



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

May 15, 2007

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 05000352/2007002 AND 05000353/2007002

Dear Mr. Crane:

On March 31, 2007, the United States 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 April 16, 2007, with Mr. C. Mudrick and other members of your staff.

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

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the

C. Crane

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Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000352/2007002 and 05000353/2007002
w/Attachment: Supplemental Information

cc w/encl:

Chief Operating Officer, Exelon Generation Company, LLC
Site Vice President - Limerick Generating Station
Plant Manager, Limerick Generating Station
Regulatory Assurance Manager - Limerick
Senior Vice President - Nuclear Services
Vice President - Mid-Atlantic Operations
Vice President - Operations Support
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J. Johnsrud, National Energy Committee, Sierra Club
Chairman, Board of Supervisors of Limerick Township
J. Bradley Fewell, Assistant General Counsel, Exelon Nuclear

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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: 05000352/2007002 and 05000353/2007002

Licensee: Exelon Generation Company, LLC

Facility: Limerick Generating Station, Units 1 & 2

Location: Sanatoga, PA 19464

Dates: January 1, 2007 through March 31, 2007

Inspectors: S. Hansell, Senior Resident Inspector
C. Bickett, Resident Inspector
L. Casey, Resident Inspector
T. Moslak, Health Physicist
A. DeFrancisco, Reactor Engineer
P. Finney, Reactor Inspector

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

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SUMMARY OF FINDINGS

IR 05000352/2007-002, 05000353/2007-002; 01/01/2007 - 03/31/2007; Limerick Generating Station, Units 1 and 2; Refueling and Other Outage Activities

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

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Barrier Integrity

Green. The inspectors identified a green, self-revealing, non-cited violation of Technical Specification 6.8, "Procedures and Programs," due to an inadequate safety tagging clearance which resulted in inadvertently opening the scram discharge volume vent and drain valves in hot shutdown with a full scram signal inserted, valves that were part of the reactor coolant system pressure boundary. Station personnel discovered the condition and closed the SDV vent and drain valves, stopping the source of water. Exelon entered this issue into their corrective action program for resolution.

The finding is more than minor because it affects the reactor coolant system (RCS) equipment and barrier performance attribute of the Barrier Integrity cornerstone whose objective is to provide reasonable assurance that physical design barriers protect the public from radionuclide releases. This finding is of very low safety significance because it did not result in exceeding the Technical Specification limit for identified reactor coolant system leakage and would not have likely affected other mitigation systems resulting in a total loss of their safety function. The reactor was already shutdown and depressurized to 25 psig, with decay heat removal to the condenser, prior to the event and thus did not increase the chance of a loss of coolant accident (LOCA). This issue has a human performance cross-cutting aspect in the area of work control because station personnel did not appropriately coordinate the safety tagging work activity. (Section 1R20)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 began this inspection period operating at full rated thermal power and operated at full power the entire report period with the exception of routine control rod adjustments.

Unit 2 began this inspection period operating at full rated thermal power and operated at full power until March 7, 2007, when the unit entered reactor power end of cycle coastdown. On March 10, 2007, operators shutdown Unit 2 for a planned refueling and maintenance outage (2R09) which continued through the end of the first quarter.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 2 samples)

a. Inspection Scope

Since snowfall and extreme cold temperatures were forecast in the vicinity of Limerick in late January 2007, the inspectors reviewed Exelon's overall preparations and protection for the expected weather conditions. The inspectors walked down portions of procedure SE-14, "Snow," including applicable portions of the emergency diesel generators and the condensate storage tank system. The inspectors also reviewed associated issue reports (IRs) and action requests (ARs). This inspection satisfied one inspection sample for overall preparations and protection for expected adverse weather conditions.

The inspectors reviewed the Unit 1 Condensate Storage Tank (CST) low temperature alarm that annunciated during extended cold weather condition in January and February 2007. The inspectors verified that the station maintained CST temperature above the design bases minimum temperature of 40 degrees Fahrenheit. The low temperature condition occurred due a degraded steam heating coil. Exelon personnel entered the issue into the corrective action program to ensure the degraded heating coils are replaced when plant conditions will support the work. This inspection satisfied one inspection sample for a system review. All documents reviewed during this inspection period are listed in applicable sections of the Attachment.

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 three partial walkdowns of plant systems to verify the 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 (TS), Exelon operating

procedures, plant piping and instrumentation drawings (P&IDs), and the Updated Final Safety Analysis Report (USFAR) 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;

- Unit 1 High Pressure Coolant Injection (HPCI), Control Rod Drive System, and Feedwater System during a Reactor Core Isolation Cooling (RCIC) Planned Maintenance Outage;
- D21 Emergency Diesel Generator (EDG) After a Shutdown Relay was Energized and Reset; and
- D22, D23, and D24 EDGs during Planned Maintenance on D21 EDG.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors conducted one complete system walkdown of Unit 1 and Unit 2 condensate storage tanks (CSTs) to verify that the equipment was properly aligned. Inspectors performed the review during cold weather conditions to determine if station personnel maintained CST tank temperatures above the minimum required temperature. The walkdown included reviews of valve positions, major system components, electrical power availability, and equipment deficiencies. The inspectors reviewed system checkoff lists, system operating procedures, the system piping and instrumentation diagram and the UFSAR. The inspectors reviewed outstanding maintenance activities and condition reports associated with the Unit 1 and Unit 2 CSTs to determine if they would adversely affect system operability. The inspectors verified that valves, including locked valves, were correctly positioned and did not exhibit leakage that would impact the function of the valve both in the control room and outside in the Unit 1 and Unit 2 CST areas. The inspectors also verified that electrical power was available, major components were labeled, hangers and supports were functional, and essential support systems were operational. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R05 Fire ProtectionFire 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 station personnel implemented compensatory measures for out-of-service, degraded, or inoperable fire protection equipment in accordance with Exelon's fire plan.

- Unit 2 217' Elevation
- Unit 2 253' Elevation
- Unit 2 283' Elevation
- Unit 2 313' Elevation
- Unit 2 201' Elevation
- Unit 1 Cable Spreading Room
- Unit 1 HPCI Pump Room
- Unit 2 Drywell During Welding Activities
- D23 Diesel Generator and Fuel Oil/Lube Oil Room

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - 1 sample)Internal Floodinga. Inspection Scope

The inspectors reviewed selected risk important plant design features and Exelon procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed the applicable flood analysis and design documents, engineering calculations, and station procedures. In addition, the inspectors reviewed other documents and conducted plant walkdowns to identify areas and equipment that may have been affected by internal flooding due to drain overflow events during the 2R09 refueling and maintenance outage as documented in issue report (IR) 602133.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (71111.08G - 3 samples)a. Inspection Scope

The inspector assessed the inservice inspection (ISI) activities 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 the risk of core damage.

During the Unit 2 refueling outage, the inspector made direct observations of portions of the following examinations, including calibration activities and a pre-job brief, on code class 1 components;

- N2H recirculation outlet nozzle safe end to pipe weld, automatic ultrasonic test (UT); and
- Closure head to flange weld, magnetic particle test (MT).

The inspector reviewed the examination results and the certifications of the individuals responsible for performing the examinations. During the time the inspector was at the site, indications identified during the examinations were evaluated as geometric in nature and non-reportable. The inspector discussed these results with the data analyst on-site and confirmed he was technically qualified to perform the analysis.

The inspector also reviewed data packages for the following MT exams on code class 2 structural attachment welds:

- 20P-203 RCIC Mounting Support to Pump, Pump Casing Weld, Pump to Discharge Nozzle, Pump Casing Weld Suction Nozzle to Pump

For the above listed samples, the inspector confirmed that the coverage achieved during the examinations was in accordance with ASME 2001 edition, Section XI requirements.

During the time the inspector was on-site, Exelon was performing a planned modification on the "A" loop RHR shutdown cooling testable check and bypass valve, HV-051-2F050A, to change the differential pressure condition. The inspector reviewed an issue report describing an unsatisfactory quality verification check on undersized welds (leg length of the pipe side weld). The inspector discussed the condition and repair with on-site personnel and reviewed weld checklists and quality verification (QV) satisfactory reviews post-repair.

The inspector reviewed the In-Vessel-Visual-Inspection (IVVI) program and discussed the scope of examinations being performed with staff on site. The inspector focused on scope expansion based on jet pump wedge wear indications, and previous ultrasonic and visual examinations performed on specific shroud support welds. The inspector confirmed that each condition identified by Exelon's contractor was entered into Limerick's condition reporting system.

In addition, the following flow-accelerated corrosion program inspection activities were discussed with on-site personnel: 1) scope for the U2 refueling outage; 2) criteria for

determination of scope; 3) component replacements and replacement material selection; and 4) results of examinations performed to date.

The inspector also reviewed a sample of issue reports to assess Exelon's effectiveness in problem identification and resolution and determined that they were identifying ISI and non-destructive examination (NDE) issues at an appropriate threshold and entering them into the corrective action program. The inspector sampled issue reports from the current outage and from the time period since the last refueling outage on Unit 2.

