensee was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as low as is reasonably achievable (ALARA) for tasks performed during the Unit 1 refueling outage (1R13). Implementation of these controls was reviewed against the criteria contained in 10 CFR Part 20, applicable industry standards, and the licensee's procedures.

Radiological Work Planning

The inspectors reviewed pertinent information regarding the past Unit 1 outage exposure history, current exposure trends, and ongoing activities to assess current performance and exposure challenges for refueling outage 1R13. A review of current ALARA Plans, Work-In-Progress Reviews, and a Post-Job ALARA review was completed to assess current performance.

The inspectors reviewed the contingency action plans that would be implemented should dose rates become elevated in various work areas during the refueling outage 1R13. Scheduled outage work included the in-service inspection of the Unit 1 reactor pressure vessel nozzles and the associated hydro-lazing and installation of temporary shielding. Additional projects included suppression pool inspections, replacement of the reactor bottom head drain valves, and installation of coolant flow instrumentation.

The inspectors evaluated the departmental interfaces between radiation protection, operations, maintenance crafts, and engineering to identify missing ALARA program elements and interface problems. The evaluation was accomplished by attending a pre-job planning meeting for decontaminating the reactor cavity; reviewing recent Station ALARA Committee meeting minutes, work-in-progress/post-job ALARA reviews, Nuclear Oversight Objective Evidence Reports; and interviewing the site Radiation Protection Manager. The inspectors also attended two (2) Station ALARA Committee meetings (Nos. 2010-09 & 2010-010) to assess how refueling outage 1R13 exposure challenges were being addressed by the site management and staff. Additionally, the inspectors attended a contractor's daily meeting to determine the level of detail that was provided to workers regarding ongoing ALARA performance.

Verification of Dose Estimates

The inspectors reviewed the assumptions and basis for the exposure projections for the refueling 1R13 outage and compared actual cumulative exposure with established goals.

The inspectors reviewed the licensee's procedures associated with monitoring and re-evaluating dose estimates when the forecasted cumulative exposure for tasks differed from the actual exposure received. In particular, the inspectors reviewed the actions taken following identification of elevated dose rates in low pressure coolant injection piping, in which work was deferred to permit increased flushing and installation of additional temporary shielding in the affected areas, to lower dose rates. Also, the inspectors reviewed the licensee's tracking of emergent dose for increasing the scope of snubber inspections.

The inspectors reviewed the dose/dose rate alarm reports, work-in-progress evaluations, and exposure data for selected individuals receiving the highest (TEDE) for 2010 to confirm that no individual exposure exceeded the regulatory limit, or met the performance indicator reporting guideline.

Jobs-In-Progress

The inspectors observed various jobs-in-progress to evaluate the effectiveness of dose control measures. Jobs observed included Unit 1 reactor cavity decontamination and drywell demobilization. As part of this evaluation, the inspectors reviewed the RWP, survey maps, and contamination control measures, and determined that workers were properly wearing dosimetry and were knowledgeable of RWP requirements. The inspectors attended the pre-job briefing for cavity decontamination. The inspectors also attended Station ALARA Committee meetings in which the management and staff discussed 1R13 outage ALARA performance, including snubber testing emergent dose, recirculation system drain valve replacement, and cavity draindown ALARA measures.

Source Term Control

The inspectors reviewed the status and historical trends for the Unit 1 source term. By reviewing survey data for reactor coolant system piping (BRAC measurements) and interviewing the Radiation Protection Manager, the inspectors evaluated the recent source term measurements and control strategies. Specific strategies employed by the licensee included performing a reactor soft shutdown, system flushes, installation of permanent and temporary shielding in the drywell, vacuuming the seal plate, hydro-lazing of reactor nozzles, and increasing the capacity of the reactor cavity filtration system.

Problem Identification and Resolution

The inspectors reviewed elements of the licensee's corrective action program related to implementing ALARA program controls, including issue reports, Nuclear Oversight Objective Evidence reports, dose/dose rate alarm reports, and Station ALARA Committee meeting minutes, to determine if problems were being entered at a conservative threshold and resolved in a timely manner.

b. Findings

No findings of significance were identified.

2RS03 In-Plant Airborne Radioactivity Control and Mitigation (71124.03 - 1 partial sample)

a. Inspection Scope

During the period April 5 - 9, 2010, the inspectors conducted the following activities to verify that the licensee was properly monitoring in-plant airborne radioactivity concentrations, implementing engineering controls to limit the uptake by workers, and appropriately using respiratory protection devices to maintain personnel exposure ALARA for tasks performed during the Unit 1 refueling outage 1R13. Implementation of these controls was reviewed against the criteria contained in 10 CFR Part 20, applicable industry standards, and the licensee's procedures.

Engineering Controls

The inspectors reviewed the ALARA Plans for various tasks to determine if appropriate ventilation controls and airborne concentration "Stop work" criteria were specified to limit airborne contamination at the job site. Included in this review were control rod drive replacements, suppression pool platform activities, and reactor cavity decontamination. For these activities, the inspectors reviewed the TEDE ALARA evaluation screening work sheet, to determine if the use of respiratory protection was appropriately evaluated.

The inspectors reviewed the air sample analysis sheets for various projects to evaluate the effectiveness of engineering controls in minimizing airborne contamination levels at the job site. The inspectors determined that the appropriate sampling technique was used in making airborne radioactivity measurements. Sampling methods used included breathing zone lapel samplers, and high/ low volume samplers. Projects reviewed, that required air sampling, included weld preparations/flange replacement on the RHR

system, inspections of main steam isolation valve internals, replacement of the fuel pool gate seal, reactor head inspections, installation of reactor head "O" rings, and turbine blade sand blasting.

During plant tours, the inspectors verified that continuous air monitors were operating and were representatively sampling work areas located in the drywell, turbine building, and reactor building.

Use of Respiratory Protection Devices

The inspectors evaluated the use of respiratory protection devices for those tasks where it was impractical to employ engineering controls to minimize airborne radioactivity. The inspectors reviewed the use of respirators for reactor cavity decontamination and control rod drive replacement.

b. Findings

No findings of significance were identified.

