

October 27, 2003

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

SUBJECT: LASALLE COUNTY GENERATING STATION, UNITS 1 AND 2  
NRC INTEGRATED INSPECTION REPORT 05000373/2003004;  
05000374/2003004

Dear Mr. Skolds:

On September 30, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your LaSalle County Generating Station, Units 1 and 2. The enclosed report documents the inspection findings which were discussed on October 7, 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 were four self-revealed findings of very low safety significance, and one associated violation of NRC requirements. However, because the violation was non-willful, non-repetitive, and entered into your corrective action program, the NRC is treating this as a Non-Cited Violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the Non-Cited Violation (NCV) in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspectors' Office at the LaSalle County Generating Station.

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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 05000373/2003004; 05000374/2003004  
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - LaSalle County Station  
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REGION III

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

Report No: 05000373/2003004; 05000374/2003004

Licensee: Exelon Nuclear Generation Company

Facility: LaSalle County Generating Station, Units 1 and 2

Location: 2601 N. 21st Road  
Marseilles, IL 61341

Dates: July 1 through September 30, 2003

Inspectors: D. Kimble, Senior Resident Inspector  
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Approved by: Bruce L. Burgess, Chief  
Branch 2  
Division of Reactor Projects

Enclosure

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## SUMMARY OF FINDINGS

IR 05000373/2003004, 05000374/2003004; 07/01/03 - 09/30/03; Exelon Nuclear Generation Company; LaSalle County Generating Station, Units 1 & 2; Maintenance Risk Assessments and Emergent Work Evaluation and Event Followup.

The inspection was conducted by resident inspectors, regional inspectors, inspectors on temporary assignment from NRC Headquarters – Nuclear Reactor Regulation, and a NRC contractor. The report covers a 3-month period of resident inspection. Four Green findings and one associated non-cited violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609 “Significance Determination Process” (SDP). Findings for which the SDP does not apply may be “Green,” or be assigned a severity level after NRC management review. The NRC’s program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process,” Revision 3, dated July 2000.

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

#### Cornerstone: Initiating Events

- Green. A finding of very low safety significance was self-revealed following impromptu repairs to the control air for the Unit 2 motor-driven reactor feed pump (MDRFP) minimum flow valve. A maintenance supervisor, conducting what was supposed to have been only a pre-job investigative walkdown, conducted the actual repairs without any written work documents or procedures. The majority of the cause for this finding relates to the cross-cutting area of human performance.

The finding was determined to be more than minor in that if left uncorrected, it would represent a more significant safety concern. The finding was determined to be of very low safety significance because maintenance supervisor’s actions did not result in an actual plant transient. (Section 1R13.2)

- Green. A finding of very low safety significance was self-revealed following the unauthorized operation of station equipment by a plant engineer. The majority of the cause for this finding relates to the cross-cutting area of human performance.

The finding was determined to be more than minor in that if left uncorrected, it would represent a more significant safety concern. The finding was determined to be of very low safety significance because the engineer’s actions did not result in an actual plant transient. (Section 1R13.3)

## **Cornerstone: Mitigating Systems**

- Green. A finding of very low safety significance was self-revealed following the failure on the part of maintenance personnel to reinstall a required part during a March 2003 overhaul of the Unit 2 station air compressor (SAC). The majority of the cause for this finding relates to the cross-cutting area of human performance.

The finding was determined to be more than minor in that if left uncorrected, it would represent a more significant safety concern. The finding was determined to be of very low safety significance because the licensee was able to demonstrate in an engineering analysis that the SAC could be considered available and capable of operation for its mission time even with the subject part missing. (Section 1R13.1)

- Green. A finding of very low safety significance was self-revealed involving the licensee's failure to properly delineate what actions can be performed by plant personnel without having appropriate written procedures or instructions. This lack of delineation allowed an operator to attempt to remove dust from a circuit board by blowing on it, which resulted in a partial CO<sub>2</sub> system actuation and the closure of the '0' emergency diesel generator (EDG) ventilation dampers. This rendered the '0' EDG inoperable and unavailable for the task of being able to complete its mission time. The majority of the cause for this finding relates to the cross-cutting area of human performance.

The finding was determined to be more than minor in that it had an adverse impact on the availability and capability of the '0' EDG, a mitigating system component. The finding was determined to be of very low safety significance because the licensee was able to demonstrate in an engineering analysis that the '0' EDG would automatically start and load with the fire dampers closed, and that the opposite train's EDG, the 1A EDG, could be made fully available from its surveillance test configuration in a short period of time. A Non-Cited Violation for failure to comply with 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was also identified by the inspectors. (Section 4OA3.3)

## **B. Licensee-Identified Violations**

No violations of significance were identified.



## REPORT DETAILS

### Summary of Plant Status

#### Unit 1

The unit began the inspection period operating at full power. On July 7, 2003, power was reduced to approximately 89 percent when several feedwater heaters isolated from the electrical transient that resulted from the Unit 2 scram. The unit returned to full power operation on July 8, 2003. On August 2, 2003, power was reduced to approximately 84 percent in response to the isolation of the 14B feedwater heater due to a failed normal drain valve. Repairs were performed and the unit returned to full power operation on August 3, 2003. A planned power reduction to approximately 50 percent was performed on August 30, 2003, to facilitate control rod testing and pattern adjustments. The unit returned to full power operation on September 1, 2003. On September 14, 2003, power was reduced to approximately 88 percent in response to another isolation of the 14B feedwater heater. Repairs were accomplished and the unit returned to full power on September 16, 2003. Unit 1 remained at full power for the remainder of the inspection period.

#### Unit 2

The unit began the inspection period operating at full power. On July 7, 2003, the unit scammed when the 'B' phase of the main power transformer disconnect failed and caused a trip of the main electrical generator (Sections 1R14.1, 1R20, and 4OA3.4). The unit was forced to enter cold shutdown to replace a leaking safety-relief valve (SRV), and did not return to power operation until July 12, 2003. Full power operation was achieved on July 16, 2003. On September 13, 2003, reactor power was reduced to the point-of-adding-heat and the main electrical generator taken off line to facilitate various short-duration planned maintenance activities. The main generator was placed back on line on September 14, 2003, and the unit returned to full power operation on September 18, 2003. Unit 2 remained at full power for the remainder of the inspection period.

### **1. REACTOR SAFETY**

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

##### 1R04 Equipment Alignment (71111.04)

###### a. Inspection Scope

The inspectors performed a partial walkdown of the following equipment trains to verify operability and proper equipment lineup. These systems were selected based upon risk significance, plant configuration, system work or testing, or inoperable or degraded conditions.

- Unit 1 Reactor Core Isolation Cooling (RCIC)
- Unit 1 High Pressure Core Spray (HPCS)

The inspectors verified the position of critical redundant equipment and looked for any discrepancies between the existing equipment lineup and the required lineup.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors walked down the following risk significant areas looking for any fire protection issues. The inspectors selected areas containing systems, structures, or components that the licensee identified as important to reactor safety.

- Fire Zone 2B1, Unit 1 Rx Bldg - Elevation 820' 6"
- Fire Zone 2B2, Unit 1 Rx Bldg - Elevation 820' 6"
- Fire Zone 2D, Unit 1 Rx Bldg - Elevation 786' 6"
- Fire Zone 3B1, Unit 2 Rx Bldg - Elevation 820' 6"
- Fire Zone 3B2, Unit 2 Rx Bldg - Elevation 820' 6"
- Fire Zone 3D, Unit 2 Rx Bldg - Elevation 786' 6"
- Fire Zone 4E1, Unit 1 Auxiliary Equipment Room - Elevation 731'
- Fire Zone 4F2, Unit 2 Division 1 Essential Switchgear Room - Elevation 710'
- Fire Zone 5D2, Unit 2 Auxiliary Building, HPCS Switchgear Area - Elevation 687'
- Fire Zone 7B1, Unit 1 HPCS Diesel Generator Room - Elevation 710'
- Fire Zone 7B2, Unit 1 Division 1 Standby Diesel Generator Room - Elevation 710'
- Fire Zone 7B3, Unit 1 Division 2 Standby Diesel Generator Room - Elevation 710'
- Fire Zone 5A4, Cable Area - Elevation 749'
- Fire Zone 4D1-1, Unit 1 Division Cable Riser Aisle - Elevation 749'
- Fire Zone 4D3, Unit 1 Electrical Equipment Room - Elevation 749'
- Fire Zone 4D4, Unit 2 Electrical Equipment Room - Elevation 749'
- Fire Zone 2H2, Unit 1 Rx Bldg - HPCS Corner Room
- Fire Zone 2H4, Unit 1 Rx Bldg - RCIC/Low Pressure Core Spray (LPCS) Corner Room

The inspectors reviewed the control of transient combustibles and ignition sources, fire detection equipment, manual suppression capabilities, passive suppression capabilities, automatic suppression capabilities, and barriers to fire propagation.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

The inspectors observed a training crew during evaluated simulator scenarios and reviewed licensed operator performance in mitigating the consequences of events. The scenarios were part of the crew's periodic licensee requalification examination. Areas observed by the inspectors included: clarity and formality of communications, timeliness of actions, prioritization of activities, procedural adequacy and implementation, control board manipulations, command oversight, emergency plan execution, and group dynamics.

