July 29, 2003

Mr. John L. Skolds, President Exelon Nuclear Exelon Generation Company, LLC 4300 Winfield Road Warrenville, IL 60555

#### SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2 NRC INTEGRATED INSPECTION REPORT 50-373/03-03; 50-374/03-03

Dear Mr. Skolds:

On June 30, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your LaSalle County Station, Units 1 and 2. The enclosed report documents the inspection findings which were discussed on July 8, 2003, with Mr. G. Barnes 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, there was one NRC-identified finding of very low safety significance (Green). However, there were no violations of NRC requirements associated with this finding.

Since the terrorist attacks on September 11, 2001, NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision, to audit and inspect licensee implementation of the interim compensatory measures required by order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calender year 2002 and the remaining inspection activities for LaSalle County Station were completed in July 2003. The NRC will continue to monitor overall safeguards and security controls at LaSalle County Station.

J. Skolds

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Sincerely,

/RA/

Bruce L. Burgess, Chief Branch 2 Division of Reactor Projects

Docket Nos. 50-373; 50-374 License Nos. NPF-11; NPF-18

- Enclosure: Inspection Report 50-373/03-03; 50-374/03-03 w/Attachment: Supplemental Information
- cc w/encl: Site Vice President - LaSalle County Station LaSalle County Station Plant Manager **Regulatory Assurance Manager - LaSalle Chief Operating Officer** Senior Vice President - Nuclear Services Senior Vice President - Mid-West Regional **Operating Group** Vice President - Mid-West Operations Support Vice President - Licensing and Regulatory Affairs **Director Licensing - Mid-West Regional Operating Group** Manager Licensing - Clinton and LaSalle Senior Counsel, Nuclear, Mid-West Regional **Operating Group** Document Control Desk - Licensing M. Aguilar, Assistant Attorney General Illinois Department of Nuclear Safety State Liaison Officer Chairman, Illinois Commerce Commission

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### U.S. NUCLEAR REGULATORY COMMISSION

#### **REGION III**

Docket Nos:	50-373; 50-374
License Nos:	NPF-11; NPF-18
Report No:	50-373/03-03; 50-374/03-03
Licensee:	Exelon Generation Company
Facility:	LaSalle County Station, Units 1 and 2
Location:	2601 N. 21st Road Marseilles, IL 61341
Dates:	April 1 through June 30, 2003
Inspectors:	<ul> <li>D. Kimble, Senior Resident Inspector</li> <li>E. Duncan, Senior Resident Inspector</li> <li>D. Eskins, Resident Inspector</li> <li>D. Dumbacher, Regional Inspector - NRC Region IV</li> <li>R. Kopriva, Project Engineer - NRC Region IV</li> <li>R. Schmitt, Emergency Preparedness Inspector</li> <li>W. Slawinski, Senior Radiation Protection Specialist</li> <li>R. Walton, Operator Licensing Examiner</li> <li>G. Wright, Project Engineer</li> <li>J. Yesinowski, Illinois Department of Nuclear Safety</li> </ul>
Observers:	S. Browde, NRC Intern D. Melendez, NRC Intern
Approved by:	Bruce L. Burgess, Chief Branch 2 Division of Reactor Projects

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#### SUMMARY OF FINDINGS

IR 05000373/2003-003, 05000374/2003-003; Exelon; 04/01/03 - 06/30/03; LaSalle County Station, Units 1 & 2; Operator Workarounds.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections on radiation protection and emergency preparedness. The inspection was conducted by the LaSalle resident inspectors, Region III inspectors, and Region IV inspectors. One Green finding was identified with no associated violation. 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 Process," Revision 3, dated July 2000.

#### A. Inspector-Identified and Self-Revealing Findings

#### **Cornerstone: Mitigating Systems**

Green. A finding of very low safety significance was identified by inspectors when it was determined that the continuous long term operation of a single train of the Residual Heat Removal (RHR) system in the suppression pool cooling (SPC) mode was not within the licensee's design basis.

In a Phase 3 SDP, the inspectors concluded that the continuous operation of a single train of the RHR system in the SPC mode from May 25, 2001 through September 3, 2001, increased the likelihood of an RHR train failure from a water hammer event. The finding was of very low safety significance due to the low magnitude of the increased probability of RHR train failure. There were no violations of regulatory requirements identified with this finding. (Section 1R16.1)

#### B. <u>Licensee-Identified Violations</u>

No violations of significance were identified.

#### **REPORT DETAILS**

#### **Summary of Plant Status**

#### Unit 1

LaSalle Unit 1 operated at full power for the entire assessment period except for brief downpowers to accomplish rod pattern adjustments and conduct planned surveillance testing activities with the following exceptions:

- On April 18, 2003, power was reduced to approximately 46 percent due to feedwater heater tube leaks. The leakage was repaired and full power operation resumed on April 25, 2003.
- On May 17, 2003, power was reduced to approximately 7 percent to facilitate drywell entry and oil addition to the 'B' reactor recirculation pump. Full power operation was restored on May 22, 2003.

#### Unit 2

LaSalle Unit 2 operated at full power for the entire assessment period except for brief downpowers to accomplish rod pattern adjustments and conduct planned surveillance testing activities.

#### 1. **REACTOR SAFETY**

# Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

- 1R01 <u>Adverse Weather Protection</u> (71111.01)
- a. Inspection Scope

The inspectors verified design features and implementation of the licensee's procedures protecting systems from adverse weather effects. The following seasonal conditions were examined:

- Preparations for warm temperature extremes during the week ending 5/24
- Preparations for high winds during the week ending 5/24

The site's Updated Final Safety Analysis Report (UFSAR), LaSalle Abnormal Operating Procedures (LOA) TORN-001, "High Winds/Tornado," Revision 2, and LOA-DIKE-001, "Lake Dike Damage/Failure," Revision 3, and the LaSalle Summer Readiness Duty Team Guide were reviewed to verify the protection and readiness of essential systems.

The Summer Readiness Duty Team Guide includes items such as the Summer Readiness Action Plan, procedures and plans to address potential grid instabilities, additional monitoring requirements, weather related Notice of Enforcement Discretion

(NOED) templates, contingency work order packages, transformer risk assessment and replacement plans, and the LaSalle Station Lake Management Plan. The planning for summer readiness indicates that the licensee is identifying weather related problems that could affect mitigating systems.

Through reviews of condition reports and interviews with the ultimate heat sink engineer and readiness plan managers, the inspectors verified that corrective actions related to weather related issues have been appropriate and effective.

The inspectors reviewed LaSalle Operating Surveillance (LOS) ZZ-A2, Revision 26, "Preparations for Winter/Summer Operation," and independently verified that the ventilation alignments associated with diesel rooms, diesel switchgear rooms, and core standby cooling system rooms were proper for hot weather conditions.

The inspectors conducted walkdowns outside the plant and verified that there is adequate protection for outside equipment from high winds. The ultimate heat sink configuration was verified by reviewing the contoured depths survey provided by the licensee's contractor, Ocean Surveys, Inc.

b. Findings

No findings of significance were identified.

- 1R04 Equipment Alignment (71111.04)
- .1 Quarterly Partial Equipment Alignment Verifications
- a. Inspection Scope

The inspectors performed partial walkdowns of accessible portions of trains of risk-significant mitigating systems equipment during times when the trains were of increased importance due to the redundant trains or other related equipment being unavailable. The inspectors verified that the components were properly positioned and that support systems were lined up as needed. The inspectors also examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors reviewed outstanding work orders and condition reports (CRs) associated with the trains to verify that those documents did not reveal issues that could affect train function. The inspectors used the information in the appropriate sections of the Updated Final Safety Analysis Report (UFSAR) to determine the functional requirements of the systems.

The inspectors verified the alignment of the following trains:

- 1A Emergency Diesel Generator (EDG) sub-system and 2A EDG sub-system with the "0" EDG sub-system out-of-service for pre-planned maintenance during the week ending 4/5
- 1B and 1C Residual Heat Removal (RHR) sub-system and 2B and 2C RHR sub-system with the "0" EDG sub-system out-of-service due to inadvertent

carbon dioxide (CO2) system initiation signal during the week ending 4/26

- Unit 1 250 V DC and Reactor Core Isolation Cooling (RCIC) systems with the High Pressure Core Spray system (HPCS) out-of-service due to maintenance on the 1B Diesel during the week ending 5/24
- Unit 1 and Unit 2 HPCS Systems during the week ending 6/14
- b. Findings

No findings of significance were identified.

- .2 Semiannual Complete System Alignment Verification
- a. Inspection Scope

The inspectors performed a complete walkdown inspection of the accessible portions of the Unit 1 Control Rod Drive (CRD) system during the weeks ending 6/14 and 6/21. The inspectors used mechanical system drawings to verify that the components were properly positioned. The integrity of structural supports associated with system piping and the hydraulic control units were checked, and the inspectors reviewed the material condition of the system components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors reviewed outstanding work orders and condition reports associated with the Unit 1 CRD system. Minor discrepancies that were identified during the walkdown were reported to the licensee for appropriate disposition.

b. Findings

No findings of significance were identified.

- 1R05 Fire Protection (71111.05)
- a. Inspection Scope

The inspectors toured the following risk significant areas to identify any fire protection degradations:

- Fire Zone 5B4, Electrode Boiler Room during the week ending 4/19
- Fire Zone 5B5, Elevation 731 feet 0 inches during the week ending 4/19
- Fire Zone 5B11, Unit 1 Heater Aisle (Turbine Building) during the week ending 4/19

Emphasis was placed on control of transient combustibles and ignition sources; the material condition, operational lineup, and operational effectiveness of the fire protection systems, equipment, and features; and the material condition and operational status of fire barriers used to prevent fire damage or fire propagation.

In particular, the inspectors verified that all observed transient combustibles were being controlled in accordance with the licensee's administrative control procedures. In

addition, the inspectors observed the physical condition of fire suppression devices, such as overhead sprinklers, and verified that any observed deficiencies did not impact the operational effectiveness of the system. The physical condition of portable fire fighting equipment, such as portable fire extinguishers, was observed. The inspectors also observed that extinguishers were located appropriately and that access to the extinguishers was unobstructed. Fire hoses were verified to be installed at appropriate locations and the physical condition of the hoses was verified to be satisfactory and access unobstructed. The physical condition of passive fire protection features such as fire doors, ventilation system fire dampers, fire barriers, fire zone penetration seals, and fire retardant structural steel coatings were inspected and verified to be properly installed and in good physical condition.

b. Findings

No findings of significance were identified.

- 1R06 Flood Protection Measures (71111.06)
- .1 Annual External Flood Protection Inspection
- a. Inspection Scope

During the weeks ending 5/17 and 5/24, the inspectors reviewed the Updated Final Safety Analysis Report and related flood analysis documentation to identify those areas susceptible to external flooding. Design basis documentation indicated that LaSalle was classified as a "dry" site since external flooding was not a threat to the plant. This was based on the top of the LaSalle dike being at the 710 foot elevation and the plant grade being at 710 feet, 6 inches. Probable Maximum Flooding (PMF) is at an elevation of 704 feet, 4 inches.

The inspectors reviewed calculation L-002536, "Probable Maximum Precipitation (PMP) Basin Area B1 Water Level Evaluation," Revision 1, dated March 20, 2000, which concluded that the PMP water level was below the lowest exterior entrances of safety-related buildings. Therefore, the PMP had no adverse impact on the safety-related function of the plant. The inspectors also reviewed calculation WR-LS-PF-9, "Probable Maximum Flood in Illinois River," Revision 0, dated January 6, 1976, which concluded that LaSalle was a "dry" site (defined in Regulatory Guide 1.102) with regard to flooding from the Illinois River. The site was listed as 180 feet above the elevation of the river. The inspectors reviewed calculation WR-LS-PF-7, "Wind Wave Analysis," Revision 0, dated August 13, 1975, which concluded that the plant site was unaffected by wave runup due to high winds at maximum flood lake level. Additionally, the inspectors also performed walk down inspections of the accessible portions of the Lake Screen House, exterior plant grounds, and in-close portions of the lake's dike.

#### b. Findings

No findings of significance were identified.