2RS04 Occupational Dose Assessment (71124.04 – 1 partial sample)

a. Inspection Scope

During the period April 5 - 9, 2010, the inspectors conducted the following activities to verify that the licensee was properly monitoring occupational dose, that personal exposure monitoring devices were operable and accurately monitoring work dose, and that worker total effective dose equivalent was accurately determined for tasks performed during the Unit 1 refueling outage (1R13). Implementation of these controls was reviewed against the criteria contained in 10 CFR Part 20, applicable industry standards, and the licensee's procedures.

External Dosimetry

The inspectors verified that selected individuals were appropriately wearing thermoluminescent dosimeters and electronic dosimeters while the workers were performing tasks in radiological controlled areas. The inspectors reviewed dose and dose rate alarm logs and associated issue reports to determine if the cause of the alarm was appropriately determined and that the worker took prompt action upon receiving the alarm.

The inspectors reviewed the licensee's procedure for measuring personnel exposure using the effective dose equivalent (EDE) method. The inspectors confirmed that the method was approved by the NRC and that the implementing procedure appropriately specified the placement of whole body and extremity dosimeters on the worker. Tasks in which the EDE method was used included control rod drive replacement and suppression pool diving activities.

The inspectors reviewed the dose/dose rate alarm reports, dose extension authorizations, and exposure data for selected individuals receiving the highest TEDE

for refueling outage 1R13, to confirm that no individual exposure exceeded the regulatory limit, or met the performance indicator reporting guideline.

Internal Dosimetry

The inspectors reviewed and assessed the adequacy of the results of whole body counting for personnel that had potential exposure to internally deposited contamination and determined that no individual received a recordable committed effective dose equivalent (CEDE) of greater than 10 millirem. The inspectors determined that the personnel were properly monitored with calibrated equipment, and that the data was properly analyzed.

Declared Pregnant Workers

The inspectors verified that no declared pregnant workers were employed to work in radiologically controlled areas during refueling outage 1R13.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation (71124.08 - 1 sample)

a. Inspection Scope

During the period June 7 - 14, 2010, the inspectors conducted the following activities to verify that the licensee's radioactive material processing and transportation programs complied with the requirements of 10 CFR Parts 20, 61 and 71; and Department of Transportation (DOT) regulations 49 CFR Parts 170-189.

Radioactive Waste Systems Walkdown

The inspectors walked down accessible portions of the radioactive liquid processing systems and site radwaste storage areas with the Radwaste Systems Engineer and a Radiation Protection Specialist, respectively. During the tour, the inspectors evaluated if the systems and facilities were consistent with the descriptions contained in the UFSAR and the Process Control Program, evaluated the general material conditions of the systems and facilities, and identified any changes to the systems. The inspectors reviewed the current processes for transferring radioactive resin/sludge to shipping containers, and the subsequent de-watering process.

Also during this tour, the inspectors walked down portions of radwaste systems that are no longer in service or abandoned in place, and discussed the status of administrative and physical controls for these systems including components of the radwaste evaporators and centrifuges.

The inspectors visually inspected various radioactive material storage locations with the Radiation Protection Specialist, including areas of the Radwaste Building, outside yard locations within the Protected Area, and the on-site disposal site (10 CFR Part 20.2002 area) to evaluate material conditions.

Waste Characterization and Classification

The inspection included a selective review of the waste characterization and classification program for regulatory compliance, including:

- The radio-chemical sample analytical results for various radioactive waste streams;
- The development of scaling factors for hard-to-detect radio-nuclides from radio-chemical data;
- The methods and practices to detect changes in waste streams; and
- The characterization and classification of waste relative to 10 CFR Part 61.55 and the determination of DOT shipment subtype per 49 CFR Part 173.

Shipment Preparation

The inspection included a review of radioactive waste program records, shipment preparation procedures, training records, and observations of jobs-in-progress, including:

- Reviewing radwaste and radioactive material shipping logs for calendar years 2009 and 2010;
- Verifying that training was provided to appropriate personnel responsible for classifying handling, and shipping radioactive materials, in accordance with Bulletin 79-19 and 49 CFR 172 Subpart H;
- Verifying that appropriate NRC (or agreement state) license authorization was current for shipment recipients for recent shipments; and
- Observing a RadWaste Shipping Supervisor prepare a shipment of metal specimens from the non-regenerative heat exchanger MM-10-067.

Shipment Records

The inspectors selected and reviewed records associated with five (5) shipments of radioactive material made since the last inspection of this area. The shipments were Nos. MW-10-009, MW-10-021, MW-10-015, MW-10-003, and MW-10-002. The following aspects of the radioactive waste packaging and shipping activities were reviewed:

- Implementation of applicable shipping requirements including proper completion of manifests;
- Verification that dewatering criteria was met;
- Classification of radioactive materials relative to 10 CFR Parts 61.55 and 49 and 10 CFR Part 173;
- Labeling of containers relative to package dose rates;
- Radiation and contamination surveys of the packages;
- Placarding of transport vehicles;
- Conduct of vehicle inspections;
- Providing of emergency instructions to the driver;
- Completion of shipping papers; and
- Notification by the recipient that the radioactive materials have been received.

Identification and Resolution of Problems

The inspectors reviewed the 2009 Annual Radioactive Effluent Release Report, relevant Issue Reports, a Nuclear Oversight Audit, a self-assessment report, resin liner inspection records, and recent Yard Area Rad Material inspection reports. Through this review, the inspectors assessed the license's threshold for identifying problems, and the promptness and effectiveness of the resulting corrective actions. Additionally, the inspectors confirmed that the licensee was routinely verifying the integrity of radwaste containers that were placed in storage. This review was conducted against the criteria contained in 10 CFR Part 20.1101(c) and the licensee's procedures.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope (71151 - 4 samples)

The inspectors sampled Exelon's submittal of the Mitigating Systems cornerstone PIs listed below to verify the accuracy of the data recorded from April 2009 through March 2010. The inspectors utilized performance indicator definitions and guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 6, to verify the basis in reporting for each data element. The inspectors reviewed various documents, including portions of the main control room logs, IRs, 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 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

- Unit 1 and Unit 2 Safety System Functional Failures (MS05);
- Unit 1 and Unit 2 Emergency AC Power System (MS06).