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 system was 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 inspector identified issue or problem that potentially impacted system work practices, reliability, or common cause failures:

- Ongoing problems and ultimate failure of the 2A Master Trip Solenoid Valve (MTSV) on the Unit 2 main turbine

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 Control (71111.13)

.1 Failure to Follow Mechanical Maintenance Procedure for Station Air Compressor

a. Inspection Scope

The inspectors reviewed the licensee's work planning, evaluation of plant risk, risk management, scheduling, and configuration control for an overhaul of the Unit 2 station air compressor (SAC) in March 2003, and subsequent repair work in July 2003. The inspectors verified that the licensee's control of the activity considered assessment of baseline and cumulative risk, management of plant configuration, control of maintenance, and external impacts on risk. In-plant activities were reviewed to ensure that the risk assessment for the work was complete and adequate, and that the assessment included an evaluation of external factors. Additionally, the inspectors verified that the licensee entered the appropriate risk category for the evolution.

b. Findings

Introduction: A finding of very low safety significance (Green) was self-revealed following the failure on the part of maintenance personnel to install a required part (an O-ring) during a March 2003 overhaul of the Unit 2 SAC. The missing part ultimately caused the Unit 2 SAC to undergo an unplanned outage for repairs in July 2003.

Description: In March 2003, the Unit 2 SAC underwent a routine overhaul. The SAC was returned to service at the completion of the maintenance activities and operated normally until July 7, 2003, when it tripped during a Unit 2 scram. A subsequent attempt to restart and load the SAC was unsuccessful, and on July 10, 2003, plant operators noted a water-oil mixture coming from the compressor's 4<sup>th</sup> stage drain. Without knowing the source of this oil-water mixture, operations and engineering personnel, in coordination with the SAC vendor, determined that the compressor should be considered unavailable until repaired.

On July 18, 2003, the licensee began work on the Unit 2 SAC to investigate the problem. The licensee's investigation revealed a missing plane bearing O-ring on the oil side of the SAC's 4<sup>th</sup> stage, and that this critical bearing O-ring had been inadvertently left out during the previous overhaul. A compressor vendor representative was working with licensee mechanical maintenance personnel at the time of the overhaul and both parties failed to reinstall the plane bearing oil O-ring as required by the applicable maintenance procedure. The missing O-ring was made of a material known as "Viton," and was installed to keep oil on one side of the bearing and prevent oil from passing to the air side of the compressor's 4<sup>th</sup> stage. In addition to the Viton O-ring, the maintenance procedure called for the installation of two additional O-rings on the air side of the bearing, which the licensee's investigation found were properly installed. These O-rings were made of a material known as "Buna-N," however, and were not designed for contact with the compressor's synthetic lubricating oil.

The licensee's investigation concluded that with the Viton O-ring missing and the compressor running, differential air pressure kept oil from migrating to the air side of the compressor's 4<sup>th</sup> stage and from coming into contact with the Buna-N O-rings.

However, when the compressor was secured, oil could come into contact with the Buna-N O-rings and cause degradation. The licensee further concluded that during the brief period following the compressor's trip on July 7, 2003, to the discovery of an oil-water mixture coming from the 4<sup>th</sup> stage drain on July 10, 2003, synthetic oil was allowed to come into contact with the Buna-N O-rings, which began the degradation process.

Repairs to the Unit 2 SAC were completed and the compressor returned to service on July 23, 2003. Inspectors reviewing the issue questioned the licensee's initial claims that the Unit 2 SAC could be considered available even without the Viton O-ring in place. The licensee's assessment was largely based upon the fact that the two Buna-N O-rings that were in place in the compressor's 4<sup>th</sup> stage were intact, showed little to no signs of deterioration, and could, therefore, be relied upon to prevent oil intrusion into the 4<sup>th</sup> stage air side for some reasonable period of time. The inspectors noted that the licensee's analysis lacked the necessary degree of rigor to support such a claim. Further, the inspectors also noted that the licensee had discarded the two Buna-N O-rings removed from the SAC, contrary to work package requirements that called for their retention for additional analysis, making substantiation of the licensee's claims concerning their physical condition somewhat difficult.

Following receipt of the inspectors' concerns, the licensee revised their availability analysis to include, among other items, signed statements by all maintenance personnel who saw the two Buna-N O-rings regarding their intact condition, and a written statement from the compressor vendor attesting to the ability of the compressor to run for a period of time even without the Viton O-ring installed on the 4<sup>th</sup> stage.

Analysis: A licensee performance deficiency associated with this issue was identified by the inspectors. Specifically, licensee personnel who conducted the Unit 2 SAC overhaul in March 2003 failed to follow the steps in applicable maintenance procedure that called for the installation of the compressor's 4<sup>th</sup> stage plane bearing Viton O-ring. In determining the initial significance of this finding, the inspectors concluded that it was more than minor and that a Phase 1 SDP was warranted in accordance with the guidance provided in NRC IMC 0612, Appendix B, "Issue Screening."

Inspectors determined that the finding was more than minor in that if left uncorrected, it would represent a more significant safety concern. The inspectors reasoned that, in general, the failure to follow established maintenance procedures for risk-significant components, such as the Unit 2 SAC, would ultimately lead to reduced component availability, reliability, and capability. In this case specifically, the SAC vendor had indicated to the licensee that without the Viton and Buna-N O-rings, or with badly damaged or degraded O-rings, the SAC would probably experience failure after just minutes of operation. Additionally, the SAC vendor indicated that even just missing the Viton O-ring, the SAC probably would only be able to operate for a month before Buna-N O-ring failure would occur, which would lead to the ultimate failure of the SAC.

In evaluating the Phase 1 SDP in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors used the mitigating systems cornerstone path due to the impact that the loss of a SAC has on the licensee's probabilistic risk assessment (PRA) model. Because the licensee

was able to demonstrate that even without the 4<sup>th</sup> stage Viton O-ring that the compressor was available and capable of operation for perhaps a month or so, the inspectors determined the finding to be a design or qualification deficiency confirmed not to result in loss of function per NRC Generic Letter 91-18, Revision 1, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions." As a result, the finding was assessed to be of very low safety significance (Green) and within the licensee's response band, and a Phase 2 SDP was determined to not be required. The licensee had entered this issue into their corrective action program as Condition Reports (CRs) 169572, 169572 and 170044. **(FIN 05000373/2003004-0; 05000374/2003004-01)**

.2 Repairs Performed on Plant Equipment Without Written Procedures or Work Control Documents

a. Inspection Scope

The inspectors reviewed the licensee's work planning, evaluation of plant risk, risk management, scheduling, and configuration control for the repairs to the Unit 2 motor-driven reactor feed pump (MDRFP) minimum flow valve control air on September 13, 2003. The inspectors verified that the licensee's control of the activity considered assessment of baseline and cumulative risk, management of plant configuration, control of maintenance, and external impacts on risk. In-plant activities were reviewed to ensure that the risk assessment for the work was complete and adequate, and that the assessment included an evaluation of external factors. Additionally, the inspectors verified that the licensee entered the appropriate risk category for the evolution.

b. Findings

Introduction: A finding of very low safety significance (Green) was self-revealed following impromptu repairs to the control air for the Unit 2 MDRFP minimum flow valve. A maintenance supervisor conducting what was supposed to have been only a pre-job investigative walkdown conducted the actual repairs without any written work documents or procedures.

Description: On September 13, 2003, during a Unit 2 down power, the Unit 2 MDRFP minimum flow valve (2FW008) remained open at 50 percent when given a demand signal to close. An instrument maintenance first line supervisor (FLS) was notified by the shift manager to investigate the valve position and prepare a work order to potentially fix the unexpected condition.

The issue was identified at approximately 0300 on September 13, 2003, and operations personnel in the control room stated that it was their desire to have any necessary repair efforts take place in the near-term while the Unit 2 MDRFP was still operating in parallel with one of the unit's two turbine-driven reactor feed pumps (TDRFPs). In this configuration, any inadvertent positioning or cycling of the 2FW008 valve would have little or no affect on the plant. Once power was sufficiently low enough, the operating schedule called for removal of the last parallel TDRFP and operation on the MDRFP

alone. In this configuration, inadvertent cycling or positioning of the 2FW008 valve during maintenance could have initiated a potentially significant reactor level transient.

The FLS was unable to obtain the necessary support to enter the heater bay during the midnight shift. Operations personnel, realizing that the window for operating with a TDRFP in parallel with the MDRFP was closing, pressed the FLS to enter the heater bay for his inspection again at 0650. In interviews with the inspectors, operations personnel admitted that this request put undo time pressure on the FLS, and potentially contributed to his actions.