#### .2 <u>Semiannual Internal Flood Protection Inspection</u>

#### a. Inspection Scope

During the weeks ending 5/17 and 5/24, the inspectors reviewed design basis and licensee Probable Risk Assessment (PRA) documentation that identified possible internal flood paths for areas which contain safety-related equipment. Internal flooding core damage frequency (CDF) scenarios account for approximately 37 percent of the total baseline CDF for LaSalle Station. This is due largely to the PRA assessment that a large circulating water line break in the turbine building outside the condenser pit has the capability to flood the entire turbine and reactor buildings up to the 701 foot elevation if not quickly isolated.

The inspectors walked down accessible portions of the Unit 1 and Unit 2 suppression pool raceways, Emergency Core Cooling System (ECCS) corner rooms and, Core Standby Cooling System (CSCS) pump rooms to verify that the licensee's flooding mitigation plans and equipment were consistent with design requirements and risk analysis assumptions. The inspectors reviewed Work Request (WR) 99233661 dated February 13, 2003, which accomplished LaSalle Technical Surveillance (LTS) 1000-29, "Watertight Door and Penetration Inspection," for Unit 2. Additionally, inspectors reviewed the station's current revision of the reactor building sump pump and floor drains surveillances to verify that these systems would be ready to perform as expected.

On each unit, inspectors verified that watertight doors and selected penetrations were intact. In particular, the inspectors checked for sources of potential internal flooding that had not been previously analyzed by the licensee. To this end, the inspectors concentrated on observing the sealing of equipment below the flood line and the adequacy of watertight doors between flood areas.

The inspectors reviewed Abnormal Operating Procedure LOA-FLD-001, "Flooding," Revision 5, dated March 10, 2003, and verified that actions prescribed in the procedure could reasonably be used to achieve the desired effects. A licensee focused self-assessment and associated Condition Reports (CRs) related to flooding were also reviewed.

b. Findings

No findings of significance were identified.

#### 1R11 Licensed Operator Regualification (71111.11)

a. Inspection Scope

On June 16, 2003, the inspectors observed licensee training personnel evaluate an operating crew during an accident scenario and subsequently observed the training personnel critique the operating crew's performance. The inspectors reviewed the scenario for operational validity and appropriate selection of critical tasks. Additionally, the inspectors observed operator actions to assess crew performance in terms of clarity

and formality of communications; the ability to take timely action in the safe direction; the prioritizing, interpreting, and verifying of alarms; the correct use and implementation of procedures, including alarm response procedures; timely control board operation and manipulation, including high-risk operator actions; the oversight and direction by the shift manager, including the ability to identify and implement appropriate Technical Specification actions and emergency plan actions and notifications; and the group dynamics. The inspectors discussed scenario observations and crew evaluations with the licensee trainers.

b. Findings

No findings of significance were identified.

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

The inspectors reviewed the licensee's handling of performance issues and the associated implementation of the Maintenance Rule (10 CFR 50.65) to evaluate maintenance effectiveness for the selected systems. The following systems were selected based on being designated as risk significant under the Maintenance Rule, being in the increased monitoring (Maintenance Rule category a(1)) group, or due to an issue or problem that potentially impacted system work practices, reliability, or common cause failures:

- Control Room (VC) and Auxiliary Electric Equipment Room (VE) ventilation systems during the weeks ending 5/3 through 5/17
- Unit 1 and 2 Residual Heat Removal (RHR) systems during the week ending 6/28

The inspectors review included verification of the licensee's categorization of specific issues including evaluation of the performance criteria, appropriate work practices, identification of common cause errors, extent of condition, and trending of key parameters. Additionally, the inspectors reviewed the licensee's implementation of the maintenance rule requirements, including a review of scoping, goal-setting, performance monitoring, short-term and long-term corrective actions, functional failure determinations associated with the condition reports reviewed, and current equipment performance status.

b. Findings

No findings of significance were identified.

#### 1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

#### .1 <u>Emergent Repairs to Unit 1 Division 2 125 Volt Direct Circuit (Vdc) Battery Charger and</u> <u>Associated Notice of Enforcement Discretion (NOED)</u>

#### a. Inspection Scope

The inspectors reviewed personnel performance, recovery actions, and licensee response to voltage and current fluctuations being experienced by the Unit 1 Division 2 125 Vdc battery charger on April 7-9, 2003. The inspectors also reviewed the licensee's application for a NOED. To evaluate the occurrence, the inspectors reviewed operator logs, equipment records, the licensee's response, applicability to the significance determination process, and the licensee's contingency plans and compensatory measures.

#### b. Findings

On April 7, 2003, plant operators noted that the Division 2 125 Vdc battery voltage and current on Unit 1 was oscillating. Voltage oscillations of approximately 1-2 Vdc and current oscillations of approximately 30 Amperes were observed. Following troubleshooting, the licensee concluded that up to 3 circuit cards needed to be replaced in the battery charger in an attempt to rectify the problem. Further, the licensee estimated that approximately 12 additional hours beyond the technical specifications allowed 2 hour outage time would be required to facilitate the replacement and testing of the cards.

The licensee verbally requested that the NRC exercise discretion not to enforce compliance with the actions required by Technical Specifications (TS) 3.8.4, "DC Sources - Operating," and TS 3.8.7, "Distribution Systems - Operating," on April 9, 2003. Specifically, the licensee requested that the 2 hour TS allowed outage time be extended by 12 hours to facilitate battery charger card replacement and testing without entry into a shutdown action statement on Unit 1. The licensee based this request on their assessment that the risk associated with potentially subjecting the plant to a shutdown transient was greater than the essentially no net increase in risk associated with allowing the allowed outage time extension and the unit to remain in operation at power during the battery charger card replacement. The licensee followed their verbal request with a written submittal on April 11, 2003.

On April 9, 2003, the NRC verbally granted the NOED in accordance with the guidance in NRC IMC 9900, "Technical Guidance, Operations - Notices of Enforcement Discretion." The NRC Region III staff followed up this verbal authorization with a letter to the licensee dated April 14, 2003, "Notice of Enforcement Discretion for Exelon Generation Company Regarding LaSalle County Station, Unit 1 (NOED 03-3-004)."

The licensee declared the Unit 1 Division 2 125 Vdc battery charger inoperable and began card replacement following verbal approval of the NOED on April 9, 2003. Repairs to the battery charger were completed early in the morning on April 10, 2003, and the battery charger was declared operable by the licensee. This action terminated

the NOED. The duration of battery charger inoperability under the NOED was 10 hours and 25 minutes.

Consistent with the guidance provided in NRC IMC 9900, "Technical Guidance, Operations - Notices of Enforcement Discretion," this issue is being treated as a Unresolved Item (URI 50-373/374/03-03-01) pending review of the licensee's determination of the root cause for needing the NOED. The licensee has entered this issue into their corrective action program under CRs 152752, 153262, 153326, 153428, and 157008.

#### .2 <u>Miscellaneous Emergent Work</u>

#### a. Inspection Scope

The inspectors reviewed the licensee's evaluation of plant risk, scheduling, configuration control, and performance of maintenance associated with planned and emergent work activities to verify that scheduled and emergent work activities were adequately managed. In particular, the inspectors reviewed the licensee's program for conducting maintenance risk safety assessments and verified that the licensee's planning, risk management tools, and the assessment and management of online risk was adequate. The inspectors also assessed that licensee actions to address increased online risk during these periods, such as establishing compensatory actions, minimizing the duration of the activity, obtaining appropriate management approval, and informing appropriate plant staff, were accomplished when online risk was increased due to maintenance on risk-significant structures, systems and components (SSCs). The following specific activities were reviewed:

- Unit 1 'B' EDG emergent exhaust system repairs during the week ending 5/24
- Unit 1 containment broken tendon removal and replacement during the weeks ending 5/24 through 6/28
- Unit 2 'A' EDG emergent Kiene valve repairs during the week ending 6/14
- Unit 1 Division II annunciator loss during the week ending 6/28

#### b. Findings

No findings of significance were identified.

#### 1R14 <u>Personnel Performance During Non-Routine Plant Evolutions and Events</u> (71111.14)

a. Inspection Scope

During the weekend of May 18-19, inspectors observed portions of the licensee's planned Unit 1 power reduction and drywell entry to add oil to the 1B reactor recirculation pump. The inspectors observed operator performance in the control room during portions of both the power reduction and subsequent power escalation. In addition, inspectors observed the licensee's entire drywell entry activity from the Unit 1 containment personnel airlock, and various activities in the outage control center as well.

#### b. Findings

No findings of significance were identified.

#### 1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the technical adequacy of the following operability evaluations to determine the impact on Technical Specifications, the significance of the evaluations, and to ensure that adequate justifications were documented.

- Missing ladder rungs on access ladder to emergency service water supply tunnel during the weeks ending 5/10 and 5/24
- Unit 1 containment broken tendons during the weeks ending 5/24 through 6/28
- Non safety-related instrument air tubing on Unit 1 and Unit 2 EDGs during the week ending 6/21

Operability evaluations were selected based upon the relationship of the safety-related system, structure, or component to risk.

b. Findings

No findings of significance were identified.

- 1R16 Operator Workarounds (71111.16)
- .1 (Closed) Unresolved Item 50-373/01-10-02: Potential Water Hammer When Low Pressure Coolant Injection (LPCI) Mode of Residual Heat Removal (RHR) Initiated.
- a. Inspection Scope

As discussed in NRC Inspection Report 50-373/01-10; 50-374/01-10, the licensee operated Unit 1 with a single train of the RHR system aligned in the suppression pool cooling (SPC) mode of operation continuously from May 25, 2001, through September 3, 2001. This operator workaround was performed to address increased suppression pool temperature due to leaking safety relief valves (SRVs). The inspectors reviewed the workaround to identify any potentially adverse impact on the function of mitigating systems, or the ability to implement abnormal or emergency operating procedures.

b. Findings

<u>Introduction</u>: One Green finding was identified by inspectors when the NRC determined that the continuous long term operation of a single train of the RHR system in the SPC mode was not within the licensee's design basis. The inspectors concluded that the continuous operation of a single train of the RHR system in the SPC mode from May 25, 2001, through September 3, 2001, increased the probability of an RHR train

failure from a water hammer event. There were no violations of regulatory requirements identified with this finding.

<u>Description</u>: An Unresolved Item, URI 50-373/01-10-02, was opened due to a concern raised by inspectors regarding the operability of the RHR system following an anticipated water hammer as a direct consequence of a loss-of-offsite-power (LOOP) followed by a loss-of-coolant-accident (LOCA). This scenario was described in NRC Information Notice (IN) 87-10, "Potential for Water Hammer During Restart of Residual Heat Removal Pumps," dated February 11, 1987, and IN 87-10, Supplement 1, dated May 15, 1997.

To address this concern, a task interface agreement, TIA 2001-14, "Evaluation of LaSalle Water Hammer Analysis," dated November 2, 2001, was provided to Nuclear Reactor Regulation (NRR) which requested that the NRR staff (hereafter simply referred to as the "staff") determine whether or not the continuous long term operation of a single train of the RHR system in the SPC mode was within the licensee's design basis. The TIA also requested that the staff review the licensee's RHR water hammer analysis to verify that the RHR system would remain operable and/or functional following a LOOP concurrent with a LOCA during operation of the RHR system in the SPC mode.

On July 1, 2002, the staff responded to TIA 2001-14 and concluded that the continuous long term operation of a single train of RHR in the SPC mode was within the licensee's design basis and that potential water hammer in the RHR system resulting in either through-wall leakage cracks or pipe ruptures induced by a LOOP/LOCA was a design basis event. In addition, the staff determined that the licensee's water hammer analysis contained many simplifying assumptions for which the staff identified numerous concerns that reflected on the adequacy of the water hammer analysis. As a result, the staff could not verify that the RHR system would remain operable and/or functional following a LOOP/LOCA during operation in the SPC mode.