The inspector engaged in discussions with plant staff to verify they were aware of recent operating experience on reactor vessel nozzle dissimilar metal weld intergranular stress corrosion cracking (IGSCC). The inspector reviewed their response to Electric Power Research Institute (EPRI), who had requested data on previously performed examinations of these welds, examination qualification criteria and results of the examination. The inspectors reviewed IR606796, an issue report that was written when the inspector noted that on the EPRI response, one of the examinations had incorrect qualification criteria listed.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11 - 1 sample)

Resident Inspector Quarterly Review (1 sample)

a. Inspection Scope

On January 29, 2007, the inspectors observed a licensed operator requalification simulator scenario. The inspectors assessed licensed operator performance and the training evaluators' critiques. 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 barriers. The inspectors discussed the results with operators, operations management, and training instructors.

- Simulated HPCI Steam Leak and Steam Isolation Valves Failed to Close, Resulting in a Reactor Scram and Emergency Depressurization with the Automatic Depressurization System

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 2 samples)a. Inspection Scope

The inspectors evaluated Exelon's work practices and follow-up corrective actions for structures, systems, and components (SSCs), and identified issues to assess the effectiveness of Exelon's maintenance activities. The inspectors reviewed the performance history of risk significant SSCs and assessed Exelon's extent-of-condition determinations for those issues with potential common cause or generic implications to evaluate the adequacy of 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 evaluate whether the actions were reasonable and appropriate. The inspectors reviewed the following issues;

- Division 2 Redundant Reactivity Control System Out of Service Alarms, IR 585323; and
- Maintenance Rule Functional Failure Determinations Exceeded 30 Days, IR 575654.

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, daily work schedules, and performed plant tours to gain reasonable assurance that the 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." Inspectors reviewed risk assessments for the following out-of-service or degraded structures, systems, and/or components;

- 1D Residual Heat Removal (RHR) Unit Cooler Supply Valve Did Not Open Properly During Surveillance Test, IR 587843;
- D21 EDG Potential Inoperability due to Shutdown Relay Energization, IR 591015
- D11 EDG Air-Start System Fitting Leak, IR 597870;
- Main Steam Isolation Valves (MSIVs) 2F022C and 2F028B Closing Times Out of Tolerance, A1607227 and A1607226;
- Reactor Pressure Vessel (RPV) Surveillance Specimen Holder Unlatched at Bottom, IR 605442; and

- Division 4 RHR Gross-Fail Alarm Will Not Reset, IR 610614.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 5 samples)

a. Inspection Scope

For the five operability evaluations described below, the inspectors assessed the technical adequacy of the evaluations to ensure that Exelon properly justified Technical Specification 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 controlled adequately. The inspectors also reviewed a sample of issue reports to verify that Exelon identified and corrected deficiencies associated with operability evaluations.

- RCIC Minimum Flow Valve Shows Dual Indication at 600gpm, IR 565800
- KVAR Swings During D12 EDG Cooldown, IR 578265.
- Unit 2 Average Power Range Monitor Inoperable due to the Inability to Perform the Required Channel Check, IR 581529.
- Foreign Material in Unit 1 and Unit 2 Standby Liquid Control (SBLC) System Tanks, IR 582678 and IR 585638.
- HV-055-2FO42 DC Motor-Operated Valve Motor Nameplate Discrepancy.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

Annual Review (71111.17A - 1 sample)

a. Inspection Scope

The inspectors reviewed the engineering documentation for the Unit 2 RHR shutdown cooling (SDC) differential pressure modification. In addition, the inspectors performed a walkdown of the modification in the drywell during initial component installation and after station personnel completed the pipe and valve work. Exelon performed this modification to eliminate conditions that result in the degradation and excessive maintenance of the testable check valves.

- ECR LG-06-00124, "RHR Shutdown Cooling A/B Valves DP Project Unit 2," Revision 1.

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 (PMTs) listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed Exelon's test procedures to verify that the procedures adequately tested the safety functions that may have been affected by the maintenance activity and that the applicable criteria in the procedures 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.

- D12 EDG Initial Start-up and Initial Electrical Load After the Two-Year Inspection and Overhaul, RT-6-092-316-1, "D12 Diesel Generator Abbreviated Run-In".
- ST-6-107-201, "In-Service Testing Valve Stroke for New Baseline," following Repair to the RCIC Minimum Flow Valve.
- Testing following D24 EDG K1 relay replacement.
- Testing following D21 Emergency Service Water (ESW) valve replacement.
- Testing following 2A SRM replacement.
- Testing following work on the 2B RHR shutdown cooling isolation valve, C0217501.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20 - 1 sample)

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the Limerick Unit 2 refueling outage (2R09), which was conducted March 9 through April 4, 2007. The inspectors confirmed that Exelon had appropriately considered risk, industry experience, previous site-specific problems, and defense-in-depth in developing and implementing their schedule and outage plan. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored Exelon controls associated with the outage activities listed below;

- Configuration management, including maintenance of defense-in-depth commensurate with the outage plan for key safety functions and compliance with the applicable Technical Specifications when taking equipment out of service;
- Implementation of clearance activities and confirmation that tags were properly hung and equipment 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 Technical Specifications 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 addition, and controls to prevent inventory loss;
- Activities that could affect reactivity;
- Maintenance of secondary containment as required by Technical Specifications;
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage;
- Startup and ascension to full power operation, tracking of startup prerequisites, and walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers; and
- Identification and resolution of problems related to refueling outage activities.

b. Findings

Introduction. Inspectors identified a Green, self-revealing, non-cited violation (NCV) of Technical Specification 6.8, "Procedures and Programs" due to an inadequate safety tagging clearance which resulted in inadvertently opening the scram discharge volume vent and drain valves in hot shutdown with a full-scram signal inserted.

Description. On March 10, 2007, Unit 2 was in hot shutdown and depressurized to approximately 25 psig for the 2R09 refueling outage. A full scram signal was present and the scram discharge volume (SDV) was isolated, as designed. The purpose of the SDV is to contain the water discharged from all of the control rod drive mechanisms during a scram. The SDV vent and drain valves isolate the SDV during a scram to limit coolant inventory loss when a scram condition exists. Also, the SDV becomes an extension of the reactor coolant system (RCS) pressure boundary when a full scram signal is present.

Operators were in the process of applying a clearance in preparation for planned maintenance on the Reactor Protection System and the scram air header. As part of this clearance, operators removed the Reactor Protection System backup scram fuses which ultimately resulted in the SDV vent and drain valves opening unexpectedly and created an opening in the RCS. Water from the full SDV began to vent through these open valves into the plant drain system. Due to other issues with the drain system, water began to backup and overflow onto various elevations in the reactor building. Station personnel discovered the condition and closed the SDV vent and drain valves, stopping the source of water.

Further investigation by the station determined that the inadvertent opening of the SDV vent and drain valves was due to an improperly written clearance. Similar clearances had been used in the past, but these clearances included closing associated manual isolation valves which would have prevented this event. Exelon procedure OP-MA-109-101, "Clearance and Tagging" states that clearance impacts must be

evaluated to ensure that effects on systems are identified and acceptable or properly dispositioned. Station personnel did not complete a thorough review of associated electrical drawings to determine the system impact when the backup scram fuses were removed.

The performance deficiency associated with this event is inadequate implementation of a station procedure which resulted in an inadvertent opening of the SDV vent and drain valves, valves that were part of the RCS pressure boundary, when they were required and expected to be closed.

Analysis. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRCs regulatory function, and was not the result of any willful violation of NRC requirements or Exelon procedures.

The finding is more than minor because it affects the RCS equipment and barrier performance attribute of the Barrier Integrity cornerstone whose objective is to provide reasonable assurance that physical design barriers protect the public from radionuclide releases in that removal of the Reactor Protection System backup scram fuses created an unexpected opening in the RCS boundary. Inspectors evaluated this finding using Phase 1 of Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." This finding is of very low safety significance because it did not result in exceeding the Technical Specification limit for identified reactor coolant system leakage and would not have likely affected other mitigation systems resulting in a total loss of their safety function. The reactor was already shutdown and depressurized to 25 psig, with decay heat removal to the condenser, prior to the event and thus did not increase the chance of a loss of coolant accident (LOCA).

This issue has a human performance cross-cutting aspect in the area of work control because station personnel did not appropriately coordinate the safety tagging work activity. Though similar clearances had been used in the past, there were changes in work scope from previous outages and the clearance had been modified to remove two manual isolation valves. Additionally, a thorough review of associated electrical drawings would have identified the system impact when the backup scram fuses were removed.