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 (CAP)

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 CAP. The

inspectors accomplished this by reviewing each new condition report, attending management review committee meetings, and accessing Exelon's computerized database.

b. Findings

No findings of significance were identified.

.2 Review of Items Associated with Inservice Inspection Activities

a. Inspection Scope

The extent of oversight of ISI/NDE activities including the topics of current ISI oversight and surveillance were reviewed. The inspector reviewed a sample of condition reports shown in Attachment 1 to confirm that identified problems were being documented for evaluation and proper resolution.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Review to Identify Trends (71152 - 1 sample)

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," the inspectors performed a review of Exelon's CAP and associated documents to identify whether trends existed that would indicate a more significant safety issue. The review considered the period of January through June 2010 and was focused on repetitive equipment issues. The results of routine inspector CAP item screening, Exelon's trending efforts, and human performance results were also considered. The inspectors reviewed issues documented outside the normal CAP such as Plant Health Committee reports including the Top Ten Equipment Issues List, the Plant Health Committee Issues List, the Open Action Items List, and the Performance Improvement Integration Matrix.

b. Findings and Observations

No findings of significance were identified. The review did not reveal any trends that could indicate a more significant safety issue. The inspectors assessed that Exelon was identifying issues at a low threshold and entering the issues into the CAP for resolution.

The inspectors reviewed Exelon's actions in response to a negative trend identified in NRC Inspection Report 05000352/2009005, 05000353/2009005 related to corrective actions. The inspector identified issues where implemented corrective actions in the field differed from the intent of the Management Review Committee (MRC) approved CAP products. Three issues, two of which were Green non-cited violations, where implemented corrective action in the field differed from the intent of the MRC (i.e., motor control center thermography, emergency service water system instrument piping corrosion, and cobalt-60 in sewage sample). Exelon entered the issue into the CAP as IR 987707.

As a result of the NRC-identified trend and a review of IRs generated during the fourth quarter 2009, Exelon identified an issue with CAP quality and timeliness across multiple organizations at Limerick. As a result, Exelon developed a performance improvement action plan. Corrective actions included MRC review of corrective actions associated with past root cause evaluations, additional training and review of CAP requirements with root cause qualified personnel and performance improvement analysts, development of a comprehensive CAP investigation guide, and other actions to improve CAP program performance improvement. The inspectors concluded that Exelon's actions, taken or planned, to address the trend appeared to be comprehensive.

.4 Annual Sample: Review of Operator Workarounds (71152 - 1 sample)

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.

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.

.5 Annual Sample: EDG D23 Failure, Extent-of-Condition, and Restoration to Operable Status (71152 - 1 sample)

a. Inspection Scope

The inspectors observed field activities, reviewed documents, and interviewed personnel to review the circumstances surrounding the failure of the D23 EDG during surveillance testing on May 5, 2010.

The inspectors assessed Exelon's troubleshooting plan, damage assessment, cause analyses, extent of condition reviews, operability determinations, and the prioritization of corrective actions to determine whether Exelon was appropriately identifying, characterizing, and prioritizing problems and whether the planned or completed corrective actions were appropriate to prevent recurrence. The inspectors also interviewed cognizant plant personnel regarding the identified issues and implemented corrective actions. Specific documents reviewed are listed in the Attachment to this report.

b. Findings and Observations

No findings of significance were identified.

The inspectors determined that Exelon properly implemented their corrective action process regarding the initial discovery of the emergency diesel generator failure. The

issue report packages were complete and included cause evaluations, operability determinations, extent of condition reviews, review of operating experience, and corrective actions completed and planned. Additionally, the elements of the condition reports were detailed and thorough. The inspectors determined that corrective actions included replacing the failed components, performing appropriate post maintenance testing, and surveillance testing to ensure operability of the newly rebuilt diesel generator.

Additionally, Exelon contracted with the diesel generator vendor for support for the failure analysis, damage assessment, and rework/refurbishment. Exelon had not completed the root cause analysis at the time of this inspection. The final failure analysis is expected to be completed in early July 2010. The results of this analysis may require additional corrective actions to ensure reliable diesel generator operation. Long term corrective actions included enhanced engine monitoring during surveillance testing, inspections of engine internal parts, and enhanced oil sampling and testing. Exelon plans to evaluate the effectiveness of corrective actions following a year of the enhanced monitoring.

4OA3 Event Follow-up (71153 - 4 samples)

a. Inspection Scope

For the four plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel and compared the event details with criteria contained in Inspection Manual Chapter 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Exelon made appropriate emergency action classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Exelon's follow-up actions related to the events to assure that appropriate corrective actions were implemented commensurate with their safety significance.

- IR 1058046, Unit 1 unplanned downpower to 65 percent due to electro-hydraulic control system leak on main turbine control valve #2, April 17, 2010;
- IR 1065596, EDG D23 failure and fire, May 5, 2010;
- Sixty-day Emergency Notification System Report, due to an invalid actuation of various Unit 1 containment isolation valves caused by loss of power to system logic relays; and
- Unit 1 manual scram due to loss of recirculation pump motor-generator sets on June 23, 2010.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

(Closed) NRC Temporary Instruction (TI) 2515/179, Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source

Tracking System Pursuant to Title 10, Code of Federal Regulations, Part 20.2207
(10 CFR Part 20.2207)

a. Inspection Scope:

During the period June 7 - 14, 2010, the inspector conducted the following activities to confirm the inventories of materials possessed at Limerick were appropriately reported and documented in the National Source Tracking System (NSTS) in accordance with 10 CFR Part 20.2207.

Inspection Planning

- The inspectors retrieved a copy of Limerick's NSTS inventory from Limerick's NSTS account via Regional staff with NSTS access.