The FLS entered the Unit 2 heater Bay with a work planner for an observation of the 2FW008 valve to assure work order instructions would accurately depict the cause of failure mode. However, the FLS failed to contact the control room to inform the on-watch operators of the entry as required by plant procedures. The FLS performing what was intended to be a non-intrusive inspection inadvertently leaned on a section of control air tubing near an air regulator and the 2FW008 valve repositioned to fully closed. At this point, not having been properly briefed on the plant configuration, the FLS believed that further inadvertent repositioning of the 2FW008 was probable and would potentially result in a plant transient if repairs to the control air tubing were not made immediately. As a result, the FLS decided on his own initiative to perform an on-the-spot repair by tightening up a loose control air fitting for the 2FW008 valve without any work control documents or written instructions. In the control room, on-watch operations personnel noticed the unplanned repositioning of the 2FW008 valve and investigated. The FLS was directed to report to the shift manager for debriefing.

Inspectors reviewing this issue on September 15-16, 2003, discussed the sequence of events with licensee management. During this series of interviews, the inspectors identified that the licensee had failed to fully document the impromptu repair work performed by the FLS. Specifically, the licensee had not documented the post-maintenance test (PMT), which involved a full-stroke exercise test of the 2FW008 valve, in the work documentation package that was developed following the repair. The licensee documented the PMT and issued a NRC-identified condition report.

Analysis: Inspectors reviewing this event determined that several licensee performance deficiencies were present. First, licensee personnel failed to properly coordinate the 2FW008 repair effort among the workgroups involved. Poor interface between the operations, maintenance, and radiological protection groups created a situation in which each group had a different picture of the problem and the urgency associated with its correction. This led to placing undo time pressure on the FLS to conduct his pre-job inspection. Second, the inspectors identified multiple examples of licensee personnel failing to follow established plant procedures. Examples of this type of performance deficiency included: the FLS failure to contact the control room prior to entering the heater bay as required by procedure; the FLS failure to obtain proper work control documents prior to performing a repair on the 2FW008 control air line; and the failure of licensee maintenance personnel to fully document the work performed, specifically the PMT, until questioned by the inspectors.

In determining the initial significance of this finding, the inspectors concluded that it was more than minor and that a Phase 1 SDP was warranted in accordance with the guidance provided in NRC IMC 0612, Appendix B, "Issue Screening." With respect to this finding, the inspectors determined that the performance of repairs on the 2FW008 valve, a potentially risk-significant component, without proper work control documents or written instructions represented a finding that if left uncorrected would be a more significant safety concern under the initiating events cornerstone of reactor safety.

The inspectors evaluated the Phase 1 SDP in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," using the initiating events cornerstone path. The finding was determined not to be a contributor to the likelihood of a primary or secondary system loss of coolant accident (LOCA) initiator. Further, the inspectors determined that there was no contribution from the finding to both the likelihood of a reactor trip and the likelihood that mitigating equipment would not be available. Finally, the inspectors determined that the finding was not associated with the likelihood of a fire or any type of flooding. As a result, the inspectors determined that the finding was of very low safety significance (Green), within the licensee's response band, and that a Phase 2 SDP was not required. The licensee had entered this finding into their corrective action program as CRs 175632 and 176438. **(FIN 05000373/2003004-02; 05000374/2003004-02)**

### .3 Unauthorized Operation of Plant Equipment

#### a. Inspection Scope

The inspectors reviewed the licensee's work planning, evaluation of plant risk, risk management, scheduling, and configuration control for a design walkdown by site engineering with contractor engineering personnel for a planned sudden pressure relay (SPR) modification of the Unit Auxiliary Transformer (UAT) and the Main Power Transformer (MPT). The inspectors verified that the licensee's control of the activity considered assessment of baseline and cumulative risk, management of plant configuration, control of maintenance, and external impacts on risk. In-plant activities were reviewed to ensure that the risk assessment for the work was complete and adequate, and that the assessment included an evaluation of external factors. Additionally, the inspectors verified that the licensee entered the appropriate risk category for the evolution.

#### b. Findings

Introduction: A finding of very low safety significance (Green) was self-revealed following the unauthorized operation of station equipment by a plant engineer.

Description: On September 12, 2003, a plant engineer performing a design walkdown with contractor engineers for the SPR modification of the UAT and MPT inadvertently bumped the SPR cutoff switch on the Unit-1 UAT, moving it from the "on" to the "off" position. This removed SPR protection from the UAT and actuated an alarm annunciator in the control room.



Without any verbal or procedural instructions to do so, the engineer immediately repositioned the SPR cutoff switch to the “on” position to restore the protective relaying for the UAT. Operations personnel responding to the control room alarm verified that the SPR cutoff switch had been properly repositioned, and the matter of the engineer acting without appropriate authorization to manipulate plant equipment was referred to plant management for action.

Analysis: Inspectors reviewing this event determined that a licensee performance deficiency existed in that the plant engineer had operated station equipment without any authority to do so. In determining the initial significance of this finding, the inspectors concluded that it was more than minor and that a Phase 1 SDP was warranted in accordance with the guidance provided in NRC IMC 0612, Appendix B, “Issue Screening.”

Industry experience indicates that restoration of switches or controls at a nuclear plant are activities that can result in a myriad of problems if not properly controlled and proceduralized. With respect to this finding, the inspectors determined that the unauthorized and uncontrolled restoration of plant equipment by the station engineer represented a finding that if left uncorrected would be a more significant safety concern under the initiating events cornerstone of reactor safety. Specifically, even though in this instance the consequences of the engineer’s actions did not adversely impact the plant, this would not be the case in any number of situations where plant personnel would restore switches or controls without appropriate procedures and instructions.

In evaluating the Phase 1 SDP in accordance with IMC 0609, Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations,” the inspectors used the initiating events cornerstone path. The finding was determined not to be a contributor to the likelihood of a primary or secondary system loss of coolant accident (LOCA) initiator. Further, the inspectors determined that there was no contribution from the finding to both the likelihood of a reactor trip and the likelihood that mitigating equipment would not be available. Finally, the inspectors determined that the finding was not associated with the likelihood of a fire or any type of flooding. As a result, the inspectors determined that the finding was of very low safety significance (Green), within the licensee’s response band, and that a Phase 2 SDP was not required. The licensee had entered this issue into their corrective action program as CR 175557.

**(FIN 05000373/2003004-03;05000374/2003004-03)**

.4 Miscellaneous Maintenance and Work Activities

a. Inspection Scope

The inspectors reviewed and observed emergent work and the planning for risk significant maintenance activities. The following specific samples were included:

- Emergent troubleshooting and repair of the Unit 1 reactor manual control system
- Emergent repairs to the 345 kV switchyard during forced outage L2F37
- Emergent replacement of the 2C SRV during L2F37

- Use of a vendor supplied temporary station air compressor for online risk management
- Recovery actions for 2 stuck traversing incore probes (TIPs) on Unit 2
- Containment Isolation Valve 2BF33-F345A troubleshooting and repair
- Emergent repairs to inboard seal leak on Unit 2 Motor Driven Reactor Feed Pump

The inspectors also reviewed the licensee's evaluation of plant risk, risk management, scheduling, and configuration control for these activities in coordination with other scheduled risk significant work. The inspectors verified that the licensee's control of activities considered assessment of baseline and cumulative risk, management of plant configuration, control of maintenance, and external impacts on risk. In-plant activities were reviewed to ensure that the risk assessment of maintenance or emergent work was complete and adequate, and that the assessment included an evaluation of external factors. Additionally, the inspectors verified that the licensee entered the appropriate risk category for the evolutions.

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Non-Routine Plant Evolutions and Events (71111.14)

.1 Unit 2 Reactor Scram with Loss of Normal Heat Sink

a. Inspection Scope

Inspectors responded to the station following a scram on Unit 2 on the evening of July 7, 2003. Because the scram had resulted from an electrical transient in the station's 345 kV switchyard, there were several complications associated with the event. The most significant complication involved the tripping of all three circulating water pumps for Unit 2, which resulted in the loss of the unit's condenser as a heat sink. As a result, the inspectors observed operator performance in the control room for several hours during the post-scram recovery and stabilization of the unit to evaluate the personnel response to the trip, and to determine if the response was appropriate to the event and in accordance with procedures, training, and regulatory requirements.

b. Findings

No findings of significance were identified.

.2 Response to Unit 2 'A' Recirc Flow Control Valve (FCV) Reactivity Excursion

a. Inspection Scope

The inspectors examined operations crew response to a small unplanned reactivity excursion on Unit 2 on July 27, 2003. During the early morning hours, operators received a control room alarm indicating that a hydraulic isolation valve for the 'A' reactor recirculation FCV had drifted off its open seat. The ensuing hydraulic imbalance

on the FCV operator caused the FCV to move from 74 percent open to 77 percent open, which resulted in reactor power increasing from 100 percent to 100.77 percent for 21 minutes. The inspectors reviewed operator performance for the event and the post-transient recovery and stabilization of the unit to evaluate the personnel response to the transient, and to determine if the response was appropriate to the event and in accordance with procedures, training, and regulatory requirements.