Enforcement. Technical Specification 6.8, "Procedures and Programs", states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures as recommended in NRC Regulatory Guide (RG) 1.33, Appendix A, February, 1978. NRC Regulatory Guide 1.33, Appendix A, Section 1.0 includes procedures for locking and tagging of equipment. Contrary to this, during work planning prior to the 2R09 refueling outage and repositioning components per the clearance, station personnel did not complete a thorough review of clearance impacts as required by Exelon procedure OP-MA-109-101, "Clearance and Tagging." As a result, on March 10, 2007, the scram discharge volume vent and drain valves inadvertently opened while the unit was in hot shutdown with a full scram signal inserted, valves that were part of the RCS pressure boundary. Because this finding is of very low safety significance, and Exelon has entered this issue into their corrective action program (IR 602042), this violation is being treated as a non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 05000353/2007002-01, Inadequate Clearance Results in Opening of the Scram Discharge Vent and Drain Valves)**

1R22 Surveillance Testing (71111.22 - 7 samples)a. Inspection Scope

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

- ST-6-092-314-2, "D24 EDG Monthly Operability Run".
- ST-6-052-231-1, "'A' Core Spray Loop Pump, Valve and Flow Test".
- ST-6-092-322-1, "D12 EDG LOCA/Load Reject Testing and Fast Start Operability Test Run".
- ST-2-049-100-2, "Reactor Core Isolation Cooling Logic System Functional: Simulated Automatic Actuation Test".
- ST-6-049-100-1, "RCIC Valve Test".
- ST-6-041-202-2, "MSIV Cold Shutdown Valve Test" (ISOL VLV).
- ST-6-092-117-2, "D23 Diesel Generator 4kV SFGD Loss of Power LSF/SAA and Outage Testing".

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 1 sample)a. Inspection Scope

The inspectors reviewed and compared the temporary modification listed below, the associated 10 CFR 50.59 screening, and the UFSAR and TS to verify that the modification did not affect operability or availability of the affected system. The inspectors ensured that station personnel conducted each modification in accordance with the modification documents. The inspectors also reviewed post-installation and removal testing to verify that Exelon adequately verified the actual impact of the tests on the permanent systems.

- Unit 1 CST Temperature Control Using the Main Condenser Hotwell, Troubleshooting, Rework, and Testing (TRT) No. 07-025.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 - 1 sample)a. Inspection Scope

The inspectors evaluated one licensed operator requalification simulator exercise to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation (PAR) development activities. During the simulator evaluation, the inspectors reviewed checklists and forms used for classification and notification activities and compared them to criteria in Limerick's "State/Local Event Notification Form", Exelon's Emergency Plan, and other supporting procedures. The inspectors also attended Exelon's critique of the drill to compare any inspector-observed weaknesses with those identified by station personnel in order to verify that Exelon properly identified weaknesses.

- Simulator Exercise Evaluation: Site Area Emergency Classification due to a Simulated Unisolable Primary System Breach on January 29, 2007

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01 - 22 Samples)a. Inspection Scope

During the periods of January 8 - 12, 2007 and March 19 - 23, 2007, the inspector conducted the following activities to verify that Exelon was implementing physical, administrative, and engineering controls for access to locked high radiation areas (LHRA) and other radiologically controlled areas (RCA), and that workers were adhering to these controls when working in these areas during power and outage operations. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, Technical Specifications, and Exelon procedures.

Completion of 11 outage-related access control samples in conjunction with 11 power- operations related samples fulfills the 71121.01 annual inspection minimum requirement of 21 samples.

Plant Walkdown and Radiation Work Permit Reviews

- The inspector identified exposure-significant work areas in Units 1 and 2, including the refuel floor and areas of the Reactor Buildings, Control Structure, Radwaste Building, and Turbine Buildings. The inspector reviewed survey maps and radiation work permits (RWPs) for these areas to determine if associated controls were acceptable.

- The inspector toured accessible radiological controlled areas in both units, and, with the assistance of a Radiation Protection Supervisor, performed independent radiation surveys of selected areas to confirm the accuracy of survey maps and the adequacy of postings.
- In evaluating RWPs, the inspectors reviewed electronic dosimeter dose/dose rate alarm set points to determine if the set points were consistent with the survey indications and plant policy. The inspector verified that workers were knowledgeable of the actions to be taken when the electronic dosimeter alarms or malfunctions for tasks being conducted under selected RWPs. Work activities reviewed from January 8 - 12, 2007 included installation of scaffolding in the Unit 2 'A' & 'B' RHR pump rooms (RWP 07-13); testing of the Unit 2 RHR cooling cross-ties per procedure RT-6-051-206-2 (RWP 07-44); pump, valve, and flow testing of the Unit 2 C RHR per procedure ST-6-051-233-2 (RWP 07-44); and characterization of hardware stored in the Spent Fuel Pool (RWP 07-66). Work activities reviewed from March 19 - 23, 2007 included removal/replacement of the RHR 50B valve (RWP LG-0-07-00092), installation/removal of drywell scaffolding (RWP LG-0-07-00081), and Refuel Floor Outage Middle Activities (RWP LG-0-07-00060).
- The inspector examined the airborne monitoring instrumentation and engineering controls for potential airborne radioactivity areas. Through review of relevant documentation and interviews with the cognizant radiation protection specialists, the inspector confirmed that no worker received an internal dose in excess of 50 mrem due to airborne radioactivity in 2006.
- The inspector examined the physical and programmatic controls for characterizing and removing highly activated/contaminated components stored in the spent fuel pool. The inspector verified that stored materials were properly secured.
- During the Unit 2 refueling outage, the inspector identified exposure significant work areas in the Unit 2 drywell, refuel floor, and reactor building. Specific work activities included replacement of the RHR 50B valve, phase II fuel shuffle, and ESW header pipe replacement. The inspector reviewed radiation survey maps and radiation work permits (RWP) associated with these areas to determine if the associated controls were acceptable. RWPs reviewed included LG-0-07-00092/93 (Remove/Replace 50B valve), LG-0-07-00060/67/69 (Refuel Floor Outage Middle Activities), and LG-0-07-0013 (ESW Header Pipe Replacement).
- The inspector reviewed RWPs and associated instrumentation and engineering controls for potential airborne radioactivity areas located in the Unit 2 drywell, reactor building, and refuel floor. The inspector reviewed dose assessment records related to evaluating airborne radioactivity concentrations and personnel contaminations and confirmed that no worker received an internal dose, in excess of 50 mrem, when performing outage related tasks. The inspector reviewed the dose assessment methodology for internal exposures that were less than 50 mrem to confirm the accuracy of the results.

Problem Identification and Resolution

- The inspector reviewed elements of Exelon's corrective action program (CAP) related to controlling access to the RCA, completed since the last inspection of this area, to determine if problems were being entered into the program for resolution. Details of this review are contained in Section 4OA2.5 of this report.
- The inspector reviewed Nuclear Oversight objective evidence reports and a quarterly assessment report to determine if identified problems were entered into the corrective action program for resolution.
- The inspector reviewed and discussed twenty Issue Reports, associated with radiation protection control access and initiated between January 1, 2007, and March 23, 2007, with Exelon staff to determine if the follow up activities were being conducted in an effective and timely manner, commensurate with their safety significance. Details of this review are contained in Section 4OA2.5 of this report.

Jobs-In-Progress Review

- The inspector observed aspects of various maintenance activities being performed during the inspection period to verify that radiological controls, such as required surveys, area postings, job coverage, LHRA controls, and pre-job high radiation area or as-low-as-reasonably-achievable ALARA briefings were conducted; personnel dosimetry was properly worn; and that workers were knowledgeable of work area radiological conditions. Tasks observed included spent fuel pool material characterization, scaffolding installation in the Unit 2 'A' and 'B' RHR pump rooms, operational testing of the Unit 2 RHR cooling cross ties, and testing of the 'C' RHR cooling system components.
- The inspector attended the pre-job briefings for these jobs to assess the adequacy of information presented and the interdepartmental coordination required in completing these tasks.

High Risk Significant, High Dose Rate, High Radiation Area and Very High Radiation Area Controls (January 8 - 12, 2007)

- The inspector discussed high dose rate (HDR) area and Very High Radiation Area (VHRA) controls and procedures with a radiation protection supervisor. The inspector verified that any changes made to relevant Exelon procedures did not substantially reduce the effectiveness and level of worker protection. Controls of significant high risk areas reviewed included the spent fuel pool, the Unit 1 and Unit 2 drywells, and Traversing Incore Probe (TIP) rooms.
- Keys (designated A, B, or C) to Unit 1 and Unit 2 LHRAs and very high radiation areas were inventoried and 174 LHRAs were verified to be properly secured and posted during plant tours.

High Radiation Area and Very High Radiation Area Controls (March 19 - 23, 2007)

- The inspector reviewed procedures for controlling access to High Radiation Areas (HRA) and VHRAs to determine if the administrative and physical controls were adequate. The inspector also reviewed the physical and procedural controls for securing and removing highly contaminated/activated materials stored in the spent fuel pool. The inspector discussed with Radiation Protection Management the adequacy of current access 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.
- Keys to Unit 1 and Unit 2 LHRAs and VHRAs were inventoried and accessible LHRAs, in Unit 2, were verified to be properly secured and posted during plant tours.