Inventory Verification

- The inspectors performed a physical inventory of the sources listed on Limerick's inventory and visually identified each source listed on the inventory.
- The inspectors verified the presence of the nationally tracked sources by having a radiation protection supervisor perform a survey with a radiation survey instrument.
- The inspectors examined the physical condition of the source containers, evaluated the effectiveness of the procedures for secure storage and handling, discussed Limerick's maintenance of the device including source leak tests, and verified the posting and labeling of the source was appropriate.
- The inspectors reviewed Limerick's records for the source and compared the records with the data from the NSTS inventory. The inspectors evaluated the effectiveness of Limerick's procedures for updating the inventory records.

Determine the Location of Unaccounted-for Nationally Tracked Source(s)

- The inspectors verified Limerick has no unaccounted-for source(s).

Review of Other Administrative Information

- The inspectors reviewed the administrative information contained in the NSTS inventory printout with Limerick personnel. All administrative information, mailing address, docket number, and license number, was verified to be correct.

b. Findings

No findings of significance were identified.

This completes the Region I inspection requirements for this TI.

4OA6 Meetings, Including Exit

On July 9, 2010, the inspectors presented the inspection results to Mr. W. Maguire and other members his staff. The inspectors confirmed that proprietary information was not included in the inspection report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

W. Maguire, Site Vice President
E. Callan, Plant Manager
S. Johnson, Assistant Plant Manager
D. Merchant, Radiation Protection Manager
R. Dickinson, Director of Training
P. Gardner, Director of Operations
R. Kreider, Director of Maintenance
D. Palena, Manager Nuclear Oversight
J. Hunter, Manager, Regulatory Assurance
C. Gray, Radiological Engineering Manager
R. Harding, Regulatory Assurance
T. Leddy, Radwaste Radiation Protection Technician
H. Miller, RadWaste Shipper
B. Landis, Sr. Radiation Protection Technician
C. Hawkins, NDE Engineer
L. Parlatore, Health Physicist
J. Risteter, Radiation Protection Manager
C. Smith, RadWaste Specialist, Chemistry
J. Trofe, Radiation Protection Supervisor
J. Kirkpatrick, Health Physics Supervisor
R. Harding, Regulatory Assurance Engineer
D. Kern, Sr. Radiation Protection Technician
G. Budock, ISI Program Engineer
M. Karasek, IVVI Program Engineer
N. Harmon, Health Physicist
S. Bobyock, Manager, Plant Engineering

NRC Personnel:

T. Moslak, Health Physicist, Region I
E. DiPaolo, Senior Resident Inspector
J. Bream, Project Engineer, Region I
N. Sieller, Resident Inspector

LIST OF ITEMS OPENED OR CLOSED

Opened

None

Closed

2515/179

TI

Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System, Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR Part 20.2207) (Section 40A5).

Opened and Closed

None.

Discussed

None.

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

E-5, Grid Emergency, Revision 16

OP-AA-108-107, Switchyard Control, Revision 2

OP-AA-108-107-1001, Station Response to Grid Capacity Conditions, Revision 3

OP-AA-108-107-1002, Interface Procedure between Exelon Energy Delivery (COMED/PECO) and Exelon Generation (Nuclear Power) for Transmission Operations, Revision 5

WC-AA-8000, Interface Procedure between Exelon Energy Delivery (COMED/PECO) and Exelon

Generation (Nuclear Power) for Construction and Maintenance Activities, Revision 4

Section 1R04: Equipment Alignment

Procedures

0S22.1.A (COL01), Valve Alignment of the Fire Protection Water System for Normal Operation, Revision 10

S92.1N (COL02), Equipment Alignment for 2B Diesel Generator, Revision 23

A-1475858, Diesel-driven fire pump cooling water solenoid valve stuck open

S92.1N (COL-2), Equipment Alignment for 2B Diesel Generator, Revision 23
2S92.1.N (COL-3) Equipment Alignment for 2C Diesel Generator Operation, Revision 22
Issue Reports

AR 1475858, Diesel – Driven Fire Pump Cooling Water Solenoid Valve Stuck Open

Section 1R05: Fire Protection

Procedures

OP-AA-201-003, Attachment 3, Fire Drill Scenario
OP-AA-201-003, Fire Drill Performance, Revision 11
F-D-315C, Unit 2, D23 Diesel Generator and Fuel Oil-Lube Oil Tank Rooms, 315C and 316C
(EL 217), Revision 7
F-D-311-D, Unit 1, D 14 Diesel Generator and Fuel Oil-Lube Tank Rooms, Room 300 D and
312 D (EL 217), Revision 7
SE-8 Fire, Revision 37
F-R-207, Unit 1, Rx Enclosure Cooling Water Heat Exchanger Area Rooms
207 and 210 (EL 201), Revision 8
ST-6-022-551-0, Fire Drill, Revision 10

Section 1R08: Inservice Inspection

Procedures

ER-AA-335-03, Magnetic Particle Examination, Revision 3
GE-PDI-UT-2, PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds,
Revision 4
GEH-UT-247, Procedure for Phased Array Ultrasonic Examination of Dissimilar Metal Welds,
Version 2
GEH-VT-204, Procedure for In Vessel Visual Inspection (IVVI) of BWR 4 RPV Internals,
Version 12
MA-LG-793-001, Visual Examination of Containment Vessels and Internals, Revision 2
CC-AA-501-1018, Exelon Nuclear Welding Program Performance Indicators, Revision 1
ER-AA-330-009, ASME Section XI Repair/Replacement Program, Revision 5
ER-AA-335-025, Oversight of Vendor NDE Activities, Revision 5
ER-LG-330-1001, Limerick Generating Station Units 1 & 2 ISI Program Plan, Revision 1
ER-LG-330-1002, Limerick Generating Station Units 1 & 2 ISI Augmented Inspection Programs,
Revision 0

Work Orders

C0229898, Perform Containment ISI Exam per MA-LG-793-001
R1092046, PSV-052-1F032D Test/Remove/Replace 2"x2" Relief Valve
R0795083, Replace PSV-050-1F033 and Adjacent Piping for Preventative Maintenance
R0950216, PSV-052-1F032A Test/Remove/Replace 2"x2" Relief Valve