Subsequently, on April 28, 2003, TIA 2001-14, Revision 1, was issued which considered the licensee's response to the original staff position. The licensee refuted the original staff position that a water hammer analysis was required regardless of the duration of the SPC mode of operation by contending that this position was inconsistent with the original plant design basis accepted by the NRC, and that a backfit analysis was required in accordance with 10 CFR 50.109. After careful review, the staff concluded that the requirement for a water hammer analysis for SPC operation for short periods, which the staff defined as less than 2 percent of the time of operation. As a result, the staff concluded that a water hammer analysis was not required for SPC mode operation which was of short duration. However, the staff also concluded that long term continuous operation of a single train of RHR in the SPC mode was not within the licensee's design basis. The licensee concurred with the staff on these positions.

<u>Analysis</u>: Inspectors identified a performance deficiency associated with the licensee's period of long term RHR operation in the SPC mode from May 25 to September 3, 2001. Specifically, the inspectors determined that the licensee's staff failed to adequately determine whether or not this activity was consistent with the facility's design basis prior

to approving long term SPC mode operation. Further, the inspectors determined that the finding was more than minor because if left uncorrected, the continued long term operation of a single train of the RHR system in the SPC mode would have been a more significant safety concern due to the increased risk to the RHR system posed by a potential water hammer event.

A Phase 1 SDP was performed by the inspectors, who determined that a Phase 2 SDP was required due to the finding having a potential impact on both the initiating events and mitigating systems cornerstones of reactor safety. Subsequently, because this issue required a postulated simultaneous occurrence of a LOOP and LOCA design basis initiating event, the inspectors determined that the Phase 2 SDP was not capable of clearly addressing the finding.

In accordance with IMC 0609, Appendix A, a Phase 3 SDP analysis of the finding was performed by the regional Senior Reactor Analyst (SRA). Based upon the conclusions documented in NUREG/CR-6538, "Evaluation of LOCA With Delayed LOOP and LOOP With Delayed LOCA Accident Scenarios," the probability of a random LOOP occurring within 1 to 5 seconds following a LOCA was determined to be very small (on the order of 1E-9 to 1E-8 assuming a 0.1/year frequency of a LOOP). This coincided with the SDP initiating event likelihood Table 1 for LaSalle County Station. Thus, based upon the low initiating event frequency of the simultaneous LOOP and LOCA, the issue was determined to be of low risk significance (Green), and within the licensee's response band (FIN 50-373/374/03-03-02).

<u>Enforcement</u>: Due in part to the fact that the licensee's UFSAR did not fully or clearly address the design basis associated with the long term operation of RHR in the SPC, the inspectors determined that no violations of regulatory requirements were associated with this finding. The licensee had entered the issue into their corrective action program as CR 157514. In accordance with the recommendations outlined in TIA 2001-14, Revision 1, the licensee intends to incorporate information relating to the design basis for the SPC mode of operation into the UFSAR during an upcoming revision. Additionally, the licensee intends to adopt the other recommendations contained in TIA 2001-14, Revision 1, as well.

#### .2 Operator Workaround Semiannual Cumulative Effects Assessment

#### a. Inspection Scope

The inspectors reviewed the cumulative effects of all documented operator workaround (OWs) and operator challenges (OCs) on reliability, availability, and potential for mis-operation of a system; the cumulative effects of operator workarounds that could affect multiple mitigating systems; and the ability of operators to respond in a correct and timely manner to plant transients and accidents.

#### b. Findings

No findings of significance were identified.

#### 1R19 <u>Post-Maintenance Testing</u> (71111.19)

#### a. Inspection Scope

The inspectors reviewed and observed the following post-maintenance testing activities involving risk significant equipment:

- Unit 1 'B' EDG testing following planned and corrective maintenance during the week ending 5/24
- Unit 2 'B' Instrument Nitrogen compressor following planned and corrective maintenance during the week ending 6/7
- Unit 1 Reactor Core Isolation Cooling pump following planned and corrective maintenance during the week ending 6/14
- Unit 2 'A' EDG testing following repairs to the cylinder no. 9 Kiene valve during the week ending 6/14

During post-maintenance testing observations, the inspectors verified that the test was adequate for the scope of the maintenance work which had been performed, and that the testing acceptance criteria was clear and demonstrated operational readiness consistent with the design and licensing basis documents. The inspectors also verified that the impact of the testing had been properly characterized during the pre-job briefing; the test was performed as written and all testing prerequisites were satisfied; and the test data was complete, appropriately verified, and met the requirements of the testing procedure. Following the completion of the test, the inspectors verified that the test equipment was removed, and the equipment was returned to a condition in which it could perform its safety function.

b. Findings

No findings of significance were identified.

- 1R22 <u>Surveillance Testing</u> (71111.22)
- a. Inspection Scope

The inspectors selected the following surveillance test activities for review. Activities were selected based upon risk significance and the potential risk impact from an unidentified deficiency or performance degradation that a system, structure, or component could impose on the unit if the condition were left unresolved.

- Unit 1 containment tendon periodic inservice inspection during the weeks ending 5/10 through 6/28
- Unit 1 drywell airlock Type B local leak rate testing during the week ending 5/24
- Unit 1 'A' EDG fast start and 24 hour test run during the week ending 5/31
- Unit 1 Reactor Core Isolation Cooling Pump Cold Quick Start during the week ending 6/14
- Unit 2 Standby Liquid Control Pump operability/inservice test during the week ending 6/14

- Unit 2 'B' EDG auxiliaries inservice test during the week ending 6/21
- Unit 1 APRM/RBM flow converter to total core flow adjustment and APRM gain adjustments during the week ending 6/21

The inspectors observed the performance of surveillance testing activities, including reviews for preconditioning, integration of testing activities, applicability of acceptance criteria, test equipment calibration and control, procedural use, control of temporary modifications or jumpers required for test performance, documentation of test data, Technical Specification applicability, impact of testing relative to performance indicator reporting, and evaluation of test data.

b. Findings

No findings of significance were identified.

- 1R23 <u>Temporary Plant Modifications</u> (71111.23)
- a. Inspection Scope

During the week ending 6/21, the inspectors reviewed documentation for a temporary modification (TMod No. 335288) to monitor drywell floor drain leakage on Unit 1. The inspectors assessed the acceptability of the temporary modification to the facility by comparing the 10 CFR 50.59 screening evaluation and supporting operating procedures to the Updated Final Safety Analysis Report and plant drawings. The inspectors also checked temporary modification tags, reviewed the modified operating procedure, and walked down the system to ensure the temporary modification to the system did not impact the operability of interfacing systems. Minor discrepancies identified by the inspectors were reported to the licensee for appropriate dispositioning.

b. Findings

No findings of significance were identified.

#### 1EP2 Alert and Notification System (ANS) Testing (71114.02)

a. Inspection Scope

The inspectors discussed with Emergency Preparedness (EP) staff the design, equipment, and periodic testing of the public ANS for the LaSalle reactor facility emergency planning zone to verify that the system was properly tested and maintained. The inspectors also reviewed procedures and records for a 24-month period ending April 2003, related to ANS testing, annual preventive maintenance, and non-scheduled maintenance. The inspectors reviewed the licensee's documentation for determining whether each model of siren installed in the emergency planning zone would perform as expected if fully activated. Records used to document and trend component failures for each model of installed siren were also reviewed to ensure that corrective actions were taken for test failures or system anomalies. Additionally, the inspectors reviewed recent enhancements made to the Alert and Notification system (i.e., the addition of 19 sirens in December 2002, which removed route alerting as a primary means of notification in selected areas surrounding the plant). The inspectors examined documentation submitted to the NRC and Federal Emergency Management Agency (FEMA), relating to this revision to the station's Alert and Notification System, to verify compliance with regulatory requirements.

b. Findings

No findings of significance were identified.

#### 1EP3 Emergency Response Organization (ERO) Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors reviewed and discussed with EP staff the procedures which provided guidance for staffing of the current ERO rosters at LaSalle Station. The inspectors assessed the primary and backup provisions for notification of the LaSalle reactor facility emergency responders. The inspectors also reviewed the licensee's assessment of its vendor's automated call-out system's processes and administrative controls. The inspectors examined the station's procedures for conducting monthly, off-hours, and unannounced ERO augmentation drills. The inspectors reviewed the results of the licensee's ERO augmentation testing to verify that the licensee maintained, tested, and critiqued its capability to staff the ERO. Specifically, the inspectors reviewed off-hours, unannounced staff augmentation test procedures, dated February 20, 2002, March 20, 2002, August 7, 2002, and April 15, 2003. Additionally, the inspectors reviewed the results of the March 27, 2003 Emergency Preparedness Drive-In Augmentation Drill. The inspectors assessed the adequacy of licensee's drill critiques and the entry of deficiencies into their corrective action program. The inspectors reviewed these documents to assess the licensee's ability to identify repetitive problems, contributing causes, and the extent of conditions, and then implement corrective actions in order to achieve lasting results. The inspectors reviewed the CY 2001 - 2003 revisions to the station's ERO "A," "B," "C," and "D" team rosters to verify that an adequate number of station staff were maintained for each key and support position. The inspectors also examined a representative sampling of station ERO members' training records to verify that those key and support personnel, who were listed on the current revision of the Station's call-out roster, had completed all annual EP training requirements.

b. Findings

No findings of significance were identified.

- 1EP5 <u>Correction of Emergency Preparedness Weaknesses and Deficiencies</u> (71114.05)
- a. Inspection Scope

The inspectors reviewed a sample of Nuclear Oversight staff's CY 2002 through CY 2003 audits of the station's EP program to verify that these independent

assessments complied with the requirements of 10 CFR 50.54(t). The inspectors also reviewed the EP staff's CY 2002-2003 self-assessments and critiques to evaluate the EP staff's efforts to identify and correct weaknesses and deficiencies. The inspectors examined corrective action documents that were associated with the March 20, 2002, biennial exercise, and several EP drills conducted between February 2002 and April 2003, in order to verify that the licensee had fulfilled its drill commitments and to evaluate the licensee's efforts to identify, track, and resolve concerns identified during these activities. Additionally, the inspectors assessed a sample of EP procedures to verify that they were revised as indicated by relevant corrective action program records.

b. Findings

No findings of significance were identified.

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

An emergency preparedness drill, which included opportunities to be included in the performance indicator, was conducted on the evening of Tuesday, April 15. The inspectors observed both simulator operations, including declaration and notification of an ALERT, and Technical Support Center (TSC) operations, including declaration and notification of a GENERAL EMERGENCY. Further, the inspectors observed TSC activities associated with development of protective action recommendations (PARs) by the Emergency Off-site Facility (EOF). The licensee correctly identified and responded to the emergency action levels and identified the appropriate PAR.

b. Findings

No findings of significance were identified.

#### 2. RADIATION SAFETY

#### **Cornerstone: Public Radiation Safety**

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

#### .1 <u>Walkdowns of Liquid and Gaseous Effluent Monitoring and Control Systems</u>

a. Inspection Scope

The inspectors performed walkdowns of selected components of the liquid and gaseous effluent monitoring and processing systems, including point of discharge effluent and process radiation monitors, the radioactive waste (radwaste) advanced liquid processing system equipment, and both trains of the standby gas treatment filtered ventilation system to verify that the current system configuration was as described in the Updated Final Safety Analysis Report and was consistent with the Offsite Dose Calculation Manual (ODCM), and to assess equipment material condition.

The inspectors walked down the radwaste system control panel in the radwaste control room and discussed processing equipment reliability, use, and operating practices with radwaste staff. The inspectors also reviewed plans for a radwaste tank material condition inspection program prompted by problems at other industry sites, which the licensee plans to commence in 2004.

b. Findings

No findings of significance were identified.

#### .2 Radioactive Effluent Release Data, Dose Calculations, and ODCM Changes

a. Inspection Scope

The inspectors reviewed the 2001 and 2002 Radioactive Effluent Release Reports, the errata reports for the 1999 and 2000 effluent reports, and selected radioactive effluent release data for November 2002 through April 2003. The reports and data were reviewed to verify that the radioactive effluent control program was implemented as described in the ODCM, to verify that Technical Specification and ODCM dose limits were not exceeded, and to ensure that any anomalies in the reports and effluent release data were adequately understood by the licensee and were properly assessed and reported. The inspectors reviewed the licensee's current methodology for the calculation of offsite dose, and selectively reviewed results of gaseous effluent sample analyses for selected periods in 2002 through early 2003, to verify that the licensee calculated dose from effluents consistent with the ODCM. In particular, the inspectors reviewed effluent data including vendor laboratory analysis results and associated offsite dose information during periods of fuel degradation in 2002, to determine the impact of fuel performance on offsite dose. The inspectors also reviewed revisions made to the ODCM in calendar years 2001 and 2002, and the justifications for other than editorial changes to the ODCM, to verify they did not adversely impact effluent controls and were evaluated by the licensee and reported in accordance with requirements.

b. Findings

No findings of significance were identified.