Radiation Worker/Radiation Protection Technician Performance

- The inspector assessed radiation worker and radiation protection technician performance by attending pre-job briefings for various jobs-in-progress and observing in-plant/control point activities. Through interviews and task observations, the inspector evaluated job preparations, the degree of technician coverage for work performed in the LHRAs, and the knowledge level of the workers for specific tasks.
- The inspector reviewed dose/dose rate alarm reports and issue reports 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.
- The inspector observed and questioned radiation workers and radiation protection technicians while conducting various outage tasks, including removal/replacement of the 50B valve, various refuel floor activities, and drywell scaffolding removal. The inspector determined that the workers were aware of current radiological conditions, access controls, and that the skill level was appropriate with respect to the potential radiological hazards and the work involved.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02 - 9 Samples)

a. Inspection Scope

During the period March 19 - 23, 2007, the inspector conducted the following activities to verify that Exelon was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as-low-as-is-reasonably-achievable (ALARA) for tasks conducted during the Unit 2 refueling outage (2R09). Implementation of these controls was reviewed against the criteria contained in

10 CFR 20, applicable industry standards, and Exelon procedures. This inspection represents completion of nine samples relative to this inspection area.

Radiological Work Planning

- The inspector reviewed pertinent information regarding cumulative exposure history, current exposure trends, and ongoing activities to assess current performance and outage exposure challenges. The inspector determined the site's 3-year rolling collective average exposure.
- The inspector reviewed the 2R09 outage work scheduled during the inspection period and the associated work activity dose estimates and ALARA Plans (AP). Scheduled work included the removal/replacement of the 50B valve (AP 2007-16), the ESW header pipe replacement (AP 2007-02), drywell scaffolding removal (AP 2007-13), and various activities on the reactor cavity work platform (AP 2007-30).
- The inspector 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 daily work scheduling/status meeting in the Outage Control Center, reviewing recent Station ALARA Council meeting minutes, work-in-progress ALARA reviews, Nuclear Oversight objective evidence reports, and interviewing the site Radiation Protection Manager.
- The inspector also reviewed the status of long term projects, designed to reduce personnel exposure, contained in the 2006-2011 Exposure Reduction Plan.

Verification of Dose Estimates

- The inspector reviewed the assumptions and basis for the annual (2007) site collective exposure projections for the 2R09 outage and for routine power operations.
- The inspector reviewed Exelon's procedures associated with monitoring and re-evaluating dose estimates when the forecast cumulative exposure for tasks differed from the actual exposure received. The inspector reviewed the dose/dose rate alarm reports, dose extension authorizations, and exposure data for selected individuals receiving the highest Total Effective Dose Equivalent (TEDE) for 2007 to confirm that no individual exposure exceeded the regulatory limit, or met the performance indicator reporting guideline.

Jobs-In-Progress

- The inspector observed various 2R09 jobs-in-progress to evaluate the effectiveness of dose control measures. Jobs observed included removal/replacement of the 50B valve, drywell scaffolding disassembly, the 50A valve differential pressure modification, jet pump modifications, fuel shuffle, and ESW piping replacement. As part of this evaluation, the inspector reviewed the RWP, survey maps, shielding effectiveness, and contamination control measures. The inspector also determined that workers were properly wearing

dosimetry and that job coverage was provided, either at the job site or through the use of a centralized monitoring station.

Source Term Reduction and Control

- The inspector reviewed the status and historical trends for the Unit 2 source terms. By reviewing survey maps and interviewing the Radiation Protection Manager, the inspector evaluated the recent source term measurements and control strategies taken in response to an observed increase in coolant activity caused by jet pump mounting wedge wear and initiating noble metal addition chemistry controls. Specific strategies employed by Exelon included flushes of the Low Pressure Coolant Injection (LPCI) and Containment Spray (CS) systems, installation of permanent shielding in the drywell, hydrolazing of reactor nozzles, and extended use of the reactor cavity filtration system.

Declared Pregnant Workers

- The inspector reviewed the radiological controls and dosimetry records for one declared pregnant worker.

Problem Identification and Resolution

- The inspector reviewed elements of Exelon's corrective action program related to implementing radiological controls to determine if problems were being entered at a conservative threshold and resolved in a timely manner. Details of this review are contained in Section 4OA2.4 of this report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152 - 2 annual samples)

.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 followup, the inspectors performed a screening of all items entered into Limerick's corrective action program. Inspectors accomplished this by reviewing the description of each new issue report and attending daily management review committee meetings.

.2 Annual Sample: Discontinuity Between Design Calculations and Operating Procedures

a. Inspection Scope

The inspectors reviewed Limerick's corrective actions associated with issue report IR 514185 regarding a discontinuity between RHR system design calculations and system operating procedures. The inspectors reviewed various procedures, including revisions made as a result of this issue, applicable calculations, design basis documents, and interviewed various station personnel regarding expected operator actions during a design basis event. The inspectors also evaluated Exelon's actions against the requirements of the corrective action program.

b. Assessment and Observations

No findings of significance were identified.

In IR 514185, Exelon identified that even though design calculations specify an RHR flow rate of 10,000 gpm through the RHR heat exchanger during a design basis event, procedures for suppression pool cooling operation only required a flow rate of 8,000 to 8,500 gpm. This could potentially result in a higher suppression pool temperature during a design basis event.

Exelon revised procedure SE-10, "LOCA" in September 2006 to address this issue. Upon review of the procedure revision, the inspectors discovered that the revision inadvertently stated that shutdown cooling flowrate, instead of suppression pool cooling flowrate, should be maintained between 10,000 - 11,000 gpm. Exelon addressed this procedure error in IR 583976 and issued a new revision to SE-10 that included the correct suppression pool cooling flowrate. Additionally, even though this procedure error had existed, operators are trained to maintain adequate suppression pool cooling flowrate during a design basis event. This procedure deficiency constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the NRC's enforcement policy."

.3 Annual Sample: D12 Emergency Diesel Generator Voltage Swings During Load Reduction from Full Load Condition

a. Inspection Scope

The inspectors reviewed Limerick's corrective actions for January 11, 2007, D12 EDG voltage fluctuations. The generator reactive load reached a maximum value of 2500 kVAR when the control room operator was unloading the diesel during the performance of a routine test. The operator immediately reduced the generator voltage to restore reactive loads to the normal value of 700 kVAR, then proceeded to perform a normal shutdown of the diesel generator.

The inspectors reviewed Limerick's evaluation of the D12 voltage fluctuation issue, corrective action plan, alarm response procedures, routine test procedures, control room operator logs, and documentation of past performance problems.

b. Assessment and Observations

No findings of significance were identified.

The inspectors determined that the control room operators were quick to recognize the EDG reactive load increase and they took prompt actions to return D12 EDG to a normal alignment. The diesel generator vendor does not require a generator trip directly related to the high reactive load condition. Operator's do have procedure guidance to trip the diesel generator if the reactive load changes reach values that could result in damage to the generator. The issue was entered into the corrective action program as issue report IR 578265.

.4 Access Controls to the RCA/ALARA Planning and Controls

a. Inspection Scope

The inspector reviewed twenty Issue Reports (IRs) related to RCA access controls, seven IR's related to implementing the ALARA program, nine Nuclear Oversight objective evidence reports, and minutes from six station ALARA Council meetings to evaluate the threshold for identifying, evaluating, and resolving radiological control issues. Inspectors conducted this review against the criteria contained in 10 CFR 20, Technical Specifications, and Exelon procedures.

b. Findings

No findings of significance were identified.

.5 Access Control to Radiologically Significant Areas

a. Inspection Scope

The inspector reviewed dose/dose rate alarm reports for calendar year 2006, ten Issue Reports, recent station ALARA committee meeting minutes, a Root Cause Analysis Report, and three Nuclear Oversight Quarterly Assessment Reports for 2006, related to controlling activities in radiological controlled areas, to evaluate Exelon's threshold for identifying, evaluating, and resolving occupational radiation safety problems. The review included a check of possible repetitive issues such as radiation worker and radiation protection technician errors. This review was conducted against the criteria contained in 10 CFR 20, Technical Specifications, and Exelon's procedures.

b. Findings

No findings of significance were identified.