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 (TS), the significance of the evaluations, and to ensure that adequate justifications were documented.

- Missing nut for snubber MS04-2870S load pin
- Degraded fire barrier for Unit 2 Division 2 125 Volt Direct Current (Vdc) battery room
- Broken main steam safety/relief valve (MSSRV) set screws
- Unit 2 Division 2 Residual Heat Removal Service Water Low Pressure Alarms
- Unit 1 RCIC suction line pressure pulses

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 Routine Review of Operator Workarounds (OWAs) and Operator Challenges (OC)s

a. Inspection Scope

The inspectors reviewed the following Operator Workarounds and Operator Challenges:

- WA353 and WA354; Unit 1 and Unit 2 reactor recirculation pump trips due to instrument ringing
- OC321; Unit 1 multiple Residual Heat Removal (RHR) service water keep fill failures

The inspectors reviewed the potential of each workaround or challenge to impact the operators' ability to respond to transient and off-normal events and conditions.

b. Findings

No findings of significance were identified.

.2 Semiannual Review of Operator Workaround and Operator Challenge Cumulative Effects

a. Inspection Scope

The inspectors performed a semiannual review of the cumulative effects of operator workarounds and operator challenges. The inspectors reviewed the cumulative effects of workarounds and challenges on the reliability, availability, and potential for the improper operation of systems. Additionally, reviews were conducted to determine if the workarounds and challenges could increase the possibility of an initiating event, affect multiple mitigating systems, or impact the operators' ability to respond to accidents or transients.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed the ongoing permanent replacement of existing emergency diesel generator (EDG) air dryers with a more modern model. The inspectors verified that the design basis, licensing basis, and performance capability of risk significant systems were not degraded by the installation of the modification. The inspectors also verified that the modifications did not place the plant in an unsafe configuration. The design adequacy of the modification was verified by performing a review, or partial review, of the modification's impact on plant electrical requirements, material requirements and replacement components, response time, control signals, equipment protection, operation, failure modes, and other related process requirements.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (PMT) (71111.19)

a. Inspection Scope

The inspectors selected the following post maintenance activities for review. Activities were selected based upon the structure, system, or component's ability to impact risk.

- 2C SRV post replacement leak test
- EDG air dryer modification PMT
- Unit 2 Division 2 125 Vdc battery cell replacement PMT

- Unit 2 station air compressor 4th stage oil leak repair PMT
- 2A instrument nitrogen compressor repair and rebuild PMT
- 2E12-F018C, 2C RHR pump minimum flow bypass manual valve
- 2B RHR WS strainer backwash function PMT
- Unit 2 motor driven feed pump mechanical seal leak repair PMT
- Standby Gas Treatment (SBGT) wide range gas monitor erratic indication repair PMT

The inspectors verified by witnessing the test or reviewing the test data that post maintenance testing activities were adequate for the above maintenance activities. The inspectors' reviews included, but were not limited to, integration of testing activities, applicability of acceptance criteria, test equipment calibration and control, procedural use and compliance, control of temporary modifications or jumpers required for test performance, documentation of test data, TS applicability, system restoration, and evaluation of test data. Also, the inspectors verified that maintenance and post maintenance testing activities adequately ensured that the equipment met the licensing basis, TS, and Updated Final Safety Analysis Report (UFSAR) design requirements.

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated outage activities for an unscheduled outage that began with the Unit 2 scram on July 7, 2003, and ended on July 12, 2003. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule.

The inspectors observed or reviewed the reactor shutdown and cooldown, outage equipment configuration and risk management, electrical lineups, selected clearances, control and monitoring of decay heat removal, control of containment activities, startup and heatup activities, and identification and resolution of problems associated with forced outage L2F37.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (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.

- '0' EDG monthly test run
- Unit 1 RCIC steam line isolation high temperature and flow instrument calibration
- Unit 1 Division 1 Residual Heat Removal (RHR) Service Water (SW) quarterly pump and valve inservice test
- Unit 1 reactor vessel high water level 8 main turbine/feedwater pump trip functional test
- Unit 1 main steam line high flow isolation calibration
- Unit 1 'B' EDG monthly test run

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 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed a temporary modification for a single-cell charge on cell 9 of the Unit 2 Division 2 125 Vdc station battery. The inspectors reviewed the safety screening, design documents, UFSAR, and applicable Technical Specifications to determine that the temporary modification was consistent with modification documents, drawings, and procedures. The inspectors also reviewed the post installation test results to confirm that tests were satisfactory and the actual impact of the temporary modification on the permanent system and interfacing systems were adequately verified.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The resident inspectors reviewed a licensee training drill using the plant simulator, Technical Support Center (TSC), and Operations Support Center (OSC) to evaluate drill conduct and the adequacy of the licensee's critique of performance to identify weaknesses and deficiencies. The inspectors selected a drill that the licensee had scheduled as providing input to the Drill/Exercise NRC Performance Indicator. The inspectors observed the classification of events, notifications to off-site agencies, protective action recommendation development, and drill critiques. Observations were compared to the licensee's observations and corrective action program entries. The inspectors verified that there were no discrepancies between observed performance and

performance indicator reported statistics. The drill scenario observed resulted in a site area emergency classification.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

**Cornerstones: Mitigating Systems, Barrier Integrity**

.1 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 both units:

- Safety system unavailability - emergency Alternating Current (AC) power
- Safety system unavailability - high pressure injection system
- Safety system unavailability - heat removal system
- Safety system unavailability - residual heat removal system
- Reactor Coolant System Identified Leak Rate

The inspectors verified that the licensee accurately reported performance as defined by the applicable revision of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline." Data from July 2002 through June 2003 was examined.

b. Findings

No findings of significance were identified.

.2 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the period between July 2002 through June 2003 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)

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

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the inspections discussed in the previous sections of this report, 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 included: complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issues.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

**Cornerstones: Initiating Events and Mitigating Systems**

.1 (Closed) Licensee Event Report (LER) 05000373/2003-001-00: Enforcement Discretion Required to Repair Division 2 125 Vdc Battery Charger.

(Closed) Unresolved Item (URI) 05000373/2003003-01; 05000374/2003003-01: Emergent Repairs to Unit 1 Division 2 125 Vdc Battery Charger and Associated Notice of Enforcement Discretion (NOED).

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.

The inspectors reviewed the subject LER and the licensee's associated root cause report for the NOED. No findings of significance were identified. The licensee has entered this issue into their corrective action program under CRs 152752, 153262, 153326, 153428 and 157008. Corrective actions taken by the licensee appeared to be adequate.

- .2 (Closed) Licensee Event Report 05000373/2003-003-00: Reactor Core Isolation Cooling High Steam Flow Isolation Differential Pressure Switches Failed Due to Torn Diaphragm.

On July 7, 2003, during the performance of Technical Specification Surveillance LIS-RI-101, "Unit 1 RCIC Steam Line High Flow Isolation Calibration," differential pressure switch 1E31-N013AA failed its diaphragm integrity test. The licensee halted the surveillance, and the switch was replaced. Performance of the surveillance subsequently was resumed, and on July 10, 2003, differential pressure switch 1E31-N013BA also failed its diaphragm integrity test.

In each case, the licensee determined the cause of the failure to have been a rupture of the Kapton diaphragm in the Static O-Ring (SOR, Inc.) differential pressure switch, a known performance issue with these switches. As part of the corrective actions, the licensee replaced the failed switches. Additionally, the licensee is presently in the process of identifying and qualifying a replacement for the switches to address the known performance and design issues.

The inspectors reviewed the licensee's investigation report for the issue, which concluded that with both divisions of the RCIC steam line high flow isolation inoperable at the same time, the RCIC equipment room area and differential temperature instrumentation were still operable and would have closed the steam supply line isolation valves in the event of a break or leak. No findings of significance were identified. The licensee had entered this issue into their corrective action program under CR 167082. Corrective actions taken and planned by the licensee appeared to be adequate.

.3 (Closed) Licensee Event Report 05000373/2003-002-00; 05000373/2003-002-01: 1A and 0 Diesel Generators Inoperable Simultaneously Due to Inadvertent Partial CO<sub>2</sub> Actuation.

a. Inspection Scope

The inspectors reviewed LER 05000373/2003-002-00, "1A and 0 Diesel Generators Inoperable Simultaneously Due to Inadvertent Partial CO<sub>2</sub> Actuation," and the licensee's supplemental report, LER 05000373/2003-002-01, to verify that the cause of the event on April 23, 2003, was properly identified and that corrective actions were appropriate. The inspectors reviewed plant logs and other data to verify that equipment performed as required and that plant procedures were appropriately implemented.

b. Findings

Introduction: A self-revealing finding of very low safety significance (Green) was identified involving the licensee's failure to properly delineate what actions can be performed by plant personnel without having appropriate written procedures or instructions. Associated with this finding was a Non-Cited Violation for failure to comply with 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings."