Audits/Self Assessments

Inservice Inspection (ISI) Program Health Report – Fourth Quarter 2009
LS-AA-126-1001, 2008 Limerick Generating Station In-Service Inspection Program, dated
November 21, 2008
NOSA-LIM-08-07 (AR 815712), Limerick Surveillance and Test Program Audit, October 20-31,
2008
Unit 1 Pre-NRC Inspection for Inservice Inspection Activities, dated January 28, 2010
Welding Program Health Critical Elements Fourth Quarter 2009

NDE Examination Reports

MT of W1008, RHRSW Spool Piece Weld (inside and outside), dated March 31, 2010
MT of W1009, RHRSW Spool Piece Weld (inside and outside), dated March 31, 2010
MT of W1007, RHRSW Slip-on Flange, dated March 31, 2010
MT of W1010, RHRSW Slip-on Flange, dated March 31, 2010
UT of VRR-1RD-1A N2G, Summary ID 601910, Safe-end to Nozzle Weld, dated March 30, 2010
UT of DLA-107-1 N4B2, Summary ID 602805, Safe-end to Nozzle Weld, dated March 30, 2010
RT of Weld 2201, HV-C-051-1F048B, dated March 25, 2010
RT of Weld 2201R1, HV-C-051-1F048B, dated March 27, 2010
RT of Weld 2202, HV-C-051-1F048B, dated March 28, 2010

Miscellaneous

DWG No. 223D6607, 610 MM Axial Flaw Cal Block, Revision 1
LG-10-00099, Replace HBC-091-01 RHRSW Piping Found Below Minimum Wall, Revision 3
ASME Section XI
ASME Code Case N-513-2
ASME Code Case N-578-1
Oversight Plan for Limerick Generating Station Li1R13

AR

A1749162

CR

809523	975098
840654	993007
844507	1027867
844664	1037180
845934	1047665
858703	1048712
921180	1048714
957664	1049925
973959	

Section 1R12: Maintenance Effectiveness

Procedures

ER-AA-310-1004, Maintenance Rule - Performance Monitoring Revision 8
ER-AA-310, Implementation of the Maintenance Rule Revision 8
ER-AA-2008, Mitigating Systems Performance Index (MSPI) Failure Determination Evaluation, Revision 2
M-020-010, Standby Diesel Generator Cylinder Liner Replacement, Revision 10

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Issue Reports

IR 01062281, Main Power Transformer Rigging
AR 01063356, Unit 2 Spare Main Transformer Rigging Assessment Learning Opportunities
Core Operating Limits Report

Procedures

ER-AA-600-1012, Risk Management Documentation, Revision 8
MA-AA-716-022, Control of Heavy Loads Program, Revision 7

Miscellaneous

LG-A4-014, Risk Assessment for Heavy Load Lifting of Spare Main Transformer at Temporary Storage Pad, dated April 27, 2010
Core Operating Limits Report
ARC-MCR0125, Unit 1, BOP Battery Ground Trouble, Revision 9
S95.1E, DC Balance of Plant Fault System Routine Inspection and Operation, Revision 8
S95.9.GV/1, 125/250 VDC, Balance of Plant Station Battery Ground Investigation, Revision 6

Section 1R15: Operability Evaluations

Procedures

OP-AA-106-101-1006, Operational and Technical Decision Making Process, Revision 7
ST-6-011-206-1 Revision 43, B Loop ESW Valve Test
S12.1.A, RHR Service Water System Start-up, Revision 48

Issue Reports

IR 1055781, Oil Sample on HPCI Booster Pump does not Look Normal
ST-2-022-623-1, Fire Detection Instrumentation Channel Functional Test and Supervisory Circuit Operability Test, Zones 82 and 124 A, Revision 24

Miscellaneous

LGS Unit 1 and 2 IT Basis Third Ten-Year Interval
Calculation M-52-23, Core Spray System Flow Orifices and Pressure Relief Valve Design Data, Rev. 1
Calculation M-55-24, Total System Developed Head for HPCI Mode D Operation, Revision 1
L-S-03, High Pressure coolant Injection System Design Basis Document, Rev. 19
L-S-44, Core Spray System Design Basis Document, Rev. 10
Operations Technical Decision-Making Document - D23 Return to Service
Operations Technical Decision-Making Document - D23 Extent of Condition

Section 1R18: Plant Modifications

Procedures

CC-AA-103, Configuration Change Control for Permanent Physical Changes, Revision 20
CC-AA-112, Temporary Configuration Changes, Revision 14
OP-LG-103-102-1002, Strategies for Successful Transient Mitigation

Issue Reports

IR 1049532, QV Identified Issues with "B" LEFM Fit-up
IR 1056163, LEFM Modification Acceptance Test Section 6.15
IR 1056926, LEFM Plant Process Computer Lost Indication
IR 1055772, Unit 1 LEFM Trouble Alarm Causing LEFM CPU to Reboot

Miscellaneous

030-C-VC-00001, Sheets 1-8, 20 inch Pipe Limerick Unit 1 Chordal Spool Piece Section Component Specification, Revision 2
030-C-VC-00009, Sheet 1, Cameron – LEFM Check and Checkplus Flow Measurement System

Verification and Validation Data Package, Volumes I-III, Revision 21
 L-S-11, Feedwater Design Baseline Document, Revision 15
 LG09-00096, Leading Edge Flow Meter (LEFM) Checkplus Installation, Revision 3
 MAT09-000960-1, Leading Edge Flow Meter Modification Acceptance Test, Revision 0
 ECR LG 07-00413, U1 SBLC 'C' PP Auto Start Inhibit Modification to HS-048-104C
 Exelon Letter RS-10-002 to U.S. NRC: Limerick Unit 1 and 2 Request for License Amendment
 Regarding Measurement Uncertainty Recapture Power Uprate, dated 03/25/10
 Drawing M-1-C41-1040-E-004, Sheet 1: Elementary Diagram – Stand-by Liquid Control System,
 Revision 20
 OP-LG-103-102-1002, Strategies for a Successful Transient Mitigation, Revision 3
 ECR LG 07-00413, Unit 1 SBLC 'C' PP Auto Start Inhibit Modification to HS-048-104C
 ARC-MCR-107 A3, Revision 1, 'C' SLCS Pump Auto-Start Status Trouble
 Drawing C41-1040-E-003, Sheet 1, Revision 29, 'C' SLCL Pump Auto-Start Status Trouble
 Alarm Logic
 Drawing C-41-1040-E-004, Sheet 1, Revision 20, Elementary Diagram: Standby Liquid Control
 System
 Drawing G-080-VC-00145, Limerick Unit 2: GE Analysis of Standby Liquid Control System
 Injection Rates, October 2001
 Limerick Request for License Amendment Regarding Measurement Uncertainty Recapture
 Power Uprate, RS-10-002, dated 03/25/10