4OA3 Event Followup (71153)

Inadvertent Nuclear Steam Supply Shutoff System (NSSSS) Actuation on Low Main Condenser Vacuum

a. Inspection Scope

On March 13, 2007, the inspectors evaluated station response to an inadvertent NSSSS actuation on low main condenser vacuum during the Unit 2 2R09 refueling outage. The inspectors reviewed associated procedures, issue reports, and the Quick Human Performance Investigation Report completed in response to the event. The inspectors also discussed the event with various station personnel, conducted plant walkdowns in various areas, and reviewed the event for reportability in accordance with NUREG-1022, "Event Reporting Guidelines", to assess the adequacy of Exelon's actions following the event.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 16, 2007, the resident inspectors presented the inspection results to Mr. C. Mudrick and other members of his staff. The inspectors confirmed that proprietary information was not included in the inspection report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Exelon Generation Company

G. Mudrick, Site Vice President
E. Callan, Plant Manager
B. Dickinson, Director, Engineering
D. Dicello, Radiation Protection Manager
W. Harris, Nuclear Oversight Manager
T. Moore, Director, Work Management
R. Harding, Regulatory Assurance
D. Hart, Radiation Protection Supervisor
J. George, System Manager
L. Hemler, System Manager
E. Purdy, System Manager
B. Sauers, System Manager
W. Tracey, System Manager
D. Malinowski, LOR Program Administrator
M. Kern, Senior Radiation Protection Technician
J. Newman, Radiological Engineering Manager
R. Shortes, Health Physics Supervisor
R. Newmaster, Manager, Regulatory Assurance
M. Lyate, Technical Support Manager

NRC Personnel

S. Hansell, Senior Resident Inspector
C. Bickett, Resident Inspector
L. Casey, Resident Inspector
T. Moslak, Health Physicist
A. DeFrancisco, Reactor Engineer
P. Finney, Reactor Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Open

None

Opened and Closed

05000353/2007002-01	NCV	Inadequate Clearance Results in Opening of the Scram Discharge Vent and Drain Valves (Section 1R20)
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Closed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

ARC-MCR-104 A2, "Condensate Storage Tank Low Temperature"
ARC-MCR-001 D3, "Refuel Water Storage Tank Low Temperature"
GP-7, "Cold Weather Preparation and Operation," Revision 30
S08.1.A, "Condensate and Refuel Water Storage System Normal Operation"
S08.0.C, "Transferring Water Between the RWST and the CST"
SE-14, "Snow," Revision 13
WC-AA-107, "Seasonal Readiness," Revision 2

Issue Reports and Action Requests

IR 441058, "Winter Readiness LL - Aux Boiler Reliability"
IR 502814, "Online Work Control Winter Readiness Action Items"
IR 538028, "Site Winter Readiness Preparation"
IR 551434, "Segment 5 of De-Icing Not Working on U/2"
IR 580847, "Cooling Tower Deicing Issues During Winter Readiness"
IR 581565, "Potential Loss of B/U Service Air Compressor Due to Freezing"
IR 587348, "Unit 1 CST Temperature Alarm Four Degrees Above Setpoint"
A1591467, "Alarm in on Heat Trace Panel"
A1601168, "Unable to Close the 23-Line Roll-up Door"
A1602906, "Heat Trace Alarm"
A1602907, "Heat Trace Alarm"

Miscellaneous

L-S-41, "Condensate Storage Tank Design Bases Document"
Control Room Log January 2007
Operator Logs dated 02/14/2007 - 02/15/2007
Tier 3 Goal Related ARs, Winter Readiness

Section 1R04: Equipment Alignment

Procedures

S92.1.N, "Diesel Generator Setup for Automatic Operation Following Maintenance"
S92.1.N, "Routine Inspection of the Diesel Generators"

Issue Reports and Action Requests

IR 591015, "D21 Diesel Generator Switch Repositioned to Match Flags"

Miscellaneous

Quick Human Performance Investigation Report for the D21 Diesel Generator Switch
Repositioned to Match Flags
Technical Specification 3/4.8.1, "A.C. Sources - Operating"
Work Schedules for CRD, HPCI, and RFP dated 01/04/2007

Section 1R04S: Detailed Equipment Alignment

Procedures

ARC-MCR-104 A2, "Condensate Storage Tank Low Temperature"
S08.1.A, "Condensate and Refuel Water Storage System Normal Operation"
S08.0.C, "Transferring Water Between the RWST and the CST"
S08.8.A, "RWST, Unit 1 and Unit 2 CST Freeze Protection"
TC-1-07-072-0, "Temporary Procedure Change for S08.8.A"

Issue Reports and Action Requests

IR 587348, "Unit 1 CST Temperature Alarm Four Degrees Above Setpoint"

Miscellaneous

L-S-41, "Condensate Storage Tank Design Bases Document"
L-S-03, "High Pressure Coolant Injection (HPCI) Design Bases Document"
P&ID M-08, Condensate & Refueling Storage

Section 1R05: Fire Protection

F-A-449, "Unit 1 Cable Spreading Room (El. 254') Fire Area 22", Revision 10
F-R-109, "Unit 1 HPCI Pump Room 109 (El. 177') Fire Area 34", Revision 7
F-R-279, "Unit 2 Safeguard System Access Area Rooms 279 and 287 (EL 201) Fire Area 65,"
Revision 4
F-R-370, "Unit 2 Safeguard System Access Area Room 370 (EL 217) Fire Area 67"
F-R-475, "Unit 2 CRD Equipment and Neutron Monitoring Areas Rms 475, 476, 477, and 479
(EL. 253) Fire Area 68," Revision 11
F-R-574, "Unit 2 Standby Liquid Control and General Equipment Areas, RWCU Compartments,
FPCW Area, and Main Steam Tunnel," Revision 9
F-R-643, "Unit 2 Reactor Vent Supply Fan Room 643, " Revision 3
F-D-315C, "D23 Diesel Generator and Fuel Oil/Lube Oil Tank Room, Room 315C and 316C
(El.217) Fire Area 84", Revision 4
UFSAR Section 9.5.1
IR 593738, "Transient Combustible Materials in Unit 1 RX and TB Enclosures"
A1142617, "Scaffold Package in CFZ"
A1295026, "Old A/R for Transient Combustibles"
C0217722, "ESW Loop 2B Pipe Replacement Support Activities"

Section 1R06: Flood Protection Measures

Procedures

SE-4-1, "Reactor Enclosure Flooding", Revision 6

Issue Reports and Action Requests

IR 602042, "Unit 2 SDV/ Drain Valves Open With Scram Signal Present"
IR 601910, "Drainage System Clogged"
IR 602343, "Reseal HPCI Floor Hatches #25 & 26 (2R09)"
IR 602350, "HPCI AOP Motor Possibly Wetted During DRW Funnel Overflow"
IR 602338, "Inspect Conduit/ Panel for Water Damage (2R09)"
IR 602349, "Inspect 20-P220-DR for Water Damage"
IR 602365, "Insulation Damage in HPCI Pump Room (2R09)"
IR 602373, "Inspect RCIC Pump/Turbine VMS Prox. Probe For Water Damage"
IR 602354, "Dry Insulation On RCIC Pumps due to Flooding (2R09)"

IR 602133, "Assess Effected Equipment for Potential Water Degradation"

Miscellaneous

- Limerick's Archival Operations LCO Logs from 3/9/2007 to 4/3/2007
- Limerick's Archival Operations Narrative Logs from 3/9/2007 to 4/3/2007
- Calculation NPB-14, Revision 4, "Moderate Energy Line Break"
- Calculation NPB-32, "Flooding of ECCS Compartments from the Suppression Pool"
- UFSAR Section 3.6, "Protection Against Dynamic Effects Associated with the Postulated Rupture Of Piping"
- UFSAR Section 9.3, "Process Auxiliaries"
- Quick Human Performance Investigation, "Unit 2 Scram Discharge Volume Drain Valves Open When Fuse Removed"
- C06001713, "Provides Trip Signal to RPS Scram Solenoid Group"
- Limerick Maintenance Rule Database, System 61A, Liquid Radwaste Collection

Section 1R08: Inservice Inspection (71111.08G)

Data Packages

- Examination Summary Sheets for 20P-203 PS1, SWD-1, SWS-1
- Examination Summary Sheet and UT Data/Scan Parameter Sheet, for Weld VRR-2RD-2A WA17
- UT Calibration Data Sheet for CAL-RHOM-020 Final Verification
- Magnetic Particle (MT) Examination Report, Closure Head to Flange Weld
- QV Inspection Report, 2R09-132
- WO # CO218809 Weld Checklist

Procedures

- GE-MT-100, Procedure for Magnetic Particle Examination, Version 8
- GE-UT-240, Procedure for Automated Phased Array Ultrasonic Flaw Detection and Length Sizing in Austenitic and Ferritic Piping Welds with Tomoscan III
- UT-LIM-209V18, Procedure for Automated Ultrasonic Examination of Dissimilar Metal Welds, and Nozzle to Safe End Welds
- ER-LG-331, Exelon RPV & Internals Program Bases and Implementation Document

Issue Reports/Action Requests

IR 453410	IR 604840	IR 605229	IR 605568
IR 455424	IR 604848	IR 605388	IR 606210
IR 480585	IR 604855	IR 605392	IR 603078
IR 486974	IR 604866	IR 605407	IR 602781
IR 487222	IR 605078	IR 605412	IR 606796
IR 525513	IR 605084	IR 605506	IR 604862
IR 604569	IR 605102	IR 605544	