Description: On April 23, 2003, a partial '0' Diesel Generator (DG) CO<sub>2</sub> Suppression System actuation occurred while the 1A DG was inoperable for a scheduled surveillance. The partial CO<sub>2</sub> system actuation resulted in the closure of the '0' DG ventilation dampers, which rendered the '0' DG inoperable.

During the course of the noon shift on April 23, 2003, a non-licensed operator (NLO) assigned to take rounds on Unit 1 observed an anomalous condition associated with an intermittent trouble alarm at the Unit 1 Main Fire Panel (1FP04JA) located in the Auxiliary Electric Equipment Room (AEER). The NLO first observed this alarm at approximately 1700 hours, and a brief investigation at that time revealed the alarm condition was associated with the '0' DG CO<sub>2</sub> suppression system. The NLO informed the Unit 1 Nuclear Station Operator (NSO), a licensed reactor operator, of the condition. The NSO informed the NLO that the condition had been identified the previous week, and that a Condition Report (CR) had been written. Additionally, the NLO was also informed that electrical maintenance personnel had investigated the issue but were unable to precisely identify the specific deficiency.

The NLO went on to discuss the issue with the Operations Field Supervisor (FS), a licensed senior reactor operator. The FS told the NLO that he had also heard of this

problem occurring in the previous week, and told the NLO that at this time he should continue on with his rounds and follow up later to verify that a CR and Work Request (WR) had been written.

The NLO continued with the Unit 1 rounds and at 1830 hours was in the vicinity of the '0' DG room and decided to inspect the local CO<sub>2</sub> fire suppression cabinet to determine if it could be the cause of the intermittent '0' DG CO<sub>2</sub> suppression system alarm. There was no communication between the NLO and either the control room or operations shift supervision regarding this decision. As a result, the NLO was unaware that during the 1½ hours since his discussions with the NSO and the FS that conditions in the plant had changed and that the 1A DG had been rendered inoperable due to a routine surveillance test.

With the control room unaware of his actions, the NLO began to inspect the local CO<sub>2</sub> fire suppression cabinet. After inspecting the outside of the control cabinet and determining that no unusual indications were present, the NLO opened the CO<sub>2</sub> suppression system control panel door to visually inspect the interior of the panel. In an attempt to gain a better view of the circuit boards in the interior of the cabinet, the NLO attempted to remove some of the dust present by blowing on the circuit boards. Immediately thereafter, the '0' DG CO<sub>2</sub> suppression system fire alarm and a partial CO<sub>2</sub> suppression system actuation occurred. The partial CO<sub>2</sub> suppression system actuation closed dampers in the '0' DG ventilation support system, which rendered the '0' DG inoperable.

At 1848 hours, a fire alarm was received in the control room for the CO<sub>2</sub> system partial actuation in the '0' DG Room. Operators entered the station's abnormal operating procedure for actuation of the fire protection system and dispatched the fire brigade to the scene. The fire brigade determined that there was no fire approximately 10 minutes into the event. However, due to personal safety concerns associated with the potential for the Unit 1 DG rooms having been flooded with CO<sub>2</sub>, the fire brigade commander restricted access to the Unit 1 DG rooms. Once it was confirmed that there was no CO<sub>2</sub> in the DG Rooms, operating personnel were able to enter 1A DG room and place the DG control switch in STANDBY. With this, the 1A DG was restored to an operable status at 1952. The total time that the '0' and 1A DGs were inoperable simultaneously was 64 minutes.

Due in large part to the nature and location of the fire dampers that shut in the '0' DG ventilation system, the licensee did not restore the '0' DG to an operable status until April 25, 2003. Scaffolding had to be erected to access some dampers, and certain one-time-use parts on the dampers had to be replaced. However, the licensee had determined that the isolation of the fire dampers for the '0' DG ventilation system did not render the DG incapable of starting or loading on demand if necessary. Additionally, the licensee determined that the '0' DG would have been available to carry the associated Division 1 bus for sufficient time to have permitted the licensee to recover the 1A DG from its scheduled surveillance test had this been necessary. Thus, the licensee determined that the event was of very low safety significance, despite the fact that with the fire dampers shut the '0' DG was incapable of carrying its rated load for its rated mission time without overheating.

Analysis: Inspectors reviewing this event determined that a licensee performance deficiency was present in that the licensee had failed to properly delineate what actions personnel could take in the plant without the benefit of written instructions or procedures. In determining the initial significance of this finding, the inspectors concluded that it was more than minor and that a Phase 1 SDP was warranted in accordance with the guidance provided in NRC IMC 0612, Appendix B, "Issue Screening."

Specifically, the inspectors found that in failing to adequately delineate what actions personnel could take in the plant without the benefit of written instructions or procedures that the licensee had given tacit approval for the NLO's action, which was the direct cause of the loss of availability of the '0' DG. Further, the inspectors determined that this loss of '0' DG availability had a direct effect on the objective for the mitigating systems cornerstone of reactor safety, which is to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

In evaluating the Phase 1 SDP in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors determined that the finding did not constitute a design or qualification deficiency. Further, the inspectors determined that there was not a loss of safety function for any complete system, nor a loss of safety function for any one train of a safety system for greater than its Technical Specification allowed outage time. Additionally, the inspectors determined that the finding did not involve any non-Technical Specification trains or systems designated as risk-significant, or involve any seismic, fire, flooding, or severe weather initiating events. As a result, the inspectors determined that the finding was of very low safety significance (Green), within the licensee's response band, and that a Phase 2 SDP was not required.

Enforcement: Table 3.2-1 of the licensee's UFSAR indicates that all components of the DG ventilation systems are subject to the requirements of 10 CFR 50, Appendix B. Criterion V, "Instructions, Procedures, and Drawings," of this appendix states that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to this requirement, the licensee failed to delineate in any written instructions, procedures, or drawings any requirements regarding what actions the NLO could take in the course of investigating the anomalous condition associated with the intermittent trouble alarm at the Unit 1 Main Fire Panel. This lack of formal guidance allowed the NLO to attempt to remove dust from circuit boards by blowing on them, an action which ultimately rendered the '0' DG inoperable and unavailable.

The licensee had entered this issue into their corrective action program as CR 155441. Because the licensee has entered the issue into their corrective action program and the finding is of very low safety significance, the violation of 10 CFR 50, Appendix B, Criterion V is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000373/2003004-04; 05000374/2003004-04)

.4 (Closed) Licensee Event Report 05000374/2003-003-00: Unit 2 Scram Due to Main Power Transformer 'B' Phase Disconnect Switch Failure.

On July 7, 2003, the Unit 2 main power 'B' phase disconnect in the 345 kV switchyard catastrophically failed, resulting in an electrical short to ground. Protective relaying tripped the main electrical generator, and the reactor scrambled on generator load rejection as designed.

The failure in the switchyard occurred at the mechanical connection portion (beaver tail and contact finger) of the 'B' phase disconnect switch, and resulted in the disintegration of a significant portion of the disconnect switch, rigid bus, and standoff insulator. The licensee's root cause evaluation could not determine a root cause for the event. However, based on visual inspections of the failed components and industry operating experience information, the licensee postulated two possible causes for the event.

In the first scenario, high gusty winds, up to 60 mph, preceding the event accelerated an existing misalignment of the switch contacts and resulted in an increased resistance between the beaver tail to jaw fingers connection. This resulted in elevated temperatures that in turn increased the resistance and caused additional heating. The licensee postulated that eventually the temperature rose to the point where the contact parts began to melt and created an air gap between them. Arcing then began and the connection progressed to a thermal runaway condition and catastrophically failed.

The second scenario is one in which the insulator structurally failed. The top half of the insulator, still connected to the disconnect, began to fall. This caused the disconnect switch beaver tail and jaw finger to separate. With an air gap created, arcing began and the jaw fingers and bus connection melted allowing the insulator to fall to the ground. Once this happened the bus bar sagged downward further allowing the bus to arc to ground. The licensee could not determine the cause of this structural failure, but has sent the remnants of the destroyed components off for further analysis.

A potential third scenario did exist based on reports by security personnel on site that the switchyard had been struck by lightning. Although there were severe thunderstorms in the area on the night of the event, the licensee ruled out this scenario based on meteorological data from weather sources that indicated that no lightning strikes were present in the vicinity of the plant at the time of the event. However, based upon their experience and assessment of the component remnants, the initial impressions of licensee line mechanics who conducted the repairs on the damaged switchyard components were that the components had been struck by lightning. Thus, inspectors in reviewing this event have not entirely dismissed a lightning strike as a possibility due to conflicting evidence involved.