#### .3 Liquid and Gaseous Effluent Releases

a. Inspection Scope

There were no radioactive liquid effluent releases in 2001 through the dates of the inspection in 2003. The inspectors selectively reviewed gaseous effluent release data, including results of station chemistry sample analyses and vendor laboratory analysis results for difficult to measure nuclides, and the licensee's release procedures, practices and dose projections to members of the public. The review was performed to verify that the licensee adequately applied analysis results and that dose calculations conformed to ODCM methodology and Technical Specification requirements. The inspectors also selectively reviewed grab sample analysis results and licensee calculations for drywell

purges to verify that the data was properly used to complete calculations of offsite dose consistent with ODCM methodology and the licensee's procedures.

The inspectors accompanied a chemistry technician during a weekly change-out and analysis of the particulate filter, iodine cartridge and noble gas and tritium sampling for the station vent stack, to verify that sampling and handling practices and analytical techniques were technically sound and consistent with procedures. Additionally, the inspectors reviewed chemistry data for selected periods in 2003 to verify that compensatory samples were taken and analyzed as required by the ODCM during periods when effluent monitors were out-of-service.

Additionally, the inspectors reviewed the licensee's radiological analyses of a Unit 2 Condensate Storage Tank rupture incident that occurred on September 3, 2001, which released approximately 35,000 gallons of contaminated liquid onto the ground adjacent to the tank. The review was performed to determine if the licensee adequately evaluated the radiological impact of the release and reported and documented the occurrence as required by 10 CFR 20 and 50.75(g).

b. Findings

No findings of significance were identified.

- .4 Liquid and Gaseous Effluent Monitor Calibration
- a. Inspection Scope

The inspectors reviewed instrument calibration records for 2002 and 2003, for selected point of discharge and process effluent radiation monitors and flow rate monitors, to determine if they had been calibrated consistent with industry standards and in accordance with station procedures and the ODCM. Specifically, the inspectors reviewed channel calibration records for the following effluent radiation detectors and flow monitors:

- Common Unit Station Vent Stack Effluent Monitor and Flow Rate Monitor
- Common Unit Standby Gas Treatment System Effluent Monitor and Flow Rate Monitor
- Unit 1 and Unit 2 Condenser Air Ejector (Post-Treatment) Monitors
- Unit 1 and Unit 2 Service Water Effluent Monitors
- Common Unit Liquid Radwaste Effluent Monitor

The inspectors also assessed monitor set point methodology and technical bases documents and supporting health physics calculations that established reference source responses and alarm set point values for these monitors, to verify the technical viability of the calibration program and for compliance with ODCM criteria. Additionally, the inspectors reviewed effluent and process radiation monitoring availability and system health information for 2002 and 2003, and discussed monitor performance and reliability with system engineering staff.

#### b. <u>Findings</u>

No findings of significance were identified.

#### .5 <u>Air Cleaning System Surveillance Tests</u>

#### a. Inspection Scope

The inspectors reviewed the most recent results of the Unit 1 and Unit 2 Engineered Safety Features filter ventilation testing for the Standby Gas Treatment System to verify that test methodology, frequency and test results met Technical Specification requirements. Specifically, the inspectors reviewed the test results of in-place high efficiency particulate air (HEPA) and charcoal absorber penetration tests, laboratory tests of charcoal absorber methyl iodide penetration, in-place combined HEPA filter and charcoal absorber train pressure drop tests for the Standby Gas Treatment System.

b. Findings

No findings of significance were identified.

#### .6 Analytical Instrumentation Quality Control and Inter-Laboratory Comparison Program

a. Inspection Scope

The inspectors reviewed chemistry department quality control data for selected instrumentation systems used to quantify effluent releases. Specifically, the inspectors reviewed the most recent efficiency calibration records and lower limit of detection (LLD) determinations for all spectroscopy systems used to analyze effluent samples. The review was performed to determine if calibration and efficiency acceptance criteria and ODCM specified LLDs were met and if the calibrations were conducted consistent with industry standards.

The inspectors reviewed the results of 2002 quarterly radiochemistry inter-laboratory cross checks for both the licensee and its vendor analytical laboratory, to determine if the cross check program was being implemented adequately and to verify the quality of the radioactive effluent analyses performed by the licensee and its contract laboratory.

#### b. Findings

No findings of significance were identified.

#### .7 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the results of a 2003 focus area self-assessment of the radioactive effluent monitoring and control program and ODCM implementation, the draft report of a vendor assessment of the radiological effluent program, Nuclear

Oversight Department field observation reports completed in 2001, 2002 and 2003 to the date of the inspection, and condition reports (CRs) generated during approximately the 12 month period preceding the inspection that related to ODCM implementation and the liquid and gaseous effluent monitoring and control program. The documents were reviewed to evaluate the licensee's ability to assess the radiological effluent monitoring and control program, to assess the scope and adequacy of the licensee's problem identification program and its ability to identify repetitive problems or trends, contributing causes and extent of condition, and to implement corrective actions to achieve lasting results.

The inspectors also discussed with Nuclear Oversight staff its plans for future audits of the radiological effluent program, including plans to expand the scope of the audits to ensure compliance with Regulatory Guide 4.15 and to ensure they encompass the effluent monitor calibration program.

b. Findings

No findings of significance were identified.

#### 4. OTHER ACTIVITIES

4OA1 <u>Performance Indicator Verification</u> (71151)

# Cornerstones: Initiating Events, Mitigating Systems, Emergency Preparedness, and Public Radiation Safety

- .1 Initiating Events, Mitigating Systems, and Barrier Integrity Performance Indicator Verification
- a. Inspection Scope

The inspectors reviewed Licensee Event Reports (LERs), licensee data reported to the NRC, plant logs, and NRC inspection reports to verify the following performance indicators for the 1<sup>st</sup> quarter of 2003:

- Unplanned Scrams per 7000 Critical Hours, Units 1 and 2
- Scrams with Loss of Normal Heat Removal, Units 1 and 2
- Safety System Functional Failures, Units 1 and 2

The inspectors verified that the licensee accurately reported performance as defined by the applicable revision of Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline."

b. <u>Findings</u>

No findings of significance were identified.

#### .2 <u>Emergency Preparedness Performance Indicator Verification</u>

#### a. Inspection Scope

The inspectors verified that the licensee had accurately reported the following indicators:

- Alert and Notification System (ANS) Reliability, Units 1 and 2
- ERO Drill Participation, Units 1 and 2
- ERO Drill and Exercise Performance, Units 1 and 2

Specifically, the inspectors reviewed the licensee's PI records, data reported to the NRC, Condition Reports, and Action Requests for the period from January 2002 through March 2003, to identify any occurrences that were not identified by the licensee. Records of relevant Control Room Simulator training sessions, periodic ANS tests, and excerpts of drill and exercise scenario and evaluations were also reviewed.

b. Findings

No findings of significance were identified.

#### .3 Radiation Safety Performance Indicator Verification

a. Inspection Scope

The inspectors reviewed the licensee's assessment of its public radiation safety performance indicator for Units 1 and 2 for RETS/ODCM radiological effluent occurrences to determine if the indicator was adequately assessed and reported consistent with industry guidelines as provided by the applicable revision of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline." Specifically, the inspectors reviewed CRs generated during the 12 months preceding the inspection to identify any potential occurrences such as unmonitored, uncontrolled or improperly calculated effluent releases that may have impacted offsite dose. Also, the inspectors evaluated the licensee's methods for determining offsite dose calculations performed since this indicator was last reviewed in July 2002 were accurate. Records of monthly performance indicator (PI) data elements were reviewed for July 2002 through April 2003 to verify that data was recorded and verified as required by the licensee's procedure.

#### b. Findings

No findings of significance were identified.

#### .4 Data Submission Issue

#### a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the 1<sup>st</sup> quarter 2003 performance indicators for any obvious inconsistencies prior to its public release in accordance with IMC 0608, "Performance Indicator Program."

b. Findings

No findings of significance were identified.

#### 4OA2 Identification and Resolution of Problems (71152)

#### **Cornerstone: Mitigating Systems**

- .1 Routine Review of Identification and Resolution of Problems
- a. Inspection Scope

As part of the baseline inspections performed, the inspectors verified that the licensee entered the problems identified during the inspection into their corrective action program. Additionally, the inspectors verified that the licensee was identifying issues at an appropriate threshold and entering them in the corrective action program, and verified that problems included in the licensee's corrective action program were properly addressed for resolution. Attributes reviewed were similar to those identified in Section 4OA2.2 of this report.

b. Findings

No findings of significance were identified.

.2 (Closed) Unresolved Item 50-373/374/02-06-01: Missing Emergency Core Cooling System Area Cooler Screws

Introduction: As discussed in NRC Inspection Report 50-373/02-06; 50-374/02-06; on November 21, 2002, the inspectors observed LaSalle Technical Surveillance (LTS) 200-19, "ECCS Cubicle Area Cooler Flowrate Test," Appendix B, "Test HPCS [High Pressure Core Spray] Pump Room Area Cooler Fan 2VY02C." This inspection consisted of a visual inspection of the HPCS cooler with the system shut down to identify material condition issues followed by a flow rate test with the system running.

Following the completion of the material condition review portion of the inspection by engineering personnel, the inspectors independently reviewed the material condition of the cooler. During that review, the inspectors identified numerous fasteners missing from the cooler internal framing. On November 22, engineering personnel determined that the function of these fasteners was to attach the cooler tubesheet to the cooler frame to prevent damage to the cooler during a seismic event. Due to the large number

of missing fasteners (33 of 48) and an initial engineering evaluation which concluded that the cooler could not be demonstrated to remain operable following a design basis seismic event, the Unit 2 HPCS system was declared inoperable and an Emergency Notification System (ENS) notification was made in accordance with 10 CFR 50.72 for a loss of an accident mitigation function. The fasteners were installed followed by an extent of condition review on November 23. That review identified similar issues with the Unit 2 Division 2 area cooler (no screws installed) and the Unit 1 Division 2 cooler (15 of 48 screws missing). As a result, these coolers were promptly repaired and a supplement to the original ENS notification was made.

To determine whether the affected area coolers would have been actually impacted in the event of a design basis earthquake, the licensee performed an in-depth engineering analysis. During this inspection period, the results of that analysis were received and concluded that the coolers would have remained operable. The inspectors reviewed those results and the licensee's conclusions, and determined that the missing ECCS area cooler screws constituted a minor violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," that was not subject to formal enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee had entered this issue into their corrective action program as CRs 132704 and 132915.

#### a. Effectiveness of Problem Identification

#### (1) Inspection Scope

During this portion of the inspection, the inspectors reviewed the results of the licensee's root cause investigation into the events and circumstances surrounding the missing screws. Attributes considered during this review included the complete and accurate identification of the problem in a timely manner commensurate with its significance and ease of discovery.

#### (2) <u>Issues</u>

The licensee conducted a root cause investigation to determine the conditions surrounding the discovery of the missing screws and to attempt to discover why the screws were not in place, when they were removed (if in fact they were in place), and why this problem was not discovered earlier despite previous opportunities. That investigation was unable to determine when and how the screws became missing. Therefore, no root cause was identified. The most probable root cause was that either the screws were never installed, that they had been removed and not replaced, or some combination of the two.

In the attempt to determine when the screws had been removed and prior opportunities that may have existed to identify this condition, the licensee's root cause team gathered relevant information including all previous work history for the subject coolers, previously completed LTS-200-19 surveillance activities, and any previous walkdown information. Following that review, the team was unable to determine why or when the screws became missing. However, the team concluded that at least 22 previous opportunities

existed to identify that these cooler screws were missing, if they had been missing since 1990.