Personnel Certifications

- Certificate of Qualification, Basic Examination and UT, Level III
- Performance Demonstration Initiative Program Specific Detail of Qualifications
- Certificate of Qualification, UT, Level II
- Vision Acuity Records, Various
- Certificate of Qualification, MT, Level III & Level II Personnel

Miscellaneous

Limerick Units 1 & 2, Calibration Standard, LIM-12-1.00-SS316
Certificate of Review, CAL-RHOM-020
Limerick Unit 2 Reactor Vessel and Nozzle Inspections
2R09 FAC Replacement Prioritization
Response to EPRI February 23, 2007 Request for Information on Dissimilar Metal Weld
Examinations
H9 Weld Inspection History
Exelon Program Health Report, LGS Inservice Inspection Program
GE Outage Li2R09 Indication Notification Reports (INR) List
Limerick Generating Station Li2R09 Reactor Internals IVVI, INRs
LGS Jet Pump Inspection/Repair Matrix
Limerick ISI Component Inspection Results Listing, Unit 2, Interval 2, Period 2, OutageR08

Section 1R11: Licensed Operator Requalification Program

Procedures

T-103, "Secondary Containment Control"
T-112, "Emergency Blowdown"
T-101, "RPV Control"

Section 1R12: Maintenance Effectiveness

Procedures

ST-2-042-645-1, "RPS and NSSS- Reactor Steam Dome Pressure- High, Division 1A, Channel
'A' Functional Test," Revision 20
ST-2-042-645-1, " RPS and NSSS- Reactor Steam Dome Pressure- High, Division 1A, Channel
'A' Functional Test," Revision 17
ER-AA-310-1004, "Maintenance Rule- Performance Monitoring," Revision 5
MA-AA-716-210, "Performance Centered Maintenance (PCM) Process," Revision 4

Issue Reports and Action Requests

IR 523492, "(A)(1) Determination For SSC 71 RPS Not Timely"
IR 429654, "Unit 1 Inadvertent Half Scram During ST-2-042-654-1"
IR 469101, "B1 RPS Half Scram Received For No Apparent Reason"
IR 522098, "Perform a Maint. Rule (A)(1) Determination For RPS"
IR 515974, "Overdue Mrule FF and MPFF Determinations for CR 429654"
IR 575654, "Mrule FF Determinations Exceeded 30 Days"
IR 535690, "FF Determination 2 Days Overdue in EMRule"
IR 497626, "60-Day MPFF Determination Time Limit Exceeded for CR 474188"
IR 254625, "Inadvertent Half Scram During ST-2-042-645-1"
IR 601111, "Functional Failure Determination Did Not Document RPS Impact"
IR 148157, "Unexpected RPS Actuation"
IR 186400, "Scram Bypass of Turbine Valve Closure CR147279"
IR 382180, "ST-042-934-1 Failed During Performance of Test"
IR 205276, "Unexpected Unit 1 A2 Half Scram During Scram Reset"
IR 118827, "Functional Failure of Unit 1 RRCS System"
IR 127276, "ATM Failure Not Categorized as a Functional Failure"
IR 395997, "Div 2 RRCS Test Fault Status Light Lit/Will Not Reset"
IR 425298, "Maintenance Rule Functional Failure Documentation"
IR 496379, "Div 1 RRCS Out of Service Alarms"

IR 544186, "Div 1 RRCS Out of Service Alarms Unit 2"
IR 585323, "Received Div 2 RRCS Out of Service Alarm"
A1404833, "Main Steam Line A Control Valve No 2"
A1601983, "Received Div 2 RRCS Out of Service Alarm"
A1508632, "A Trip Signal to RPS Scram Solenoid Groups 1 & 2"
A1456914, "CRDHS Scram Disch Vol Level"

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TQ-AA-210-4201, "Inadvertent Half Scram during ST-2-042-645-1"
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C0220106, "Unit 2, Div 2B (PS-X-M1-20136)"
C0213094, "Replace Opto-Isolator Chips"
M1565144, "Repair U2 Division 1 RRCS 20-C634"
M1569835, "Replace Isolator Cards Associated with the U2 Div 1 RRCS Test Fault"
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MA-AA-716-100, "Maintenance Alterations Process," Revision 6
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S92.1.N, "Diesel Generator Setup for Automatic Operation Following Maintenance," Revision 34

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IR 141604, "Unplanned LCO for D11 Air Line Break"
IR 147485, "MSIV Stroke Time Unsat"
IR 164391, "NRC Concerns on Unit 2 MSIVs and MSIV Test Methods"
IR 309222, "No Closed Indication for 051-2F077"
IR 462541, "HV-041-1F028A Failed Stroke Time"
IR 587843, "1D RHR Unit Cooler Failed Valve Stroke Per ST-6-011-206-1"
IR 591015, "D21 Diesel Generator Switch Repositioned to Match Flags"
IR 597870, "Swagelock Fitting Leak"
IR 602689, "HV-041-2F022C Closing Time Out of Tolerance Per ST-6-041-202-2"
IR 610614, "Div 4 RHR Gross Fail Will Not Reset"
A1310124, "OE11717 MSIV Closure Modeled Non-Conservatively"
A1402169, "Air Line Break Upstream 92-1610A"
A1505857, "No Closed Indication for 051-2F077"
A1605681, "Swagelock Fitting Leak"
A1607226, "HV-041-2F028B Closing Time Out of Tolerance Per ST-6-041-202-2"
A1607227, "HV-041-2F022C Closing Time Out of Tolerance Per ST-6-041-202-2"
A1610147, "Div 4 RHR Gross Fail Will Not Reset"

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GE Letter Report NSA03-0191, "Limerick 2 Cycle 7 2.4 Second MSIV Closure Results"
Quick Human Performance Investigation Report for the D21 Diesel Generator Switch
Repositioned to Match Flags
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C0217501, "Replace Limit Switch"
C0220667, "Adjust Closure Time on MSIV HV-041-2F022C"
C0220669, "Adjust Closure Time on MSIV HV-041-2F028B"
C0220839, "Replace Transmitter PDT-051-2N058D"
M1605681, "092-1319A, Replace Tubing and Fitting"
R0709964, "HV-041-2F022C and HV-041-2F028B Outstanding"
R0800496, "Clean, Examine, and Calibrate"
R0926036, "Clean, Examine, and Calibrate MCU"
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Maintenance Rule Scope and Performance Monitoring Report for Systems 41C and 60
8031-M-51, Sheet 7, "P&ID, Residual Heat Removal, Unit 2"

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IR 439208, "Several Small Particles Floating in U2 SBLC Tank"
IR 565800, "HV-049-1F019 RCIC Min Flow Shows Dual Indication at 600 GPM"
IR 578265, "KVAR Swings during D12 Emergency Diesel Generator (EDG) Cooldown"
IR 581529, "NUMAC Screen for APRM-LPRM-1-2AR52 Blank"
IR 582678, "Foreign Material in Unit 1 SBLC Tank"
IR 597518, "HV-055-2F042 DC MOV Motor Nameplate Discrepancy"
IR 597819, "Spare DC MOV Motor Is Unacceptable For Use"
A1295250, "FI-49-1R600-1 Spiking"
A1561752, "Clean U2 SLC Tank Hatch Area and Skim Floating Particles"
A1597859, "SBLC Tank FME Floaters in U1 SBLC Tank"
A1601157, "Foreign Material in Unit 1 SBLC Tank"
A1563323, "RCIC Pump Discharge Inboard PCIV"
A1372286, "HPCI Pump Suction From Supp Pool PCIV"

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Technical Specification 3/4.3.1, "Reactor Protection System Instrumentation Surveillance Requirements"
ST-5-048-800-2, "SBLC Sodium Pentaborate Concentration Analysis," completed 12/21/2006
ST-6-049-230-1, "RCIC Pump, Valve, and Flow Test," Revision 63

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C0207388, "DC MOV Margin Improvement Modification"
C0218574, "Contingent Limitorque Motor Replacement"

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ML-008, RCIC IST Specification for RCIC Pump Minimum Flow Isolation Valve - PCIV
ECR LG 01-00170, "Classification of the RCIC Min Flow Line"
ECR LG 00-01816, "FI-49-1R600-1 Spiking"
Limerick Generating Station Updated Final Safety Analysis Report, Section 5.4.6
ECR LG 02-00731, "DC MOV Margin Improvement- HV-055-*F042"

Section 1R17: Permanent Plant Modifications

ECR LG-00-01541, "HV-051-2F050A/B DEC Parent ECR", Revision 1
 ECR LG-00-01118, "Replace HV-051-2F050B Without Disc Pos. Ind.", Revision 4