Section 1R19: Post-Maintenance Testing

Procedures

ST-6-041-202-1, MSIV Cold Shutdown Valve Test, Revision 22
 ST-6-092-113-2, D23 Diesel Generator 24-Hour Endurance Run, Revision 29
 RT-6-092-313-2, D23 Diesel Generator Run-In, Revision 21
 ST-6-055-230-2, HPCI Pump and Valve Flow Test, Revision 66
 S55.1.D, HPCI System Full Flow Functional Test, Revision 38
 RT-6-019-320-1, M/G Lube Oil and Aux Lube Verification
 RT-6-092-314-1, D14 Diesel Generator Run-In, Revision 23
 ST-6-092-318-1, D14 Diesel Generator Fast Start Operability Test Run, Revision 44

Issue Reports

IR 1047093, Perform Troubleshooting on Motor Control Center

Section 1R20: Refueling and Other Outage Activities

Procedures

OU-AA-103, Shutdown Safety Management Program, Revision 10
 OU-AA-104, Shutdown Safety Management Program, Revision 10
 GP-6.2, Shutdown Operations-Refueling, Core Alterations and Core Off-Loading, Revision 45
 OU-AB-4001, BWR Fuel Handling Practices, Revision 4
 OP-AA-300-1520, Reactivity Management-Fuel Handling Storage and Refueling, Revision 2
 S97.0.M, Refueling Platform Operation, Revision 27
 MA-AA-716-008, Foreign Material Exclusion Program, Revision 4
 LS-AA-119, Fatigue Management and Work Hour Limits, Revision 8
 OP-AA-108-108-1001, Drywell/Containment Closeout, Revision 1
 OP-AA-108-108, Unit Restart Review, Revision 9
 BP-2, Normal Plant Startup, Revision 133

Miscellaneous

1R13 Shutdown Safety Plan, March 16, 2010

Section 1R22: Surveillance Testing

Procedures

595.9.A, Routine Inspection of Station Batteries and Chargers, Revision 14

595.9.F, Water Addition/Electrolyte to Station Batteries/Performances of Equalizing Charge, Revision 24

ST-4-095-956-2, Division IV 2DD101 Safeguard Battery Modified Performance Test, Revision 1

ST-6-052-232-2, B Loop Core Spray Pump Valve and Flow Test, Revision 50

WC-LG-430, Surveillance Testing Program, Revision 1

Issue Reports

IR 1061812, Unexpected Min-Flow Reading during Core Spray PV&F

IR 1062345, Sequencing Error in Surveillance Test

IR 1065128, 2B Core Spray SOW in 1018 Exceeded LCO Time by 113%

IR 1065889, 2D Div IV 125 VDC 2DD101 SG Battery Pilot Cell Low Voltage

IR 1065943, ST-6-095-941 and ST-6-095-918-2 Failed

Miscellaneous

ASME OM Code – 2004, Code for Operation and Maintenance of Nuclear Power Plants

WC-LG-430, Surveillance Testing Program Test Results Evaluation Form for ST-6-052-232-2, dated April 28, 2010

Section 2RS: Radiation Safety-Public and Occupational

Procedures

RP-LG-301-2001, Radiation Protection Response Card, Revision 11

S94.1.D, Placing the -D52 Admin Bldg Dist Panel UPS -D590 Bypass Switch/Output Cabinet in Service

S94.2D, Bypassing and Removing the -D592 Admin Bldg Dist Panel UPS 00-D590 Bypass Switch/Output Cabinet from Service

RP-MA-403-1001, Radiation Work Permit Processing, Revision 3

RP-AA-203, Revision 3, Exposure Control and Authorization

RP-AA-210, Revision 15, Dosimetry Issue, Usage, and Control

RP-AA-220, Revision 5, Bioassay Program

RP-AA-222, Revision 3, Methods for Estimating Internal Exposure from In Vivo and in Vitro Bioassay Data

RP-AA-250, Revision 4, External Dose Assessments From Contamination

RP-LG-300-102, Revision 2, Removing Items from the Spent Fuel Pool, Reactor Cavity, Equipment Pit or Cask Pit

RP-AA-301, Revision 2, Radiological Air Sampling Program

RP-LG-301-1001, Revision 4, Radiation Protection Survey Documentation

RP-AA-350, Revision 7, Personnel Contamination Monitoring, Decontamination and Reporting

RP-AA-376, Revision 2, Radiological Postings, Labeling, and Markings

RP-AA-400, Revision 5, ALARA Program

RP-LG-400-1004, Revision 3, Emergent Dose Control and Authorization

RP-AA-401, Revision 9, Operational ALARA Planning and Controls

RP-AA-403, Revision 1, Administration of the Radiation Work Permit Program

RP-AA-441, Revision 4, Evaluation and Selection Process for Radiological Respirator Use
 RP-AA-460, Revision 19, Controls for High and Locked High Radiation Areas
 RP-AA-460-002, Revision 0, Additional High Radiation Exposure Control
 RP-LG-460-102, Revision 4, Initial Entry into the Drywell
 RP-LG-460-1016, Revision 9, Radiation Protection Controlled Keys
 RT-0-100-460-0, Revision 3, High Radiation and Locked High Radiation Door Preventative
 Maintenance Inspection

Radiation Work Permits (RWP)/ALARA PLANS (AP):

RWP 91, DW CRD Exchange and associated Under Vessel Work/AP 2010-021
 RWP 81, DW Scaffold/AP 2010-023
 RWP 86, DW Reactor Pressure Vessel Nozzle & Skirt In-Service Inspections/AP 2010-025
 RWP 40, Suppression Pool Diving/ AP 2010-001
 RWP 60, Reactor Disassembly/AP 2010-074
 RWP 63/64, Reactor Cavity Decontamination/AP: RP-LG-401-1001 & RP-AA-1002