The inspectors reviewed the licensee's root cause investigation and verified that a significant number of previous opportunities were missed to identify this issue prior to identification by the inspectors. In addition, the inspectors identified that in accordance with ER-AA-2030, "Conduct of Plant Engineering Manual," detailed walkdowns of accessible areas of systems important to the safe and reliable operation of the plant were to be accomplished at least quarterly and the inaccessible areas at least once during a unit shutdown each unit refueling outage. No evidence of these walkdowns, other than what was accomplished during the performance of LTS-200-19, could be identified.

#### b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors further reviewed the results of the licensee's root cause investigation into the events and circumstances surrounding the missing screws. Attributes considered during this review included the following:

- Consideration of extent of condition, generic implications, common cause, and previous occurrences
- Classification and prioritization of the resolution of the problem commensurate with its safety significance
- Identification of root cause and contributing causes of the problem
- (2) <u>Issues</u>

#### Extent of Condition, Generic Implications, Common Cause, and Previous Occurrences

Following the discovery that the Unit 2 Division 3 air cooler was missing some of the coil mounting plate screws, all of the remaining seven system area coolers were sequentially inspected for the same condition. Missing coil mounting screws were also identified in the Unit 1 and Unit 2 Division 2 area coolers.

Subsequently, the extent of condition review was extended to the Main Control Room Ventilation (VC) and Auxiliary Electric Equipment Room Ventilation (VE) air coolers since these coolers were also safety-related and of similar design. These inspections identified that the 'B' VC cooling coil had 8 of 40 screws missing and the 'B' VE cooling coil had 4 of 40 screws missing. These two coolers were determined to be operable and all missing fasteners were replaced.

During inspector drywell closeout activities for LaSalle Refueling Outage L2R09, the inspectors identified numerous sheet metal screws missing from the Unit 2 'A' and 'B' primary containment chiller screen assembly near the fan coil and from several channels fastened by sheet metal screws. However, since these chillers are neither safety-related nor seismically qualified, no operability concerns existed.

#### Classification and Prioritization of the Resolution of the Problem

Following identification of the issue by the inspectors, licensee personnel determined the potential impact of the issue in a timely manner. In addition, the licensee's immediate corrective actions to resolve the specific problem and exit the associated Technical Specification Limiting Condition For Operation (LCO) were promptly completed and additional actions to resolve the problem for the remaining area coolers were also promptly completed. No significant issues were identified.

#### Root Cause and Contributing Cause Identification

The licensee's root cause investigation team was unable to determine when and how the screws became missing. Therefore, no root cause or corrective action to prevent recurrence was identified. However, visual inspections showed that some of the screws were likely installed at some time. The licensee concluded that the screws were either never installed, or they had been removed and not replaced for some undocumented reason, or a combination of the two.

With regard to the numerous failures to identify the issue earlier, the licensee's root cause team concluded that the reason was a failure to recognize that general material condition deficiencies must be dispositioned during task-specific activities and not just when performing general inspections and walkdowns.

The licensee root cause investigation of the material condition review guidance in LTS-200-19 concluded that although the procedure specifically directed a visual inspection of "coil frame blankoff panels & fastener integrity," the fasteners referred to in this case were only fasteners associated with blankoff panels. However, during the independent review of the November 21, 2002, LTS-200-19 surveillance testing results, the inspectors identified that the fastener integrity was documented as unsatisfactory due to the missing screws identified by the inspectors. This did not agree with the conclusions documented in the licensee's root cause investigation report. The inspectors addressed this issue to cognizant licensee personnel who, following additional interviews, determined that the responsible engineer documented the fastener integrity as unsatisfactory since he was unsure as how to document the issue and elected to identify this item as unsatisfactory. This made this surveillance record inconsistent with the previous surveillances or the understanding of the step described by the system engineer during the previous interviews. As a result of the inspectors' identification of this inconsistency, the licensee revised the root cause investigation report to reflect the followup interview results.

#### c. Effectiveness of Corrective Actions

#### (1) Inspection Scope

The final phase of the inspectors' review of the results of the licensee's root cause investigation into the events and circumstances surrounding the missing ECCS area cooler screws included:

- Identification of corrective actions which were appropriately focused to correct the problem
- Completion of corrective actions in a timely manner commensurate with the safety significance of the issue
- (2) <u>Issues</u>

#### Adequacy of Corrective Actions to Address Root Causes

As part or the licensee's immediate corrective actions, the missing screws were promptly replaced and the associated Technical Specification Limiting Conditions for Operation (LCOs) were exited. As part of their long term corrective actions, the licensee revised LTS-200-19 to include a specific check and signoff for the presence of these and other required fasteners inside the cooler as part of the visual material condition inspection. In addition, the licensee planned to conduct a review of safety-related surveillances to ensure each has a clear requirement to conduct a general material condition review of any area opened up for the conduct of the surveillance prior to closeout. Finally, training of personnel regarding this event and other examples where apparently insignificant or minor material conditions had a major impact on equipment operability was planned. No significant issues were identified.

#### Completion of Corrective Actions in a Timely Manner

The inspectors reviewed the corrective actions planned or taken and verified that these actions were accomplished or were planned to be accomplished in a timely manner consistent with the safety significance of the individual corrective action. No significant issues were identified.

#### .3 Loose Material Control in the ECCS Corner Rooms

<u>Introduction</u>: On June 4, 2003, inspectors conducting a routine plant tour identified a quantity of loose material in the Unit 2 Division II RHR pump room. Postings leading to that room, as well as the other ECCS corner rooms on both units, note that loose material is prohibited due to the possibility of it impairing the performance of various room drains in the event of certain internal flooding events. In the inspectors' judgment, the quantity of loose material present was not significant enough to have considered the finding to be more than minor. Per procedure, the licensee had entered this issue into their corrective action program as CR 162121.

#### a. Effectiveness of Problem Identification

#### (1) Inspection Scope

As a follow on to the June 4, 2003, plant tour, inspectors conducted a more thorough tour of the plant for loose material on June 5, 2003. During this portion of the inspection, the inspectors toured all eight ECCS corner rooms, four per unit. Attributes considered during this inspection included the complete and accurate identification of

the loose material issue in a timely manner commensurate with its significance and ease of discovery.

#### (2) <u>Issues</u>

Inspectors touring the ECCS corner rooms on June 5, noted similar loose material issues to that noted in the Unit 1 Division 2 RHR corner room in three of the eight rooms inspected. In the Unit 2 Division I RHR corner room, inspectors noted several loose empty rad material bags and other radiation protection items such as rags. In the Unit 1 Division I RHR corner room, inspectors identified several miscellaneous loose material items apparently left over from maintenance scaffold work. In the Unit 1 Division 2 RHR corner room, the inspectors found several cleaning rags beneath the entry stairway along the wall of the room.

As with the loose material identified by inspectors in the Unit 2 Division 2 RHR corner room on June 4, the amount of loose material the inspectors noted in the additional three corner rooms was judged to have been of minor significance. While the exact length of time the loose material had been in the various ECCS corner rooms could not be determined, based on the nature of some of the items the inspectors surmised that much of the material had been present for at least a few days. Since plant operators tour each corner room on a daily basis as a minimum, the inspectors determined that the licensee had at least several opportunities to have self-identified this issue prior to it being identified by the inspectors.

#### b. Prioritization and Evaluation of Issues

#### (1) Inspection Scope

The inspectors further reviewed the issue of loose material in the ECCS corner rooms considering the licensee's review of the extent of condition and classification and prioritization of the resolution of the problem commensurate with its safety significance.

(2) <u>Issues</u>

Following identification of the initial loose material in the Unit 2 Division 2 RHR corner room by inspectors on June 4, the operating unit supervisor dispatched an operator to the room to investigate. The operator confirmed the inspectors' observations and the operating unit supervisor directed personnel to remove the loose material from the room. However, no extent of condition review was performed, and the remaining ECCS corner rooms were not inspected by the licensee until after the inspectors had identified additional loose material issues on June 5. At this point, the licensee's shift manager directed the on-watch operations field supervisor to inspect all ECCS corner rooms for both units. The field supervisor confirmed the inspectors' observations, and the loose material was removed.

#### c. <u>Prioritization and Evaluation of Issues</u>

(1) Inspection Scope

The final phase of the inspectors' review of the ECCS corner rooms loose material issue was to examine the licensee's corrective actions.

(2) <u>Issues</u>

The inspectors reviewed the corrective actions planned or taken and verified that these actions were accomplished or were planned to be accomplished in a timely manner consistent with the safety significance of the individual corrective action. No significant issues were identified.

4OA3 Event Followup (71153)

#### **Cornerstones: Initiating Events and Mitigating Systems**

.1 (Closed) LER 50-374/03-001-00: Manual Scram Due to Lowering Reactor Water Level as a Result of a Trip of the 2B Condensate/Condensate Booster Pump

The inspectors reviewed the LER and associated licensee documents to verify that the cause of the January 10, 2003, Unit 2 reactor scram was identified and that corrective actions proposed by the licensee were reasonable and appropriate.

The reactor was manually scrammed after an instantaneous over current trip of the 2B Condensate/Condensate Booster Pump resulted in inadequate feedwater flow for the reactor's full power condition. The over current condition also created a momentary low voltage condition on 6.9 kV Bus 252. This reduced bus voltage caused one of two logic relays for heater drain tank low level to trip. Since the licensee had been operating with the other logic relay in a latent tripped condition since January 31, 2001, the tripping of the second relay completed the heater drain tank low level trip logic and caused the running heater drain pumps to trip. The result of the loss of heater drain pumps was an insufficient net positive suction head trip of the reactor feed water pumps. Reactor water level could not be maintained and the operators initiated a manual scram. The inspectors reviewed plant parameters and verified that timely notifications were made in accordance with 10 CFR 50.72, that licensee staff properly implemented appropriate plant procedures, and that plant equipment performed as required.

The licensee determined that the root causes for the event were a broken lug on a 6.9 kV motor feeder cable for the 2B Condensate/Condensate Booster Pump motor and the hidden failure of one of the two heater drain tank level switches. With respect to the broken 6.9 kV motor feeder cable lug, the licensee concluded that the failure was due to fatigue that resulted from an improper field-fit mounting during original construction. The inspectors determined that this error met the criteria for being considered as an old design issue. Further, the inspectors determined that no violations of regulatory requirements occurred. The licensee had entered the issue into their corrective action program as Condition Report 139037. Initial corrective actions included an extent-of-condition review of electrical lug connections for similar field-fit errors, none of which were identified.

.2 (Closed) LER 50-374/03-002-00: Average Power Range Monitor (APRM) Flow-Biased Scram Inoperable due to an Inadequate Procedure

The inspectors reviewed the LER and supporting documentation to verify that the cause of the February 25, 2003, Unit 2 APRM flow-biased scram setpoint event was identified and that corrective actions were reasonable and appropriate.

Just prior to 25 percent core power, the flow converters that provide input to the APRM flow-biased scram are re-calibrated, typically using the data from the process computer heat balance. During the startup from L2R09, the heat balance data was not available at 25 percent power due to problems with the process computer. As a result, the licensee used an alternate method. The alternate method involved using the control room panel value for jet pump flow. This method was adequate only when the flow converter calibration was performed frequently as core flow increased.

On February 23, 2003, the licensee's procedures contained no limitations or guidance preventing the use of the alternate method, nor was there any guidance provided to reperform the core flow calibrations as power increased. Consequently, the trip set point for the APRM flow-biased scram became non-conservative as core flow increased. At approximately 96 percent core flow, the control room received the "APRM Flow-Bias Off Normal" alarm, and determined that all the flow units were reading greater that 100 percent. The flow units were declared inoperable, recalibrated satisfactorily, and placed back into service.

The safety significance for this event was minimal. The APRM flow-biased scram is not a credited scram per the Technical Specification Bases, as it is a backup to the neutron flux scram. The inspectors determined that the improper procedure for using the alternate method constitutes a minor violation of Technical Specification 5.4.1.a that is not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee had entered the issue into their corrective action program as Condition Report 146141. Initial corrective actions included issuance of an operations standing order providing guidance on use of the alternate method, and revision of the appropriate calibration procedures.