The electrical disturbance that caused the reactor scram also tripped the three Unit 2 circulating water pumps. This complicated crew response to the scram in that the main condenser was lost as a heat sink. While attempting to stabilize the plant and recover lost systems, coordination of plant pressure and reactor vessel level by the operating crew was weak, and the reactor protection system (RPS) automatically initiated four additional times on reactor low level (Level 3, +11 inches) due to the shrink and swell effects from the crew's cycling of safety relief valves (SRVs). The additional scrams

resulted in added contamination of the Unit 2 scram discharge volume, to the extent that the licensee was forced to erect a significant amount of lead shielding around the contaminated piping and components and post the vicinity as a high radiation area. Despite the fact that the inspectors determined the weak coordination of plant pressure and reactor vessel level by the operating crew to constitute a licensee performance deficiency, the consequences were determined to be of only minor significance in accordance with NRC IMC 0612, Appendix B, "Issue Screening."

The inspectors reviewed the licensee's investigation reports for the event, which concluded that the event and related issues were of low safety significance. No findings of significance were identified by the inspectors. The licensee had entered this event into their corrective action program under CRs 166562 and 166691. Corrective actions taken and planned by the licensee appeared to be adequate.

#### 40A4 Cross-Cutting Issues

##### .1 Human Performance

Several of the findings described elsewhere in this report had as the majority of their causes various human performance deficiencies.

- A finding described in Section 1R13.1 involved the failure of licensee maintenance personnel to follow the work instructions delineated in their procedure for the overhaul of the Unit 2 station air compressor. In so doing, the maintenance personnel left an O-ring out during the reassembly of the compressor's 4<sup>th</sup> stage, which ultimately rendered this risk-significant component unavailable.
- A finding described in Section 1R13.2 involved multiple failures on the part of licensee personnel to follow established plant procedures during repair efforts for the Unit 2 motor-driven reactor feed pump minimum flow valve.
- A finding described in Section 1R13.3 involved the manipulation of plant devices by a station engineer without authorization and contrary to established plant procedures regarding the operation of plant equipment and components.
- A finding described in Section 40A3.3 involved an operator causing an emergency diesel generator to be rendered inoperable because he attempted to blow some dust off of a circuit board and inadvertently caused a short. The licensee had given tacit approval for this action by not adequately delineating in plant procedures and instructions that this impromptu action was incongruous, and that such activities require appropriate written procedures and instructions to ensure the maintenance of appropriate levels of quality and safety.
- A minor finding in Section 40A3.4 involved the failure of plant operators to properly coordinate the control of reactor vessel and pressure following a Unit 2 scram with loss of normal heat sink.

As can be seen from the above descriptions of each issue, the majority of these human performance deficiencies were procedure compliance/procedure use and adherence related. In each of the findings described in Section 1R13, had the personnel involved followed existing plant procedures and instructions, it is likely that the occurrences never would have taken place. The finding in Section 4OA3.3 is also procedure related, but in this case it is a failure on the part of the licensee to adequately delineate instructions in plant procedures that is at the center of the finding.

#### 4OA6 Meetings

##### .1 Exit Meeting

The inspectors presented the inspection results to Mr. G. Barnes and other members of licensee management on October 7, 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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

G. Barnes, Site Vice President  
S. Landahl, Plant Manager  
T. Connor, Design Engineering Manager  
D. Czufin, Site Engineering Director  
L. Dausin, System Engineering Supervisor  
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

P. Hiland, Acting Deputy Director, Division of Reactor Projects  
B. Burgess, Chief, Reactor Projects Branch 2



## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000373/2003004-01 05000374/2003004-01	FIN	Failure to install O-ring on Unit 2 station air compressor as required by applicable maintenance procedure. (Section 1R13.1)
05000373/2003004-02 05000374/2003004-02	FIN	Repairs performed on plant equipment without written procedures or work control documents. (Section 1R13.2)
05000373/2003004-03 05000374/2003004-03	FIN	Manipulation of plant equipment by a staff engineer without operations authorization or any written instructions. (Section 1R13.3)
05000373/2003004-04 05000374/2003004-04	NCV	Failure to properly delineate what actions can be performed by plant personnel without having appropriate written procedures or instructions results in inoperable and unavailable EDG. (Section 4OA3.3)

### Closed

05000373/2003003-01 05000374/2003003-01	URI	Emergent Repairs to Unit 1 Division 2 125 Vdc Battery Charger and Associated NOED (Section 4OA3.1)
05000373/2003-001-00	LER	Enforcement Discretion Required to Repair Division 2 125 Vdc Battery Charger (Section 4OA3.1)
05000373/2003-003-00	LER	Reactor Core Isolation Cooling High Steam Flow Isolation Differential Pressure Switches Failed Due to Torn Diaphragm (Section 4OA3.2)
05000373/2003-002-00 05000373/2003-002-01	LER	1A and 0 Diesel Generators Inoperable Simultaneously Due to Inadvertent Partial CO <sub>2</sub> Actuation (Section 4OA3.3)
05000374/2003-003-00	LER	Unit 2 Scram Due to Main Power Transformer 'B' Phase Disconnect Switch Failure (Section 4OA3.4)
05000373/2003004-01 05000374/2003004-01	FIN	Failure to install O-ring on Unit 2 station air compressor as required by applicable maintenance procedure. (Section 1R13.1)
05000373/2003004-02 05000374/2003004-02	FIN	Repairs performed on plant equipment without written procedures or work control documents. (Section 1R13.2)
05000373/2003004-03 05000374/2003004-03	FIN	Manipulation of plant equipment by a staff engineer without operations authorization or any written instructions. (Section 1R13.3)

05000373/2003004-04  
05000374/2003004-04

NCV Failure to properly delineate what actions can be performed by plant personnel without having appropriate written procedures or instructions results in inoperable and unavailable EDG. (Section 4OA3.3)

Discussed

None.

## LIST OF DOCUMENTS REVIEWED

### 1R04 Equipment Alignment

#### Drawings and Prints:

- M-101, Sheet 1; RCIC; Revision BB
- M-101, Sheet 2; RCIC; Revision AL
- M-141, High Pressure Core Spray (HPCS)

### 1R05 Fire Protection

#### Updated Final Safety Analysis Report; Revision 13:

- Appendix H; Fire Hazards Analysis

#### Exelon Nuclear Station Procedures:

- OP-AA-201-004; Fire Prevention for Hot Work; Revision 5
- CC-AA-211; Fire Protection Program; Revision 0
- LMP-FP-18; Inspection of Fire Doors (Non-ATR Related); Revision 0
- CC-AA-201; Plant Barrier Control Program; Revision 3

#### Condition Reports:

- 167440; NRC Identified Hose Reel Discrepancy with the Fire Protection Report; 7/14/03
- 171076; U1 Cable Spreading Room Sprinkler Actuation

#### Calculations/Analyses:

- EC-EVAL 339805; Fire Door Acceptance Criteria
- 6744-82; An Analysis of the Effects of Initiation of Fire Suppression Effects Analysis on Safe Shutdown Equipment at LaSalle County Station by Sargent & Lundy

#### Work Request:

- 86649; Compressor Has Excessive Start Frequency Plus it Does not Run

### 1R11 Licensed Operator Requalification Program

#### Training Forms:

- TQ-AA-106-0114; Simulator Demonstration Examination Crew Competency Evaluation Form (Crew 4A); Revision 0
- TQ-AA-106-0113; Simulator Demonstration Examination Individual Competency Evaluation Form (Crew 4A); Revision 0

#### Simulator Scenarios:

- ESG37; Loss of 24/48 VDC, RI Drain Failure, Spurious Downshift of 'A' RR, ATWS, LOCA, Emergency Depressurization, LGA-MS-02; Revision 2
- ESG00C5-11; 100% Power, Loss of WR, Broken SDV, Fuel Element Failure, Emergency Depressurization Per LGA-MS-02; Revision 2

## 1R12 Maintenance Effectiveness

### Condition Reports:

- 168740; NRC Identifies Concerns on 2A MTSV; 7/23/2003
- 167642; Component on L2F List Fails Following Forced Outage; 7/15/2003
- 174915; Unit 2 'A' Master Trip Solenoid Valve Stuck; 9/9/2003

### Operability Evaluation:

- L03-013; Master Trip Solenoid Valves; Revision 1

### Updated Final Safety Analysis Report; Revision 14:

- Section 10.2; Turbine Generator

Maintenance Rule (a)(1) Action Plan for EH-02; 7/23/2003

## 1R13 Maintenance Risk Assessments and Emergent Work Control

OU-LA-104, Attachment 17; Shutdown Safety Approval Form for Unit 2 RED Risk Condition Resulting From 345 kV Bus No. 1 Removal From Service; 7/8/03

NEI/NUMARK 93-01, Section 11; Assessment of Risk Resulting From Performance of Maintenance Activities; 02/22/00

### Procedures:

- OP-AA-103-103; Operation of Plant Equipment; Revision 0
- MA-AA-1000; Conduct of Maintenance Manual; Revision 2
- MA-AA-716-003; Tool Pouch / Minor Maintenance; Revision 0