ALARA Work-In-Progress/Post-Job Reviews:

Under Vessel CRD Exchange
 Suppression Pool Diving and Support Activities
 1R13 Refuel Floor – Middle Activities

Nuclear Oversight Reports:

NOSPA-10-1T, Effectiveness of Radiological Controls during 1R13
 Dated: 03/23-04/03/2009; 02/16/2009; 01/21/2009

Air Sample Analysis Sheets Survey Nos:

10-02171, 10-02206, 10-02459, 10-02811, 10-03061, 10-03071, 10-02752, 10-02718,
 10-02645, 10-01896, 10-02293, 10-02471, 10-02560, 10-02999, 10-03060, 10-03069,
 10-02925, 10-02840, 10-02699

Issue Reports:

1053795	1053751	1046685	1046683	1046681	1046546
1044977	1043941	1023315	1045183	1042839	1051659
1051357	1048509	1050757	1043115	1052736	809523
840654	844507	844664	845934	858703	921180
957664	973959	975098	993007	1027867	1037180
1039368	809523	840654	844507	844664	845934
858703	921180	957664	973959	975098	993007
1027867	1037180	1047665	1048712	1048714	1049925

Miscellaneous

Dose and Dose Rate Alarm Reports for period 1/1/2010 through 04/08/2010
 Dosimeter Alarm Log
 Locked Door Daily Status Report
 Basis for Electronic Dosimeter Dose and Dose Rate Set Points
 BRAC Data Points for Unit 1
 Three Year Rolling Average Cumulative Exposure for Unit 1 and Unit 2
 Station ALARA Council Meeting Minutes 2010-05, 2010-06, 2010-07, 2010-08, 2010-09, and
 2010-10
 Action Request A1749162

Section 2PS2: Radioactive Material Processing and TransportationsProcedures

RW-AA-100, Process Control Program for Radioactive Wastes Revision 7
 RW-AA-104, Radwaste Storage Facility/Waste Revision 2
 RP-LG-227, LGS 10CFR20.2002 Permit Implementation Revision 3
 RP-AA-500-1001, Requirements for Radioactive Materials Stored Outdoors Revision 2
 RP-AA-600, RADIOACTIVE Material/Waste Shipments Revision 10
 RP-AA-601, Surveying Radioactive Material Shipments Revision 12
 RP-AA-602, Packaging of Radioactive Material Shipments Revision 13
 RP-AA-602-1001, Packaging of Radioactive Material/Waste Shipments Revision 10
 RP-AA-605, 10CFR 61 PROGRAM Revision 2
 RP-LG-6050, 10CFR61 Waste Stream Sampling and Analysis Revision 2
 RP-AA-600-1005, Radioactive Material and Non-Disposal Site Waste Shipments Revision 10
 RP-AA-603, Inspection and Loading of Radioactive Material Shipments Revision 3
 RP-AA-603-1001, Inspection and Loading of Radioactive Material/Waste Shipments Revision 1
 RP-AA-601, Transportation Accident Response Revision 0
 RW-226, Radwaste and Radioactive Material Inspection & Loading Operations Revision 13
 RW-LG-429, External Processing Station Resin Transfer and Dewatering Using Vendor Self Engaging Dewatering System Revision 1
 RW-LG-430, External Processing Station Polymer Injection Using Vendor Dewatering System Rev 0
 CS-OP-PR-009-16112, Dewatering Procedure for Energy Solutions 14-215 or Smaller Liners for Limerick
 CS-OP-PR-008-16112, Setup and Operations of Energy Solutions Self-Engaging Dewatering System Fillhead for Limerick
 Technical 1801-039-2232, Isolok Remote Sampler Procedure at Limerick Generating Station
 CY-LG-170-101, RadWaste Discharges Revision 5

Section 4OA1: Performance Indicator (PI) VerificationProcedures

Reactor Oversight Program MSPI Basis Document Limerick Generating Station, Revision 2
 Reactor Oversight Program MSPI Basis Document Limerick Generating Station, Revision 1
 Reactor Oversight Program MSPI Basis Document Limerick Generating Station, Revision 2

Miscellaneous

LG-PRA-005.08 (LG-SY-92/93), Limerick Generating Station PRA: Emergency Diesel Generators, 4kV, and 480V Safeguard AC (EDGs/AC) System Notebook, Section 4.0 Revision 1
 LG-PRA-10, Limerick Generating Station PRA: Data Notebook Volume 1, Section G.6 Revision 1
 LS-AA-2200, Mitigating System Performance Index Data Acquisition & Reporting, Revision 2
 MSPI Derivation Reports, Emergency AC Power System, dated 03/30/2010
 MSPI Margins Reports, EDG, 1Q 2010
 MSPI EDG Summary Reports, 1Q 2010
 MSPI Failures Summary, dated 04/21/2010
 March MSPI Overview, dated 04/21/2010
 NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6
 Operator Narrative Logs, April 2009 to March 2010
 ST-6-092-311-1, D11 Diesel Generator Slow Start Operability Test Run, Revision 82
 System Engineer MSPI Data, April 2009 to March 2010

Section 40A2: Problem Identification and Resolution**Procedures**

OP-AA-102-103, Operator Work-Around Program, Revision 2
 OP-AA-102-103-1001, Operator Burden Impact Assessment Program, Revision 000
 OP-AA-108-111, Adverse Condition Monitoring and Contingency Planning, Revision 5
 M-020-010, Rev. 10, Standby Diesel Generator Cylinder Liner Replacement
 M-020-001, Diesel Generator Examination and Maintenance, completed February 5, 2010
 M-C-792-001, Fairbanks Morse Opposed Piston Diesel Engine Examination and General Maintenance, completed February 5, 2010
 ST-6-092-113-2, Rev. 29, D23 Diesel Generator 24 Hour Endurance Run performed May 4-5, 2010
 ST-6-092-313-2, Rev. 67, D23 Diesel Generator Operability Test Run, performed April 14, 2010
 ST-6-092-313-2, Rev. 67, D23 Diesel Generator Operability Test Run, performed March 11, 2010
 ST-6-092-313-2, Rev. 66, D23 Diesel Generator Operability Test Run, performed January 4, 2010
 ST-6-092-313-2, Rev. 66, D23 Diesel Generator Operability Test Run, performed November 3, 2009
 ST-6-092-313-2, Rev. 66, D23 Diesel Generator Operability Test Run, performed October 5, 2009
 ST-4-092-913-2, Rev. 6, 23, Diesel Generator 24 Month Inspection, Completed February 11, 2010