.3 (Closed) LER 50-374/03-003-00: Main Steam Safety Relief Valves (SRVs) As-Found Safety Mode Set Pressure Found Out-of-Tolerance

The inspectors reviewed the LER and associated documents to verify that the cause of the five SRVs having lift pressures outside of the operable range of  $\pm 3$  percent was identified and that corrective actions proposed by the licensee were reasonable and appropriate. In addition, the licensee had identified in this LER that previous events of SRVs lifting outside the operable range had been identified and corrected, but had not been reported to the NRC in accordance with 10 CFR 50.73(a)(2)(i)(B).

In March 2003, the licensee identified that five of thirteen SRVs had lifted outside of their operable range. Four of the five SRVs were previously identified as having seat leakage. The licensee attributed the seat leakage as the cause of the SRVs lift set points drifting lower. The licensee modified the SRV discs for improved seat leakage

performance. The inspectors reviewed the licensee's corrective action documents for this event. The inspectors determined that since five SRVs had lift set points exceeding the ±3 percent allowed for operability that a violation of Technical Specification 3.4.4 existed. The safety significance of this event was minimal; however, since the premature lifting of the SRVs was not of a sufficient magnitude for any valve to have adversely affected the relief set point for the SRVs and have caused an operating transient. As a result, the inspectors determined that the violation was one of minor significance, and not subject to enforcement action in accordance with Section VI of the NRC's Enforcement Policy. The licensee had entered this issue into their corrective action program as CR 00149573.

Similarly, the inspectors reviewed the two other occurrences discussed in this LER where SRVs had failed set pressure testing over the past 3 years. During refuel outage L1R09 (January 2002), two SRVs lifted below the allowable 3 percent tolerance. Additionally, during L2R08 (November 2000), two SRVs also lifted below the allowable 3 percent tolerance. In each case, the deviation of the valve's actual set pressure from the required setpoint was determined to have had no adverse impact on the valve's function or the reactor plant. As a result, the inspectors determined that these violations were also of minor significance, and not subject to enforcement action in accordance with Section VI of the NRC's Enforcement Policy. The licensee had entered these SRV failures into their corrective action program as CR L2000-06594, CR L2000-06717 and CR 00094833.

During preparation of this LER, the licensee identified that the two previous occurrences of multiple SRVs lifting outside of the specified tolerance range had not been reported to the NRC in accordance with 10 CFR 50.73(a)(2)(i)(B). These licensee-identified violations associated with the failure to submit the requisite LERs were determined to be of minor significance by the inspectors since the SRV failures themselves were of minor significance, and thus, not subject to enforcement action in accordance with Section VI of the NRC's Enforcement Policy. The licensee had entered this issue into their corrective action program as CR 157024.

- 4OA6 Meetings
- .1 Exit Meeting

The inspectors presented the inspection results to Mr. G. Barnes and other members of licensee management on July 8, 2003. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

#### .2 Interim Exit Meetings

Interim exits were conducted for:

- Routine Emergency Preparedness inspection with S. Landahl on May 2, 2003.
- Public Radiation Safety effluent monitoring and control program inspection with G. Barnes and S. Landahl on May 23, 2003.

ATTACHMENT: SUPPLEMENTAL INFORMATION

#### SUPPLEMENTAL INFORMATION

#### **KEY POINTS OF CONTACT**

Licensee

- G. Barnes, Site Vice President
- S. Landahl, Plant Manager
- T. Connor, Design Engineering Supervisor
- D. Czufin, Site Engineering Director
- L. Dausin, System Engineering
- D. Enright, Operations Director
- S. Fatora, Chemistry, Radwaste, and Environmental Manager
- F. Gogliotti, System Engineering Manager
- G. Kaegi, Regulatory Assurance Manager
- M. Martin, Chemist and ODCM Coordinator
- S. McCain, Exelon Corporate EP Manager
- J. Rappeport, Nuclear Oversight
- W. Riffer, Emergency Planning Manager
- C. Wilson, Station Security Manager
- M. Wolfe, Health Physicist

Nuclear Regulatory Commission

B. Burgess, Chief, Reactor Projects Branch 2

# LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

# <u>Opened</u>

50-373/374/03-03-01	URI	Emergent Repairs to Unit 1 Division 2 125 Vdc Battery Charger and Associated NOED (Section 1R13.1)
50-373/374/03-03-02	FIN	Inadequate assessment of long term RHR operation in the SPC mode (Section 1R16.1)
<u>Closed</u>		
50-373/374/03-03-02	FIN	Inadequate assessment of long term RHR operation in the SPC mode (Section 1R16.1)
50-373/01-10-02	URI	Potential Water Hammer When Low Pressure Coolant Injection (LPCI) Mode of Residual Heat Removal (RHR) Initiated (Section 1R16.1)
50-373/374/02-06-01	URI	Missing ECCS Area Cooler Screws (Section 4OA2.2)
50-374/03-001-00	LER	Manual Scram Due to Lowering Reactor Water Level as a Result of a Trip of the 2B Condensate/Condensate Booster Pump (Section 4OA3.1)
50-374/03-002-00	LER	Average Power Range Monitor Flow-Biased Scram Inoperable Due to an Inadequate Procedure (Section 4OA3.2)
50-374/03-003-00	LER	Main Steam Safety Relief Valves (SRVs) As-Found Safety Mode Set Pressure Found Out-of-Tolerance (Section 4OA3.3)

<u>Discussed</u>

None

#### LIST OF DOCUMENTS REVIEWED

#### <u>1R01</u> Adverse Weather

Condition Reports:

- 87979; U1 and U2 Circulating Water Discharge Aramco Gate Valves Properly Positioned

- 98312; Ultimate Heat Sink Issues Discovered During Fasa (Frazel Ice)
- 99975; Powerton Spare Mpt May Force Unit Derate
- 104254; Summer Readiness Issue (Generator Limits)
- 114662; Derating Due to Elevated Cd Temperatures
- 114904; Peak Condenser Inlet Reached 97.5 Degrees F
- 116183; Temperature Predictions Excessively High
- 117242; Longstanding Cardox Compressor Trips
- 118970; PM Not Being Performed on Security Equipment
- 119778; Primary Cooling Water Pump Replace Before Summer
- 120008; 1B Diesel Generator Cooling Water Flow Excessively High Caused 1VY02A
- Flow (SW Cubicle Area) to Be Low but above Design Limit
- 126211; Division 3 Switchgear Room at 62.2 Degrees F
- 129093; VT Blast Coils Tripped
- 128669; Water in Security Diesel Fuel Oil Tank (Freeze Concern)
- 140663; Frozen Line in Chemical Feed Building
- 137033; Winter Readiness (VT Blast Coils)
- 150999; Summer Readiness Enhancement
- 153185; Summer Readiness Contingency Package Inadequate (Parts Not Available 4/7/03)
- 155649; Crew 1 Weekly Critique (Shutdown Station Heating System 4/19/03)

Updated Final Safety Analysis Report; Revision 13:

- Section 3.3; Wind and Tornado Loadings
- Section 2.3; Meteorology
- Section 9.2.6; Ultimate Heat Sink

#### Procedures:

- OP-AA-108-109; Seasonal Readiness; Revision 1
- LOS-ZZ-A2; Preparations for Winter/Summer Operation; Revision 26
- LOA-TORN-001; High Winds/Tornado; Revision 2
- LOA-DIKE-001; Lake Dike Damage/Failure; Revision 3
- EN-MW-402-0005; Extreme Heat Implementation Plan; Revision 0
- EN-LS-402-0005; Extreme Heat Implementation Plan; Revision 0

2003 LaSalle Summer Readiness Duty Team Guide

#### 1R04 Equipment Alignment

LaSalle Operating Department Procedures:

- LOP-DG-01M; Unit 1A Emergency Diesel Generator Mechanical Checklist; Revision 9
- LOP-DG-01E; Unit 1A Emergency Diesel Generator Electrical Checklist; Revision 7

- LOP-DG-04M; Unit 2A Emergency Diesel Generator Mechanical Checklist; Revision 8

 LOP-DG-04E; Unit 2A Emergency Diesel Generator Electrical Checklist; Revision 9
 LOP-DG-06M; Unit 1A Emergency Diesel Generator Cooling System Mechanical Checklist; Revision 11

- LOP-DG-06E; Unit 1A Emergency Diesel Generator Cooling System Electrical Checklist; Revision 5

- LOP-DG-09M; Unit 2A Emergency Diesel Generator Cooling System Mechanical Checklist; Revision 7

- LOP-DG-09E; Unit 2A Emergency Diesel Generator Cooling System Electrical Checklist; Revision 4

- LOP-DG-02M; Unit 1 HPCS Diesel Generator Mechanical Checklist; Revision 9

- LOP-DG-02E; Unit 1 1B DG Electrical Checklist; Revision 9

- LOP-HP-01E; Unit 1 High Pressure Core Spray Electrical Checklist; Revision 10

- LOP-HP-01M; Unit 1 High Pressure Core Spray Mechanical Checklist; Revision 15

- LOP-DG-05M; Unit 2 B Diesel Generator Mechanical Checklist; Revision 6

- LOP-DG-05E; Unit 2 2B Diesel Generator Electrical Checklist; Revision 10

- LOP-HP-02E; Unit 2 High Pressure Core Spray Electrical Checklist; Revision 5

- LOP-HP-02M; Unit 2 High Pressure Core Spray Mechanical Checklist; Revision 15

- LOP-DO-01M; Unit 1A Emergency Diesel Generator Fuel Oil Transfer System Mechanical Checklist; Revision 9

- LOP-DO-01E; Unit 1 Diesel Fuel Oil Transfer System Electrical Checklist; Revision 9

- LOP-DO-02M; Unit 2A Emergency Diesel Generator Fuel Oil Transfer System Mechanical Checklist; Revision 9

- LOP-DO-02E; Unit 2 Diesel Generator Fuel Oil Transfer System Electrical Checklist; Revision 11

- LOP-RH-01E; Unit 1 Residual Heat Removal Service Water System Electrical Checklist; Revision 8

- LOP-RH-02E; Unit 1 Residual Heat Removal System Electrical Checklist; Revision 18

- LOP-RH-03E; Unit 2 Residual Heat Removal Service Water System Electrical Checklist; Revision 5

- LOP-RH-04E; Unit 2 Residual Heat Removal System Electrical Checklist; Revision 13

- LOP-RH-1BM; Unit 1B Residual Heat Removal System Mechanical Checklist; Revision 0

- LOP-RH-1CM; Unit 1C Residual Heat Removal System Mechanical Checklist; Revision 0

- LOP-RH-2BM; Unit 2B Residual Heat Removal System Mechanical Checklist; Revision 0

- LOP-RH-2CM; Unit 2C Residual Heat Removal System Mechanical Checklist; Revision 0

- LOP-RI-01E; Unit 1 Reactor Core Isolation Cooling System Electrical Checklist; Revision 11

- LOP-RI-01M; Unit 1 Reactor Core Isolation Cooling System Mechanical Checklist; Revision 17

- LOP-DC-01E; Unit 1 Division 1 250V DC Distribution Electrical Checklist; Revision 3

#### Drawings:

- M100; Control Rod Drive Hydraulic Piping; 11/6/1999

- RD1; Control Rod Drive System; 11/13/2000

- RD2; Control Rod Drive System; 11/8/2000

Condition Reports:

- 148392; U1 Control Rod 34-51 Withdraw Time 25.4 seconds; 3/10/2003

System Description Books: - Chapter 8; CRD Hydraulics; 12/18/1997

#### 1R05 Fire Protection

Updated Final Safety Analysis Report; Revision 13: - Appendix H; Fire Hazards Analysis

#### <u>1R06</u> Flood Protection Measures

Calculations and Analyses:

- S30; HPCS Switchgear Room Flooding Due to Postulated Crack in the 36" Manway
- S8; Unit 1 CSCS Pump Room Div I/Div II Flood Rate
- S9; Flood Rates due to Cracks in Gravity Fed CW Pipe Outside Condenser Pit
- WR-LS-PF-9; Probable Maximum Flood in Illinois River; Revision 0
- WR-LS-PF-7; Wind Wave Analysis; Revision 0

- L-002536; PMP Basin Area B1 Water Level Evaluation; Revision 1

- E95-074; Moderate Energy Line Break Evaluation in Diesel and Turbine/Auxiliary Buildings