IR 479779	IR 502178	IR 599762	IR 606364
IR 489517	IR 597753	IR 600426	IR 606711
IR 591837	IR 596680	IR 604862	

A1273412-E25
 DWG M-43, "Reactor Recirculation Pump (Unit 2)", Sh.3, Revision16
 DWG M-51, "Residual Heat Removal", Sh.5, Revision 25
 DWG M-51, "Residual Heat Removal", Sh.7, Revision 17
 DWG N-00E-304-00001, Sheet 1, "900 Testable Check Valve w/ Air Cyl, Limit Switches",
 Revision 1
 DWG N-00E-304-00001, Sheet 2 "900 Testable Check Valve w/ Air Cyl & Limit Switches",
 Revision 0

Section 1R19: Post Maintenance Testing

Procedures

M-C-700-345, "Relief Valve Maintenance and Testing"
 RT-6-092-316-1, "D12 Diesel Generator Abbreviated Run-In"
 ST-2-074-630-2, "Source Range Monitor Functional Test SRM A," completed 03/12/2007
 ST-6-092-314-2, "D24 Diesel Generator Slow Start and Operability Test Run," completed
 01/17/2007 and 01/18/2007
 ST-6-107-201-0, "IST Valve Stroke for New Baseline," completed 01/03/2007

Issue Reports and Action Requests

IR 516562, "TS Value for Min EDG FO Level Determined to be Non-Conservative"
 IR 518376, "Diesel Fuel Storage Tank Low Level Alarm Non-Conservative"
 IR 526103, "SCN 114-06112 is Supplied w/Stub End (Inlet 160/Outlet 80)"
 IR 565800, "HV-049-1F019 RCIC Min Flow Shows Dual Indication at 600 GPM"
 IR 579818, "Gen Loss of Excitation"
 IR 602042, "Unit 2 SDV Vent/Drain Valves Open With Scram Signal Present"
 A1602694, "Unit 2 'A' SRM Period Indicator Spiking"

Miscellaneous

C0218317, "Replace SRM Dry Tubes for 2R09"
 C0219542, "Replace Limitorque and Diagnostic Testing"
 C0219889, "Replace K1 Relay"
 C0220293, "Troubleshoot 'A' SRM"
 C0220360, "Troubleshoot 'A' SRM From Detector/Repair/Replace"
 R1041795, "PSV-011-207A Remove/Replace/Test 3/4"x1" Rlf Vlv"
 NRC Information Notice 89-08, "Pump Damage Caused by Low Flow Operation"
 8031-M-49, Sheet 1, "P&ID Reactor Core Isolation Cooling Unit 1," Revision 51
 Operator Logs dated 01/17/2007
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Section 1R20: Refueling Outage Activities

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2GP-6.1, "Shutdown Operations - Refueling, Core Alterations, and Core Off-Loading," Revision 12
 GP-2 Appendix 1, "Reactor Start-up and Heat-up"
 GP-3 Appendix 3, "Preparation for Primary Containment Access and Refueling," Revision 13
 GP-6.2, "Shutdown Operations - Shutdown Condition Tech Spec Actions," Revision 40
 HU-AA-101, "Human Performance Tools and Verification Practices," Revision 3
 MA-MA-796-024-1001, "Scaffolding Criteria for the Mid-Atlantic Stations," Revision 4
 OP-AA-10, "Equipment Clearance Process Description," Revision 0
 OP-LG-109-101-1001, "Limerick System Specific Tagging Guides," Revision 13
 OP-MA-109-101, "Clearance and Tagging," Revision 5
 OU-LG-104, "Limerick Generating Station Shutdown Safety Management Program," Revision 5
 S51.8.L, "RHR Alternate Decay Heat Removal Startup and Shutdown," Revision 11
 ST-4-LLR-001-2, "The LLRT Program and Accountability Test," Revision 10
 ST-6-076-360-0, "Refuel Area Sec Cntmt Integrity Verification," completed 03/13/2007
 ST-6-076-360-0, "Refuel Area Sec Cntmt Integrity Verification," Revision 24
 ST-6-097-630-2, "Core Alteration Testing for Offloading, Shuffling, and Reloading the Core," completed 03/18/2007
 ST-6-107-591-2, "Daily Surveillance Log/OPCONS 4,5," completed 03/18/2007
 ST-6-107-640-2, "Rx Vessel Temperature and Pressure Monitoring," Revision 30
 ST-6-107-640-2, "Rx Vessel Temperature and Pressure Monitoring," completed 03/10/2007
 ST-6-107-640-2, "Rx Vessel Temperature and Pressure Monitoring," completed 03/13/2007
 ST-6-107-641-2, "Rx Vessel Temperature and Pressure Monitoring With No RHR Shutdown Cooling Loops in Operation," Revision 19
 ST-6-107-645-2, "Reactor Vessel Flange Temperature Monitoring," Revision 3
 GP-2, "Normal Plant Startup," Revision 121
 GP-10, "Reactor Pressure Vessel (RPV) Leakage Test", Revision 56
 ST-6-092-116-2, "D22 Diesel Generator 4KV SFGD Loss Of Power LSF/SAA And Outage Testing", Revision 12
 RT-6-092-452-2, "Procedure For Deenergizing And Reenergizing The D22 Safeguard Bus During A Refuel Outage", Revision 1

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IR 589358, "Channel Fastener Interference Upon Insertion Into Spent Fuel Pool"
 IR 590016, "Irregularities With Channel Fastener Measurements"
 IR 604360, "NRC Resident Walkdown of the Drywell"
 IR 604827, "NRC Observations During Plant Walkdown"
 IR 606565, "Steam Dryer Tie Bar #3 Has Minor Indication"
 IR 608568, "Steam Dryer Indication"
 IR 608667, "Steam Dryer Support Ring Examinations"
 IR 609172, "U2 Suspected TE Generator H2 Seal Failure"
 IR 609725, "D22: 162-116 Relay Failure To Energize"
 IR 607389, "D22 Output Breaker Inadvertent Opening During LOCA/LOOP Test"
 IR 607070, "D22 Aux Control Time Delay Relay Failure"
 A1511180, "Tracking of Ground Water Leaks"
 A1610225, "Document Walkdown Findings for HPCI Room Flooding"

Miscellaneous

Limerick Generating Station UFSAR
 Limerick Generating Station Technical Specifications

Operator Logs, Daily Outage Risk Assessments, and Daily Work Schedules dated 03/09/2007 - 03/31/2007

Active Operations LCO Logs as of 03/27/2007

DNA History Plot of Reactor Pressure and Temperature During Cooldown

Start-Up Plant Operations Review Committee Package, dated March 23, 2007

Start-Up Plant Operations Review Committee Package, dated March 27, 2007

Test Results Evaluation for ST-6-092-116-2, "D22 LOCA/LOOP Test (W/O R0992220)

Limerick's Archival Operations LCO Logs from 3/21/2007 to 3/22/2007

Limerick 2R09 Refueling Outage Risk Assessment, dated 3/21/2007

Quick Human Performance Investigation Report, "Unit 2 Scram Discharge Volume (SDV) Drain Valves Opened When Fuse Removed"

8031-M-47, Sheet 2, "P&ID, Control Rod Drive Hydraulic - Part B (Unit 2)," Revision 18

Section 1R22: Surveillance Testing

Procedures

AD-AA-101, "Processing of Procedures and T&RMs," Revision 17

LS-AA-104-1000, "Exelon 50.59 Resource Manual," Revision 3

S49.1.A, "Normal RCIC Lineup for Automatic Operation", Revision 21

ST-6-041-202-2, "MSIV Cold Shutdown Valve Test," Revision 17

ST-6-041-202-2, "MSIV Cold Shutdown Valve Test," completed 03/11/2005

ST-6-041-202-2, "MSIV Cold Shutdown Valve Test," completed 03/12/2005

ST-2-049-100-2, "RCIC Logic System Functional: Simulated Automatic Actuation Test"

ST-6-049-200-1, "RCIC Valve Test," completed 03/07/2007

ST-6-052-231-1, "A Loop Core Spray Pump, Valve, and Flow Test," completed 02/02/2007

ST-6-092-117-2, "D23 Diesel Generator 4 KV SFGD Loss of Power LSF/SAA and Outage Testing," Revision 9

ST-6-092-322-1, "D12 Diesel Generator LOCA/Load Reject Testing and Fast Start Operability Test Run," completed 02/06/2007

Issue Reports and Action Requests

IR 465878, "Relay 162-116 Failed During Performance of ST-6-092-116-1"

IR 466429, "Inadvertent Core Spray Pump Start"

IR 605723, "MCR Received Loop 'A' Core Spray Surge Chamber Alarm"

IR 605781, "Energized E21-K18A Relay Brought in LOCA Signal"

IR 606237, "PI-008-187 Needle Bent"

IR 606244, "HCD-209 Piping Found Bent (Condensate Transfer)"

IR 606318, "Issues Identified During 21 and 23 LOCA LOOP Testing"

A1288399, "RCIC Operability Recommendation"

Miscellaneous

8031-M-52, Sheet 2, "P&ID Core Spray Unit 1," Revision 42

ASME OM Code-1990, Section IST, "Rules for Inservice Testing of Light-Water Reactor Power Plants"