Action Requests (* Indicates NRC Identified)

*AR A1765944, Vibration/Harmonics/Noise from Pipe Mounting Bracket

Issue Reports (* Indicates NRC Identified)

IR 921180, HBC-091-01 RHRSW Piping Found Below Minimum Wall
 IR 928574, Unit 2 H2 Seal Oil Pressure Fluctuation
 IR 0958587, Potentially Non-Conservative Steam Leak Detection Setpoint
 IR 1012357, Moisture Carryover for U1 CDI is above Chemistry Goal
 IR 1055147, 12-Bus-05 Breaker Trips During 122 XFMR Energization
 IR 1058705, 1A Recirc M/G Set Speed and Scope Tube Position
 IR 1068659, 1B Recirc M/G Set Speed and Scope Tube Position
 IR 1068659, 1B Recirc Pump Seal Pressure Lower Than Expected
 *IR 1085282, Vibration/Harmonics/Noise from Pipe Mounting Bracket

1067240	1069250	1069249	1068601	1065596	1067282
1066831	1065596	1067282	1067288	1067650	1067662
1066831	1066475	1066489	1066684	1066748	1066769
1066804	1066819	1066827	1066203	1066178	1066175
1066155	1066124	1065881	1065596	1067281	

Miscellaneous

LER-2009-003-00, Both Isolation Actuation Instrumentation Channels Inoperable
 LER-2009-02-00, condition Prohibited by Technical Specifications Due to Inoperable Main Turbine Bypass System
 LER-2009-001-00, Valid Actuation of the D&3 Emergency Diesel Generator Bus Under Voltage Logic

Section 4OA3: Event Follow-up**Procedures:**

EP-AA-11, Emergency Classification and Protective Action Recommendations, Revision 16
 EP-AA-1000, Standardized Radiological Emergency Plan, Revision 20

Issue Reports

IR 1051889, Unit 1 A RPS/UPS Power Series Breakers tripped-on over voltage condition

Section 4OA5: Other Activities**Procedures**

ST-0-107-493-0, Periodic Byproduct Material Leakage Test and Inventory Revision 12
 RP-LG-739, Operation of Shepherd Model 89 Calibrator Revision 3

Nuclear Oversight Audits:

Self-Assessment Report: RadWaste, Transportation, and Process Control Programs
 2010 Chemistry, Radwaste, Effluent, and Environmental Monitoring Audit Comparative Report
 and related Objective Evidence Reports

Shipping Manifests:

Shipment No. MW-10-009, Mechanical Filters
 Shipment No. MW-10-021, Dewatered Resin
 Shipment No. MW-10-015, Dewatered Resin
 Shipment No. MW-10-003, Dewatered Resin
 Shipment No. MW-10-002, Dewatered Resin
 Shipment No. MM-10-067, Metallic Coupons

Issue Reports:

1039368	993141	1078876	1063142	1074074	797920
797929	856287	889623	905822	1043302	1061979
1061986	1061998	1073404	1073431	1073959	1073963
1073974	1063236				

Miscellaneous

RadWaste and Radioactive Material Shipping Logs for 2009 and 2010
 2009 Limerick Annual Radioactive Effluent Release Report, No. 35
 Radwaste/Transportation Training Records for selected personnel
 Part 61 Reports for 2009 and 2010
 TQ-AA-223-F070, Rev 3, DOT 79-19 Training for Support of Radioactive Material Shipping
 NRWSHP 1000, Lesson Plan for DOT 79-19 Training
 NHPT2-1100, DOT 79-19 Training Plan for Radiation Protection Personnel
 Outdoor Container Inspection Log
 Post Barnwell Class B/C Storage Plan
 Radwaste Storage Facility/Waste Liner Container Integrity Inspection Record

LIST OF ACRONYMS

AC	Alternating Current
AR	Action Request
ADAMS	Agencywide Documents Access Management System
ALARA	As Low as Reasonably Achievable
AP	ALARA Plans
ASME	American Society of Mechanical Engineers
BWRVIP	Boiling Water Reactor Vessel and Internal Project
CAP	Corrective Action Program
CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulations
CR	Condition Reports
CRD	Control Rod Drive
CST	Condensate Storage Tank
DOT	Department of Transportation
DW	Drywell
ECR	Engineering Change Request
EDG	Emergency Diesel Generator
ESW	Emergency Service Water
HPCI	High Pressure Coolant Injection
IMC	Inspection Manual Chapter
IR	Issue Report
ISI	Inservice Inspection
IST	Inservice Inspection Testing
IVVI	In Vessel Visual Inspection
LER	Licensee Event Report
LHRA	Locked High Radiation Area
MRC	Management Review Committee
MT	Magnetic Particle Testing
N	Nozzle
NVV	Non-Cite Violation
NDE	Non Destructive Examination
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NSTS	National Source Tracking System
OTDM	Operation Technical Decision Making
OOS	Out of Service
OPCON	Operation Condition
P&ID	Piping and Instrumentation Drawing
PI	Performance Indicator
PARS	Publicly Available Records
PDI	Performance Demonstration Initiative
RCA	Radiological Controlled Area
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RT	Radiographic Test
RTP	Rated Thermal Power
RWP	Radiation Work Permit
SDP	Significance Determination Process

SRM	Source Range Monitor
SSC	Structure, System, Component
ST	Surveillance Test
TI	Temporary Instructions
TIP	Traversing Incore Probe
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Testing
VHRA	Very High Radiation Areas