Condition Reports:

- L1996-00343; Flood Door (S-194) Missing

- L1996-01081; Flood Door (S-194) Found Open

- L1997-02168; Relay House Flooding

- L1996-05444; UFSAR 3.11.1.4.2 May Not Reflect Design

- L1996-02049; Reactor Building Inleakage During Hard Rain
- L1997-01290; Relay House Flooding

- L1997-02784: CR Detailing Unresolved Commitments Related to May 31, 1985,

Lasalle CW Expansion Joint Rupture

- L1997-02784; CW Expansion Joint Rupture Floods LSH on May 31, 1985

- L1997-03316; CW Pump Trip Inoperable
- L1997-05002; Relay House Flooding via Underground
- L1997-06673; Black Top over Railroad Tracks Affecting Site Elevation Grading
- L1998-04959; 1998 WNP-2 Opex Event
- L1998-02500; Section 3.4 UFSAR Changes
- L1999-0293; Condenser Pit Flooding While Filling Water Box
- L2000-02152; NRC Resident Observed Flooded Cables in Manhole 6

- L2000-04447; Design Engineering to Perform a Focused Self Assessment of Lasalle Flooding Vulnerabilities (In response to Braidwood Flooding Issues)

- L2001-01001; Repair of Watertight Doors Made More Difficult by New Door Designs That No Longer Have Brass Wear Plate

138420; Secured Division II Feed to 1pa083 Due to FP System Leak and Clogged Floor Drain

- 091564; Embedded Conduits not Sealed per Design Drawings

Updated Final Safety Analysis Report; Revision 13:

- Section 2.0; Site Characteristics
- Section 3.4; Water Level (Flood) Design
- Section 3.9; Mechanical Systems and Components
- Section 15.6.6; Feedwater Line Break

Regulatory Guide 1.102; Flood Protection for Nuclear Power Plants

LaSalle 3/21/03 Focus Area Self Assessment Plan

Procedures:

- LES-LS-01; LaSalle Inspection of Magnetrols and Capacity Check for Sumps in Flood Control Zones

- LOA-Dike-1; Lake Dike Damage/Failure
- LOA-Fld-1; Flooding
- LTS-1000-29; Watertight Door and Penetration Inspection

LaSalle PRA Risk Insights Regarding Internal Flooding

Work Order:

- 99233661; Watertight Door Inspection

#### <u>1R11</u> Licensed Operator Requalification Program

ESG 03C3 No. 1; Licensed Operator Requalification Scenario; 4/3/2003

#### <u>1R12</u> <u>Maintenance Effectiveness</u>

Condition Reports:

- 00099844; 0VE09YA Would Not Travel Full Open; 3/19/02
- 00107829; 'C' VC Rad Monitor-Detector Bad and Electronics Out-of-Tolerance; 5/7/02
- 00111946; Inlet Screen on VC Supply Fan Found Bowed Inwards; 6/14/02
- 00110718; 0B VE Compressor Trip; 6/5/02
- 00116080; 0TS-VE149 Did Not Actuate During BOP Calibration; 7/18/02
- 00138852; 0VC30YA Stuck Open; 1/9/03
- 00144052; Swap VC/VE Trains Due to Compressor Abnormal Operation; 2/11/03
- 00164394; Received Division II RHR WS Low Header Pressure Alarm; 6/23/03
- 00161645; Misconfigured Switch During LIS-RH-401A; 6/3/03
- 00161622; Intermittent Failure of 2E12-F064A to Open on Low Flow; 6/3/03
- 00160687; Time Delay Relay 1E12A-K070B Found out of Acceptable Band; 5/28/03

- 00157942; 2B RHR Service Water Header Pressure Low/Strainer DP High Alarms; 5/8/03

#### 1R13 Maintenance Risk Assessments and Emergent Work Control

#### Work Orders:

- 00579140-05; Excessive Exhaust Leakage Causing Plant Fire Alarms/ MM - Weld Repair Exhaust Adapter

- 00370158-01; Perform 1B Diesel Generator Inspection Per LMS-DG-01/ MM - Perform Inspection On 1B Main Emergency Diesel

- 00578936-01; Fuel Oil Leak From Manifold Piping/ MM Fuel Oil Leak From Manifold Piping

- 00574240-01; Replace Unit 1 Tendon No. 3
- 00574240-03; Replace Unit 1 Tendon No. 29
- 00586251-01; Replace 2A EDG Cylinder 9 Kiene Valve Packing Gland
- 00450535-01; Replace Inverter No. 5 @ 1PA08J

LaSalle Operating Department Surveillances:

- LOS-DG-M3; 1B Diesel Generator Fast Start; Revision 53

LaSalle Maintenance Department Surveillances:

- LMS-DG-01; Main Emergency Diesel Unit Surveillances; Revision 29

LaSalle Abnormal Operating Procedures:

- LOA-AN-101; Loss of Annunciators; Revision 6

Miscellaneous Emergency Reporting Procedures:

- EP-AA-1005; Radiological Emergency Plan Annex for LaSalle; Revision 14
- LS-AA-1020; Reportability Reference Manual; Revision 3

Condition Reports:

- 00152752; Division 2 Battery Charger Has Oscillations on Amps and Volts; 4/7/03
- 00153262; Division 2 Battery Charger Output Fluctuations Unresolved; 4/10/03
- 00153326; Reportability Impact Review for NOED Granted for DC System; 4/10/03
- 00153428; Documentation Error Concerning Battery Charger PMT; 4/10/03
- 00157008; Lessons Learned Unit 1 Division 2 Battery Charger Troubleshooting; 5/2/03

- 00164516; Shorted Wire Resulted in Loss of Control Room Division II Annunciators; 6/23/03

NOED 03-3-004; Notice of Enforcement Discretion for Exelon Generation Company Regarding LaSalle County Station , Unit 1; 4/14/03

#### <u>1R14</u> <u>Personnel Performance During Non-Routine Plant Evolutions and Events</u>

LaSalle Operating Department Procedures:

- LOP-TG-06; Shutdown of 1<sup>st</sup> and 2<sup>nd</sup> Stage Reheat Steam; Revision 6
- LOP-HD-13; Normal Shutdown of the Heater Drain System; Revision 1
- LOP-FW-05; Shutdown of Turbine Driven Reactor Feedwater Pump; Revision 20

Lasalle General Operating Procedures:

- LGP-2-1; Normal Unit Shutdown; Revision 62
- LGP-1-1; Normal Unit Startup; Revision 70

LaSalle Administrative Procedure:

- LAP-900-45; Drywell Entry; Revision 8

LaSalle Technical Surveillance:

- LTS-100-8; Drywell Personnel Access Hatch Inner/Outer Door Seals Leak Rate Test; Revision 8

Exelon Nuclear Station Procedure: - SA-AA-114; Confined Space Entry; Revision 3

Work Order:

- 00442385-01; Contingency - Remove CRD Hatch for L1P03

#### 1R15 Operability Evaluations

EC 342599; Analysis for Missing Service Water Tunnel Manway Ladder Rungs; Revision 0

L03-009; Emergency Diesel Generator Air Compressor Unloaders Operability Evaluation; Revision 0

Condition Reports:

- 156545; Missing Service Water Tunnel Manway Ladder Rungs

- 162532; Emergency Diesel Generator Air Compressor Unloaders

NF-AB-130-3760; Lost Parts Evaluations at BWR Nuclear Stations; Revision 1

ER-AA-2006; Lost Parts Evaluation; Revision 0

#### 1R16 Operator Workarounds

TIA 2001-14; Evaluation of LaSalle Water Hammer Analysis; Revision 1

Letter from the USNRC (W.A. Macon) to Exelon Nuclear (J.L. Skolds); Response to TIA 2001-14, "Evaluation of LaSalle Water Hammer Analysis"; April 29, 2003

Condition Report:

- 157514; NRC Response to TIA 2001-14; 5/4/03

Shift Operations Supervisor Aggregate Review Report of Operator Challenges:

- 4<sup>th</sup> Quarter 2002 Review
- 1<sup>st</sup> Quarter 2003 Review

#### 1R19 Post-Maintenance Testing

Work Orders:

- 00579140-05; Excessive Exhaust Leakage Causing Plant Fire Alarms/ MM- Weld Repair Exhaust Adapter

- 00370158-01; Perform 1B Diesel Generator Inspection Per LMS-DG-01/ MM- Perform Inspection On 1B Main Emergency Diesel

- 00578936-01; Fuel Oil Leak From Manifold Piping/ MM Fuel Oil Leak From Manifold Piping

- 00462314-01; Inspect/Repair 2B Instrument Nitrogen Compressor

Attachment

LaSalle Operating Department Procedures:

- LOP-RH-13; Suppression Pool Cooling Operation; Revision 25

- LOP-RH-05; Operation of the RHR Service Water System; Revision 23

- LOP-LP-04; Low Pressure Core Spray/System Normal Startup and Shutdown; Revision 10

LaSalle Operating Department Surveillances:

- LOS-DG-M3; 1B Diesel Generator Fast Start; Revision 53

- LOS-RI-Q5; Reactor Core Isolation Cooling (RCIC) System Pump Operability, Valve Inservice Tests In Modes 1,2,3 And Cold Quick Start; Revision 17

LaSalle Maintenance Department Surveillances:

- LMS-DG-01; Main Emergency Diesel Unit Surveillances; Revision 29

LaSalle Maintenance Department Procedures:

- LMP-IN-02; Instrument Nitrogen System Compressor Disassembly/Reassembly; Revision 10

LaSalle Instrument Maintenance Surveillances:

- LIS-RI-115; Unit 1 RCIC Control System Calibration; Revision 10

Forms:

- HU-AA-1211, Attachment 1; Pre-Job Briefing Checklist; Revision 1

- MA-AA-716-008, Attachment 1; Work Package Forms; Revision 1

#### 1R22 Surveillance Testing

LaSalle Technical Surveillances:

- LTS-100-8; Drywell Personnel Access Hatch Inner/Outer Door Seals Leak Rate Test; Revision 8

LaSalle Operating Department Surveillances:

- LOS-DG-R1A; 1A Diesel Generator Twenty-Four Hour Run Surveillance; Revision 1

- LOS-DG-M2; 1A(2A) Diesel Generator Operability Test; Revision 54

- LOS-RI-Q5; Reactor Core Isolation Cooling (RCIC) System Pump Operability, Valve Inservice Tests In Modes 1,2,3 And Cold Quick Start; Revision 17

LaSalle Operating Department Procedures:

- LOP-DG-02; Diesel Generator Startup and Operation; Revision 32

- LOP-DG-03; Diesel Generator Shutdown; Revision 22

- LOP-RH-13; Suppression Pool Cooling Operation; Revision 25

- LOP-RH-05; Operation of the RHR Service Water System; Revision 23

- LOP-LP-04; Low Pressure Core Spray/System Normal Startup and Shutdown; Revision 10

LaSalle Instrument Maintenance Surveillances:

- LIS-RI-115; Unit 1 RCIC Control System Calibration; Revision 10

Technical Specifications and Bases: - 3.8; Electrical Power Systems

Section XI; ASME Boiler & Pressure Vessel Code Rules for Inservice Inspection of Nuclear Power Plant Components; 1998 Edition

Drawings:

- M145; Unit 2 Standby Liquid Control System; 9/24/2002

#### 1R23 Temporary Plant Modifications

TMOD 335288; Unit 1, Alternate Method of Determining Drywell Floor Drain Flow Rate; 2/11/2002

Drawings:

- M91; Reactor Building Equipment Drains; 1/20/2002

Procedures:

- LOP-RF-01; Operation of the Reactor Building Floor Drain System; Revision 6

Regulatory Guide 1.45; Reactor Coolant Pressure Boundary Leakage Detection; May 1973

Condition Reports:

- 00163916; Drywell Floor Drain Alternate Flow Path, Temp Mod and Operating Procedure Discrepancies; 6/19/2003

#### 1EP2 Alert and Notification System (ANS) Testing

LSNPS 2002; Appendix C, Design Study for Total Contiguous EPZ Siren Coverage; January 2002

LSNPS 2002; Off-Site Emergency Plan Prompt Alert and Notification System Addendum for the LaSalle Nuclear Power Station; November 2002