### Engineering Evaluations:

- 332375; Temporary Air Compressor to Supplement Service Air; 8/24/01
- 343856; Credit for Temporary Air Compressor for Online Risk (10 CFR 50.65(a)(4)) Program; 8/5/03
- 344743; Service Air Compressor Operation with 4<sup>th</sup> Stage Plane Bearing O-Ring Missing; 9/29/03

### Condition Reports:

- 166688; Red Shutdown Safety Level Entered for Emergent Issue; 7/8/2003
- 166693; 2B21-F013C Leaky SRV; 7/8/2003
- 166330; Poor Performance of RMCS; 7/5/2003
- 166236; Unit 1 RMCS Repairs Took Longer Than Expected; 7/3/2003
- 165864; Multiple RMCS Trips; 7/1/2003
- 165745; RMCS Tripped; 7/1/2003
- 165396; Unit 1 RMCS Trip; 6/28/2003
- 165188; RMCS Trip; 6/28/2003
- 164686; Rod 14-51 Caused RMCS to Trip; 6/24/2003
- 164627; RMCS Trip; 6/24/2003
- 164525; Unit 1 RMCS Trip on Rod 10-51; 6/23/2003
- 164306; Unit 1 RMCS Trip During Weekly Control Rod Exercising; 6/21/2003
- 163686; RMCS Trip; 6/17/2003

- 163515; Unit 1 RMCS Trip; 6/17/2003
- 163510; RMCS Trip; 6/17/2003
- 163498; RMCS Trip – LOA-RM-101 Entry; 6/16/2003
- 163480; RMCS Trip – LOA-RM-101 Entry; 6/16/2003
- 163350; RMCS Trip; 6/15/2003
- 163257; RMCS Tripped During Control Rod Cycling per LOS-AA-W1; 6/14/2003
- 167129; 2B33-F345A 'A' Recirc Pump Discharge Flow Control Valve Hydraulic Actuator Extend OT; 7/10/2003
- 157070; A2 Subloop Servo Error Returned to Zero, FCV Opened Slightly; 5/2/2003
- 155876; 15% Servo Error with A2 Reactor Recirc FCV Subloop in Lead; 4/25/2003
- 169190; 2B33-F345A Showed Dual Indication; 7/27/2003
- 171563; 2B33-F345A Inadvertently Closed Twice in July 2003; 8/14/2003
- 168756; Degradation of Existing U2 MDRFP Seal Leak; 7/23/2003
- 168895; Stuck TIP Probes/TIP Probes Would Not Electrically Withdraw; 7/24/2003
- 169113; 3½ Hours of a 4 Hour TS Time Clock Used During TIP Recovery; 7/25/2003
- 167560; Unit 2 Station Air Compressor Declared Unavailable; 7/14/2003
- 170044; Repeat Maintenance – Missing O-Ring on 2SA01C; 8/1/2003
- 169572; Mechanical Maintenance Department Human Performance Reset; 7/30/2003
- 175557; Inadvertent Actuation of the U-1 UAT SPR Cutoff Switch; 9/12/2003
- 175632; Failure to Notify Control Room When Investigating 2FW008; 9/13/2003
- 176438; PMT Identification for Recent Work on U-2 MDRFP Min Flow Valve; 9/16/2003

Work Orders:

- 00592549-01; Inboard Seal Leak: MM Replace the Inboard Seal, Repair Cooler Leak
- 00594827-01; 'A' Reactor Recirc Pump Discharge Flow Control Valve Hydraulic Actuator Extend Outboard Isolation Valve

1R14 Personnel Performance During Non-Routine Plant Evolutions and Events

LAP-200-7, Attachment A; Root Cause Determination for Event for Unit 2 Reactor Scram on 7/7/2003; Revision 8

Condition Reports:

- 166562; Prompt Investigation Report for Catastrophic Failure of Main Power 'B' Phase Disconnect on 7/7/2003; 7/8/2003
- 166691; Multiple Low Level Scrams due to Procedural Deficiency; 7/8/2003
- 167129; 2B33-F345A 'A' Recirc Pump Discharge Flow Control Valve Hydraulic Actuator Extend OT; 7/10/2003
- 157070; A2 Subloop Servo Error Returned to Zero, FCV Opened Slightly; 5/2/2003
- 155876; 15% Servo Error with A2 Reactor Recirc FCV Subloop in Lead; 4/25/2003
- 169190; 2B33-F345A Showed Dual Indication; 7/27/2003
- 169213; 2A Reactor Recirc Flow Control Valve Drifting Closed with HPU Locked Up and Pump Secured; 7/27/2003
- 171563; 2B33-F345A Inadvertently Closed Twice in July 2003; 8/14/2003

Abnormal and Emergency Operating Procedures:

- LGA-001; Reactor Pressure Vessel Control; Revision 4
- LGA-003; Primary Containment Control; Revision 4
- LOA-TRAN-201; Manual Scrams; Revision 6

Drawings and Prints:

- M-139, Sheet 1; Reactor Recirculation System; Revision AE

NRC Memorandum From E. L. Jordan To All Regions; Discussion of "Licensed Power Level" (AITS F14580H2); 8/22/1980

1R15 Operability Evaluations

Condition Reports:

- 166907; Load Pin for Support (Snubber) MS04-2870S Missing/Loose Nuts; 7/10/2003
- 166123; Degraded Fireproofing in the Unit 2 Division 1 125 Vdc Battery Room; 7/3/2003
- 169969; C SRV L2F37 Leakage Due to Broken Nozzle Ring Set Screw; 8/1/2003
- 172046; "D" RHR WS Pump Discharge Check Valve Leakage; 8/18/2003
- 168665; Keep Fill Check Valve Leaks By and Depressurizes System; 7/23/2003
- 153651; Div 2 RHR Service Water Header Low Pressure Alarm Received; 4/12/2003
- 157942; 2B RHR Serv Wtr Hdr Press Lo/Strainer DP Hi Alarms; 5/8/2003
- 170595; Div 2 RHR WS Lo Press Alarm During PMT #565985-02; 8/6/2003
- 175593; Minor Water Hammer Observed During Unit 1 LOS-RI-Q5; 9/12/03

Operability Evaluations:

- OE 03-014; SRV Nozzle Ring Set Screws; Revision 0
- OE 03-011; Unit 2, Division 1, 125 Vdc Battery Room Fireproofing; Revision 0
- OE 03-015; Unit 1 RCIC Pump (1E51-C001) Suction Piping; Revision 0
  
- Generic Letter No. 91-18; Information To Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions; Revision 1

Drawings and Prints:

- M-101; Reactor Core Isolation Coolant System (RCIC); Revision AK

1R16 Operator Workarounds

Procedures:

- OP-AA-102-103; Operator Work-Around Program; Revision 0
- LOP-RH-04; Filling, Venting, and Flushing the RHR Service Water System; Revision 15

Station List of Operator Workarounds and Operator Challenges; September 22, 2003

Operations Department Aggregate Review for 2<sup>nd</sup> Quarter 2003

1R17 Permanent Plant Modifications

Engineering Change Packages:

- 341467; General Electric Detail for EDG Air Dryer Replacement
- 051206; Replace 1B EDG 'B' Starting Air Dryer

## 1R19 Post-Maintenance Testing

### Work Orders:

- 00594967-01; Steady Oil Stream from 4<sup>th</sup> Stage Drain During 2SA01C Run
- 00528579-01; Inspect and or Repair/ MM Disassembly/Insp/Rebuild IN Compressor
- 00528579-02; Inspect and or Repair/ EM 2IN01CA Support MMD with Unloaded Compressor Run
- 00593753-01; Unit 2 'B' Phase of Main Power Transformer Disconnect Apparent Lightning Damage
- 00565985-01; Strainer Spuriously Goes Into Backwash on System Shutdown: PMT Verify 2B RHR WS Strainer Does Spuriously BW on S/D
- 00565985-03; Strainer Spuriously Goes Into Backwash on System Shutdown: EM Connect Recorder To Aid in Troubleshooting/ Make Repairs
- 00592549-01; Inboard Seal Leak: MM Replace the Inboard Seal, Repair Cooler Leak
- 00598371-01; Erratic Indication of Hi and Mid Range Indication: Erratic Indication of Hi and Mid Range Indication
- 00598371-02; Erratic Indication of Hi and Mid Range Indication: IM Erratic Indication of Hi and Mid Range Indication
- 00598371-06; Erratic Indication of Hi and Mid Range Indication: PMT-IM-Erratic Indication of Hi and Mid Range Indication
- 00611864-02; Revise Grounding for SGBT WRGM: EM Revise Grounding for SGBT WRGM