Operator Logs, dated 02/06/2007 - 02/07/2007

Operator Logs, dated 03/07/2007 - 03/08/2007

NRC Inspection Manual Part 9900 Technical Guidance, "Maintenance - Preconditioning of Structures, Systems, and Components Before Determining Operability"

Quick Human Performance Investigation Report for Unexpected Plant Response During Relay Changeout in Conjunction with D23 LOCA/LOOP Test

Regulatory Guide 1.33, "Quality Assurance Program Requirements," Revision 2

C0219187, "Replace 162-117"

1R23: Temporary Plant Modifications

TRT No. 07-025, "Unit 1 Condensate Storage Tank Temperature Control Using the Main Condenser Hotwell, Troubleshooting, Rework, and Testing (TRT)"

1EP6: Drill Evaluation

EP-AA-108, "Limerick Generating Station Emergency Action Level Matrix," Revision 10
 EP-AA-112-100-F-01, "Shift Emergency Director Checklist," Revision F
 EP-MA-114-100-F-01, "State/Local Event Notification Form," Revision D

Section 2OS1 Access Control to Radiologically Significant Areas

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RP-AA-203, "Exposure Control and Authorization," Revision 2
 RP-AA-210, "Dosimetry Issue, Usage, and Control," Revision 7
 RP-AA-250, "External Dose Assessments From Contamination," Revision 4
 RP-AA-270, "Prenatal Radiation Exposure," Revision 3
 RP-LG-300-102, "Removing Items from the Spent Fuel Pool, Reactor Cavity, Equipment Pit, or Cask Pit," Revision 1
 RP-AA-350, "Personnel Contamination Monitoring, Decontamination, and Reporting," Revision 7
 RP-AA-376, "Radiological Postings, Labeling, and Markings," Revision 1
 RP-AA-400, "ALARA Program," Revision 4
 RP-LG-400-1003, "Emergent Dose Control and Authorization," Revision 2
 RP-LG-400-1002, "Department Dose Zealot," Revision 1
 RP-AA-401, "Operational ALARA Planning and Controls," Revision 7
 RP-AA-403, "Administration of the Radiation Work Permit Program," Revision 1
 RP-AA-460, "Controls for High and Very High Radiation Areas," Revision 11
 RP-AA-462, "Controls for Radiographic Operations," Revision 4
 RP-LG-460-1016, "Radiation Protection Controlled Keys," Revision 5
 RP-LG-460-105, "Drywell Entries at Power," Revision 2
 RP-LG-400-1021, "Reactor Cavity Draindown," Revision 0
 CY-LG-120-1301, "Outage Cobalt Limits," Revision 0
 RT-0-100-460-0, "High Radiation and Locked High Radiation Door Preventative Maintenance Inspection," Revision 2
 LS-AA-125, "Corrective Action Program (CAP) Procedure," Revision 8
 LS-AA-2001, "Collecting and Reporting NRC Performance Indicator Data," Revision 6

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IR 566109	IR 556327	IR 549719	IR 568727
IR 562293	IR 554807	IR 537152	
IR 560652	IR 554746	IR 502833	

Access Control-related (71121.01):

IR 566109	IR 554746	IR 605637	IR 605707
IR 562293	IR 549719	IR 605631	IR 589506
IR 560652	IR 537152	IR 605718	IR 597810
IR 556327	IR 502833	IR 605748	IR 597801
IR 554807	IR 568727	IR 605749	IR 601059

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IR 599237	IR 601910	IR 605330	IR 604735
IR 603753	IR 604852	IR 605396	
IR 602042	IR 605513	IR 606234	

ALARA-related (71121.02):

IR 581852	IR 578858	IR 603921	IR 605345
IR 599386	IR 581852	IR 604618	

Root Cause Analysis Report

IR 469293, "High Cavity Post Drain Source Term"

Nuclear Oversight Objective Evidence Reports

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Nuclear Oversight Quarterly Assessment Reports

NOSPA-LG-06-3Q, NOSPA-LG-06-2Q, NOSPA-LG-06-1Q

Dated: 03/23/2007

Station ALARA Committee Meeting Minutes

Meeting Nos.: 2006-10, 2006-09,2006-08, 2006-07, 2006-06, 2006-05, 2006-04

ALARA Plans

2007-02, ESW Header Pipe Replacement Mod
2007-08, Reactor Services Under Vessel Support for 2R09
2007-13, Installation/Removal of Scaffolding Unit-2 Drywell 2R09
2007-16, Replace HV-51-2F050B, Unit 2 DW
2007-18, Drywell Dry Tube/LPRM/TIP Tubing 2R09
2007-21, Drywell ISI and associated work
2007-27, RHR 50 DP mod, U2 Drywell
2007-28, Reactor Disassembly
2007-29, Reactor Reassembly
2007-30, Refuel Floor Outage Middle Activities
2007-31, Reactor Cavity Decontamination

Work-in-Progress Reviews

07-02/07-25, Unit 2 Drywell/Whip Restraint
07-13, Drywell Scaffolding
07-19, MSRV Replacement
07-02, HCU Maintenance

Station ALARA Council Meeting Minutes

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Miscellaneous Reports

2006-2011 Exposure Reduction Plan
Dose and Dose Rate Alarm Report for period January 1 - March 19, 2007
System Pre & Post Flushing Radiation Surveys for Low Pressure Coolant Injection System,
and Containment Spray System
Daily Unit 2 Outage Project Dose Reports

Section 4OA2: Other

Procedures

RT-6-092-316-1, "D12 Diesel Generator Abbreviated Run-In"
SE-10, "LOCA," Revision 43
SE-10, "LOCA," Revision 46
SE-10, "LOCA," Revision 48
S51.8.A, "Suppression Pool Cooling Operation (Startup and Shutdown) and Level Control"
Temporary Procedure Change TC-1-07-024-1 for RT-6-092-316-1

Issue Reports and Action Requests

IR 514185, "Discontinuity Between Design Calcs and Operating Procedures"
IR 578265, "KVAR Swings during D12 Emergency Diesel Generator (EDG) Cooldown"
IR 583976, "RHRSW Flowrate Not Specified for Design LOCA Condition"
Action Request A1456726

Miscellaneous

Technical Specification 3/4.8.1, "A.C. Sources - Operating"
Calculation LM-0638, "Tube Plugging Limits and Fouling Factors for RHR Heat Exchangers,"
Revision 0
Calculation LM-0662, "2B RHR Heat Exchanger Capability With Reduced RHRSW Flow,"
Revision 0
Control Room Logs for January 11-16, 2007

Section 4OA3: Event Followup

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GP-3, "Normal Plant Shutdown," Revision 119
GP-3 Appendix 1, "Establishing Cold Shutdown," Revision 29
S07.2.A, "Shutdown of the Steam Jet Air Ejector and Breaking Main Condenser Vacuum,"
Revision 19

Issue Reports and Action Requests

IR 602921, "Division 1 and 4 MSIV Isolation Logic Alarms"

Miscellaneous

Quick Human Performance Investigation Report for Bypass of MSIV Isolation Logic not
Completed per S7.2.A While Breaking Condenser Vacuum
Licensed Operator Initial Training Lesson Plan, "Nuclear Steam Supply Shutoff System
(NSSSS)," Revision 14

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access Management System
ALARA	as low as is reasonably achievable
AP	ALARA Plan
AR	action request
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CS	containment spray
CST	condensate storage tanks
EDG	emergency diesel generator
EPRI	Electric Power Research Institute
ESW	emergency service water
HDR	high dose rate
HPCI	high pressure coolant injection
HRA	high radiation area
IGSCC	intergranular stress corrosion cracking
IMC	inspection manual chapter
IPEEE	individual plant examination external events
IR	issue report
ISI	inservice inspection
IVVI	in-vessel-visual-inspection
LGS	Limerick Generating Station
LHRA	locked high radiation area
LPCI	low pressure coolant injection
MSIV	main steam isolation valves
MT	magnetic particle test
NCV	non-cited violation
NDE	non-destructive examination
NRC	Nuclear Regulatory Commission
NSSSS	nuclear steam supply shutoff system
PAR	protective action recommendation
PARS	Publicly Available Records
P&ID	pipng and instrumentation drawing
PMT	post-maintenance test
QV	quality verification
RCA	radiologically controlled area
RCIC	reactor core isolation cooling
RCS	reactor coolant system
RHR	residual heat removal
RPV	reactor pressure vessel
RWP	radiation work permit
SBLC	standby liquid control
SDC	shutdown cooling
SDP	significance determination process
SDV	scram discharge volume
SSC	structure, system, component
TEDE	total effective dose equivalent
TIP	traversing in-core probe
TRT	troubleshooting, re-work, testing
TS	technical specification
UFSAR	updated final safety analysis report

UT	ultrasonic test
VAC	volt alternating current
VHRA	very high radiation area