Exelon letter to Illinois Emergency Management Agency; LaSalle Nuclear Power Station Off-Site Emergency Plan Alert and Notification Addendum; November 12, 2002

Exelon Semi-Annual Siren Reports; January, 2002 through December, 2002

Fulton Contracting Co. letter to Exelon Corporation EP Facilities Manager; Warning System Maintenance and Operation Report; February 12, 2002

LaSalle Off-site Siren Test Plan; Revision 4

#### 1EP3 Emergency Response Organization (ERO) Augmentation Testing

CR 118739; TSC "60 minute" Responder was Late by One Minute; August 8, 2002

CR 147403; Duty Operations Manager Failed to Attend Required Drill; February 4, 2003

EP-AA-122; Drills and Exercises; Revision 3

EP-AA-122-1001; Drill Development, Conduct and Evaluation; Revision 2

Attachment 1; LaSalle Station Exercise and Drill Scheduling and Completion Matrix, CY 2002

Attachment 2; LaSalle Station Exercise and Drill Performance Objective Scheduling and Completion Matrix; CY 2002

LaSalle 03 - 20; Training Request for Additional EAL Training for LORT Crews in CY 2003

Memorandum of Results for February 21, 2002 Emergency Preparedness Semiannual Off-Hours Augmentation Drill; February 22, 2002

Memorandum of Results for February 20, 2002 Emergency Plan Pre-Exercise; February 27, 2002

Memorandum of Results for March 20, 2002 Emergency Plan Exercise; April 10, 2002

Memorandum of Results for August 1, 2002 Emergency Preparedness Semiannual Off-Hours Augmentation Drill; August 1, 2002

Memorandum of Results for August 7, 2002 Integrated Mini-Drills; November 15, 2002

Memorandum of Results for August 28, 2002 Integrated Mini-Drills; November 15, 2002

Memorandum of Results for March 20, 2003 Integrated Mini-Drills; April 14, 2003

Memorandum of Results for December 17, 2002 Emergency Preparedness Off-Hours Augmentation Drill; December 17, 2002

Memorandum of Results for March 27, 2003 Emergency Preparedness Drive-In Augmentation Drill; March 31, 2003

Memorandum of Results for April 15, 2003 LaSalle Station Emergency Plan Exercise; April 28, 2003

Attachment 1, Electrical Maintenance Department Respirator/SCBA Qualification records; January 2002 through December 2002

#### 1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

CR 103256; Failure to Identify Actual and/or Potential Release Pathway; March 20, 2002

CR 154037; Unclear Process for Completing NARS Notification Form; March 26, 2003

CR 155486; Weakness Identified in 4/15/03 LaSalle Exercise (e.g. Issuance of Respiratory Gear to Improper Personnel, Mis-Administration of Potassium Iodide (KI); April 15, 2003

LS-AA-125; Corrective Action Program (CAP) Procedure; Revision 4

LS-AA-127; Passport Action Tracking Management Procedure; Revision 3

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ERO Review; Lesson Plan Slides

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#### 2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Errata Report for the 1999 and 2000 Radioactive Effluent Reports; October 31, 2001

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Offsite Dose Calculation Manual; Revisions 4 and 5

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Maintenance Rule Function Failures and Unavailability Information for Selected Effluent and Process Radiation Monitors; 2001 - 2003

CR 00096963; ODCM Questions Pertaining to Potential Release Pathways; February 27, 2002

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CR 00114100; Air Leakage Past an Access Door on Station Vent Stack; July 2, 2002

Attachment

CR 0014559; Water in Off-Gas System Delays System Startup; February 21, 2003

CR 00152231; Improper Accreditation of Standby Gas Treatment System Wide Range Gas Monitor Surveillance Requirement; April 3, 2003

CR 00157960; Technical Requirements Manual Requirement Invoked for Standby Gas Treatment System Wide Range Gas Monitor; May 9, 2003

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Results of Radiochemistry Cross Check Program, LaSalle Station; 2002 Quarterly Results

LCP-140-26 Attachment D, E, F, and G Data Sheets; LaSalle County Station LLD Determinations; Various Dates in 2002

LCP-810-30 Attachment B Data; Efficiency Calibration Worksheet; Detector Caves A, B, and C; Various Dates in 2002

LRP-1820-24; Nal PRM Calibration Procedure; Revision 5

LCP-310-11; Wide Range Gas Monitor Noble Gas, Iodine and Particulate Sampling; Revision 13

LCP-310-08; Airborne Tritiated Water Sampling and Analysis; Revision 10

LRP-1820-30; Off-Gas Post Treatment Process Radiation Monitor Calibration; Revision 4

LRP-5820-31; Calibration of the General Atomic Wide Range Gas Monitor Mid and High Range Detectors; Revision 4

LRP-5820-34; Off-Gas Pre and Post Treatment Monitor Alarm and Trip Setpoints; Revision 6

LIS-PR-003; Standby Gas Treatment System Sampler Flow Rate Monitor Calibration; August 7, 2001

LIS-PR-001; Radwaste Liquid Effluent Radiation Monitor Calibration; September 23, 2002

LRP-1820-24; Unit-1 Service Water Radiation Monitor Calibration Data; June 6, 2002

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LIS-WS-201; Unit 2 Service Water Effluent Radiation Monitor calibration; June 28, 2002

LRP-5820-30 and 31; Station Vent Stack Wide Range Gas Monitor Low, Mid and High Range Detector Calibration; March 5, 2003

LRP-5820-33; Station Vent Stack and Standby Gas Treatment Stack Wide Range Gas Monitor Effluent Release Rate Alarm Setpoints; June 4, 1999

LIS-PR-004; Station Vent Stack Wide Range Gas Monitor Calibration; March 3, 2003

LRP-5820-30 and 31; Standby Gas Treatment System Wide Range Gas Monitor Low, Mid and High Range Detector Calibration; January 15 - 17, 2003

LIS-PR-005; Standby Gas Treatment System Wide Range Gas Monitor Calibration; January 3, 2003

LIS-PR-002; Station Vent Stack Effluent and Sampler Flow Rate Monitor Calibration; November 25, 2001

LRP-1820-30; Calibration Data for Off-Gas Post Treatment Radiation Monitors; Unit 1-B and Unit 1-A, January 28, 2002; Unit 2-A and Unit 2-B, January 25, 2003

LRP-5820-34; Post Treatment Radiation Monitor Correlation Data and Alarm Setpoint Determination; Unit 1, May 3, 2002; Unit 2, February 26, 2003

LIS-OG-204A and B; Unit 2 Post Treatment Radiation Monitor Channel A and B Calibrations; January 23 - 24, 2003

Radiological Review of the U-2 Condensate Storage Tank Overflow on September 3, 2001; November 10, 2001

Updated Final Safety Analysis Report; Chapter 11; Revision 13

#### 40A1 Performance Indicator Verification

Exelon Licensing Procedures:

- LS-AA-2010; Monthly Performance Indicator Data Elements for Unplanned Scrams per 7000 Critical Hours; Revision 3

- LS-AA-2020; Monthly Performance Indicator Data Elements for Unplanned Scrams with Loss of Normal Heat Removal; Revision 3

- LS-AA-2080; Monthly Performance Indicator Data Elements for Safety System Functional Failures; Revision 3

- LS-AA-2150; Monthly PI Data Elements for RETS/ODCM Effluent Occurrences (and Associated Offsite Dose Summary Information); July 2002 - April 2003

Operations Narrative Logs:

- Unit 2 Control Room Log for 4/6/2003 to 4/7/2003

NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 2

AR 00107070; Decline in ERO Drill and Exercise Performance Indicator (PI) data; May 2, 2002

AR 00136781; EP Pager Test Issues From 12/17/02 Test; December 19, 2002

AR 00139350; EP Pager Results Following 01/08/03 Test; January 14, 2003

CR 00119221; Inaccuracy on NARS Form Led to Improper Reporting of Monthly DEP PI data; August 13, 2002

CR 00107040; Declining Trend in emergency Preparedness DEP.01 PI Data; August 7, 2002

EP-AA-125-1001; EP Performance Indicator Guidance; Revision 2

EP-AA-125-1002; ERO Performance - Performance Indicator Guidance; Revision 2

EP-AA-125-1003; ERO Readiness - Performance Indicator Guidance; Revision 2

EP-AA-125-1004; Emergency Response Facilities & Equipment Performance Indicator Guidance; Revision 2

EP-AA-125-1005; Problem Identification & Resolution Performance Indicator Guidance; Revision 0

LaSalle Monthly Siren Availability report (Telemetry); Individual Siren Data From January 2002 through March 2003

ANS Quarterly Operability Results; 1st Quarter 2002 - 1st Quarter 2003

ANS Monthly Operability Results; January 2002 - March 2003

ERO Drill Quarterly Participation Results; 1<sup>st</sup> Quarter 2002 - 3<sup>rd</sup> Quarter 2002

ERO Drill Monthly Participation Results; January 2002 - March, 2003

DEP Quarterly Performance Results; 1<sup>st</sup> Quarter 2002 - 3<sup>rd</sup> Quarter 2002

DEP Monthly Participation Results; January 2002 - March 2003

#### 4OA2 Identification and Resolution of Problems

Condition Reports:

- 162121; NRC Identified Loose Material Stored in ECCS Corner Room; 6/5/03
- 132704; Materiel Condition Issues on HPCS Pump Room Cooler 2VY02A; 11/21/02
- 132915; Missing Screws in the Cooling Coil Mounting Plates; 11/23/02

#### 4OA3 Event Follow-up

Condition Reports:

- L2000-06594; SRV 2B21-F013E Failed Bench Test at Wyle Labs; 1/17/2000
- L2000-06717; SRV 2B21-F013E Failed Bench Test at Wyle Labs; 11/21/2000
- 00094833; 2 SRVs Fail Wyle Bench Test; 1/29/2003
- 00149573; SRVs Fail AS-Found Testing at Wyle; 3/19/2003
- 157024; Two Previous MSSRV failures not Reported to NRC; March 2003
- 139037; Unit 2 Manual Reactor Scram; 1/10/2003
- 146141; Reactor Recirc Flow Settings Discovered Non-Conservative; 2/25/2003

# LIST OF ACRONYMS USED

ANS	Alert and Notification System
APRM	Average Power Range Monitor
CDF	Core Damage Frequency
CO2	Carbon Dioxide
CR	Condition Report
CRD	Control Rod Drive
CSCS	Core Standby Cooling System
CY	Calendar Year
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
ENS	Emergency Notification System
EOF	Emergency Off-Site Facility
EP	Emergency Preparedness
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
FIN	Finding
HEPA	High Efficiency Particulate Air
HPCS	High Pressure Core Spray System
ICM	Interim Compensatory Measures
IMC	Inspection Manual Chapter
IN	Information Notice
LCO	Limiting Condition For Operation
LER	Licensee Event Report
LLD	Lower Limit of Detectioin
LOA	LaSalle Abnormal Operating Procedure
LOCA	Loss-Of-Coolant-Accident
LOOP	Loss-Of-Offsite-Power
LOS	LaSalle Operating Surveillance
LPCI	Low Pressure Coolant Injection
LTS	LaSalle Technical Surveillance
NEI	Nuclear Energy Institute
NOED	Notice of Enforcement Discretion
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
OC	Operator Challenge
ODCM	Offsite Dose Calculation Manual
OWA	Operator Work Around
PAR	Protective Action Recommendation
PARS	Publicly Available Records
PI	Performance Indicator
PMF	Probable Maximum Flooding
PMP	Probable Maximum Precipitation
PRA	Probable Risk Assessment
RBM	Rod Block Monitor
RCIC	Reactor Core Isolation Cooling

RETS	Radiological Effluent Technical Specification
RHR	Residual Heat Removal
SDP	Significance Determination Process
SPC	Suppression Pool Cooling
SRA	Senior Reactor Analyst
SRV	Safety Relief Valve
SSC	Structures, Systems and Components
TIA	Task Interface Agreement
TMod	Temporary Modification
TSC	Technical Support Center
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VC	Control Room Ventilation
Vdc	Volt Direct Current
VE	Auxiliary Electric Equipment Room Ventilation
WR	Work Request