### Exelon Maintenance Activity Procedure:

- MA-AA-716-10 Attachment 2; Complex Troubleshooting; Revision 2

### Condition Reports:

- 173367; Motor Driven Feed Pump Seal As Found Conditions; 8/20/2003
- 170595; Div 2 RHR WS Lo Press Alarm during PMT #565985-02; 8/6/2003
- 157942; 2B RHR Serv Wtr Hdr Press Lo/ Strainer DP Hi Alarms; 5/8/2003
- 168665; Keep Fill Check Valve Leaks By and Depressurizes the System; 7/23/2003
- 168756; Degradation of Existing U2 MDRFP Seal Leak; 7/23/2003
- 153651; Div 2 RHR Service Water Header Low Pressure Alarm Received; 4/12/2003
- 172046; 'D' RHR WS Pump Discharge Check Valve Leakage; 8/18/2003
- 175437; IMD Documentation Deficiency on LIS-PR-055; 9/11/2003
- 174138; The VG WRGM Sample Conditioning Skid Not Wired Per Design; 9/9/2003
- 173700; Scheduling of VG WRGM Repairs/ TRM Requirements; 9/3/2003
- 172600; Standby Gas Treatment System Wide Range Monitor; 8/28/2003
- 172452; Primary Seal Ring Found Damaged During Parts Inspection; 8/22/03
- 172083; MDRFP Seal Leak Degradation; 8/22/2003

### LaSalle Mechanical Maintenance Procedures:

- LMP-IN-02; Instrument Nitrogen System Compressor Disassembly/Reassembly; Revision 10
- LMP-SA-01; Disassembly and Assembly of Service Air Compressor; Revision 7
- LMP-FW-01; Motor Driven Reactor Feed Pump Mechanical Seal Replacement; Revision 10

Drawings and Prints:

- M-66-3; Drywell Pneumatic System; Revision AE
- M-66-6; Drywell Pneumatic System; Revision N

Vendor Manuals:

- Centac Field Service Manual Section III; Diffuser Cover O-Ring Interference Determination on C-21, C-25, C-30, and C-40; 12/10/73

NF-MW:03-0263; Exelon Nuclear Fuels Group Memorandum to David Czufin - LaSalle Unit 2 Testing of Main Steam SRV at 1005.3 psig; 7/10/2003

Operating Surveillance Procedures:

- LOS-DG-Q1, Attachment 4; '0' EDG 'B' Air Compressor Discharge Check Valve Test; Revision 37

Instrumentation Surveillance Procedures:

- LIS-PR-055; Standby Gas Treatment System Wide Range Gas Monitor Functional Test; Revision 18

1R20 Outage Activities

LaSalle Operating/General Operating Procedures:

- LGP-1-1; Normal Unit Startup; Revision 69
- LGP-1-S1; Master Startup Checklist; Revision 53
- LOP-TG-01; Turbine Trip Resetting, Shell Warming, and Chest Warming; Revision 22
- LOP-TG-02; Turbine Generator Startup; Revision 45

NF-AB-233; Critical Prediction Checklist; Revision 1

HU-AA-1211; HLA/IPA Briefing Worksheet for Unit 2 Startup; Revision 1

1R22 Surveillance Testing

Operating Surveillance Procedures:

- LOS-DG-M1; '0' EDG Operability Test; Revision 47
- LOS-RH-Q1, Attachment 1D; RHR (LPCI) and RHR Service Water Pump and Valve Inservice Test for Modes 1, 2, 3, 4, and 5; Revision 53
- LOS-DG-M3; 1B(2B) Diesel Generator Operability Test; Revision 53

Instrumentation Surveillance Procedures:

- LIS-RI-101; Unit 1 RCIC Steam Line High Flow Isolation Calibration; Revision 16
- LIS-FW-301; Unit 1 Reactor Vessel High Water Level 8 Main Turbine/Feedwater Pump Trip Functional Test; Revision 12
- LIS-MS-102; Unit 1 Main Steam Line High Flow MSIV Isolation Calibration; Revision 15
- LIS-FW-301; Unit 1 Reactor Vessel High Water Level 8 Main Turbine/Feedwater Pump Trip Functional Test; Revision 12
- LIS-MS-102; Unit 1 Main Steam Line High Flow MSIV Isolation Calibration; Revision 15



Drawings and Prints:

- 1E-1-4208AA, AN, AT, AZ, BC; Feedwater Control System "FW"
- 1E-1-4232AA-AJ; Primary Containment & Reactor Vessel Isolation System "PC" (B21H)
- 1E-1-4642AA; Int./Ext. Wiring Diagram Main Steam Flow Local Pnl. A 1H22-P015

Condition Reports:

- 172302; 1B EDG Governor Oil Level Slightly High; 8/20/2003

Work Order:

- 597199-01; LOS-DG-M3 1B DG Idle Start Att 1B-Idle

1R23 Temporary Plant Modifications

Work Orders:

- 00592438, Task 08; Perform Single Cell Charge on 2DC14E Cell No. 9
- 00592438, Task 04; EM Install Temporary Charger per LEP-DC-113
- 00592438, Task 05; EM Replace Cell No. 9

1EP6 Drill Evaluation

Procedures:

- EP-AA-111; Emergency Classification and Protective Action Recommendations; Revision 6

Licensed Operator Scenario Guide:

- 03C4-04; Loss of Ultimate Heat Sink GSEP Tabletop; Revision 0

4OA1 Performance Indicator Verification

Procedures:

- LS-AA-2040; Monthly PI Data Elements for Safety System Unavailability – Emergency AC Power; Revision 3
- LS-AA-2050; Monthly PI Data Elements for Safety System Unavailability – High Pressure Injection; Revision 3
- LS-AA-2070; Monthly PI Data Elements for Safety System Unavailability – Residual Heat Removal; Revision 3
- LS-AA-2060; Monthly PI Data Elements for Safety System Unavailability – Reactor Core Isolation Cooling; Revision 3
- LS-AA-2160; Performance Indicator – Protection Area Security Equipment
- LS-AA-2170; Performance Indicator – Personnel Screening Program
- LS-AA-2180; Performance Indicator – Fitness-for-Duty Personnel Reliability Program
- LS-AA-2100; Units 1 & 2 Monthly Performance Indicator (PI) Data Elements for Reactor Coolant System (RCS) Leakage; Revision 3
- LOS-AA-S101; Technical Specification Shiftly Surveillance, Attachment A; Unit 1 for dates 4/16-17/03 and 5/2-18/03
- LOS-AA-S1(2)01; Technical Specification Shiftly Surveillance; Revision 16

Security Event Reports  
- July 2002 through June 2003

Operations Logs:  
- July 2002 though June 2003

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

Unit 1 & 2, Cycle 8, Dry Well Drain Flow Data Spread Sheet; 4/2/03 through 6/30/03

Technical Specifications:  
- 3.4.3.2; Reactor Coolant System Operational Leakage

#### 4OA3 Event Follow-up

Licensee Event Report 03-002-00; 1A and 0 Diesel Generators Inoperable Simultaneously Due to Inadvertent Partial CO<sub>2</sub> Actuation

Condition Reports:

- 155441; '0' Diesel Generator Partial CO<sub>2</sub> Actuation; 4/24/2003
- 155426; '0' DG Room Exhaust Damper is Stuck Open; 4/23/2003
- 171187; Discrepancy Between Info in LER Description and Abstract (NRC ID); 8/12/2003
- 171232; Inaccurate Unavailability Data in April 2003 NEI Monthly PI; 8/12/2003

## LIST OF ACRONYMS USED

AC	Alternating Current
AEER	Auxiliary Electric Equipment Room
CR	Condition Report
CY	Calendar Year
DC	Direct Current
DG	Diesel Generator
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
FCV	Flow Control Valve
FLS	First Line Supervisor
FS	Field Supervisor
HPCI	High Pressure Core Injection
HPCS	High Pressure Core Spray
IMC	Inspection Manual Chapter
IR	Inspection Report
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
LPCS	Low Pressure Coolant Spray
MDRFD	Motor Driven Reactor Feed Pump
MPT	Main Power Transformer
MSSRV	Main Steam Safety Relief Valve
MTSV	Master Trip Solenoid Valve
NCR	Non-Conformance Report
NCV	Non-Cited Violation
NLO	Non-Licensed Operator
NOED	Notice of Enforcement Discretion
NRC	U.S. Nuclear Regulatory Commission
NSO	Nuclear Station Operator
OC	Operator Challenges
OSC	Operations Support Center
OWA	Operator Workaround
PARS	Publicly Available Records
PI	Performance Indicator
PMT	Post-Maintenance Testing
PRA	Probabilistic Risk Assessment
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RPS	Reactor Protection System
SAC	Station Air Compressor
SBGT	Standby Gas Treatment
SDP	Significance Determination Process
SPR	Sudden Pressure Relay
SRV	Safety Relief Valve
SW	Service Water
TDRFD	Turbine Driven Reactor Feed Pump
TIP	Traversing Incore Probe

TS	Technical Specification
TSC	Technical Support Center
UAT	Unit Auxiliary Transformer
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
Vdc	Volts Direct Current
WR	Work Request