July 26, 2004

Mr. Christopher M. Crane
President and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2
NRC INTEGRATED INSPECTION REPORT 05000373/2004003;
05000374/2004003

Dear Mr. Crane:

On June 30, 2004, 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 results of this inspection, which were discussed on July 13, 2004, with the Site Vice President, 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. Specifically, this inspection focused on reactor safety and radiation protection.

Based on the results of this inspection, there were two self-revealed findings of very low safety significance, of which one involved a violation of NRC requirements. However, because the violation was non-willful and non-repetitive and because the issue was entered into your corrective action program, the NRC is treating the issue as a Non-Cited Violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of the Non-Cited Violation 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspectors' Office at the LaSalle County 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 05000373/2004003; 05000374/2004003
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - LaSalle County Station
LaSalle County Station Plant Manager
Regulatory Assurance Manager - LaSalle County Station
Chief Operating Officer
Senior Vice President - Nuclear Services
Senior Vice President - Mid-West Regional Operating Group
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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:	05000373/2004003; 05000374/2004003
Licensee:	Exelon Generation Company, LLC
Facility:	LaSalle County Station, Units 1 and 2
Location:	2601 N. 21st Road Marseilles, IL 61341
Dates:	April 1 through June 30, 2004
Inspectors:	D. Kimble, Senior Resident Inspector D. Eskins, Resident Inspector M. Mitchell, Radiation Protection Specialist C. Phillips, Senior Operations Engineer J. Yesinowski, Illinois Dept. of Emergency Management
Observers:	M. Franke, Inspector-in-Training
Approved by:	B. Burgess, Chief Branch 2 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000373/2004003, 05000374/2004003; 04/01/2004 - 06/30/2004; LaSalle County Station, Units 1 & 2; Maintenance Risk Assessments and Emergent Work Control, and Access Control to Radiologically Significant Areas.

This report covers a 3-month period of baseline resident inspection and an announced baseline inspection in radiation protection. The inspection was conducted by resident inspectors and Region III inspectors. Two Green findings and one associated Non-Cited Violation were 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-Revealing Findings

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance was self-revealed when plant electricians performing troubleshooting on the Unit 1 Division 1 125 Vdc battery charger induced an external ground onto the system. The electricians had selected an unfiltered AC oscilloscope for use in the troubleshooting, which was not a compatible instrument with the DC system. The fundamental cause of this finding was related to the cross-cutting area of Human Performance. An investigation by the licensee determined that the apparent cause of the event was the use of an AC-powered oscilloscope on DC-powered equipment without appropriate filtering capabilities, as well as personnel not fully understanding the limitations for the instrument’s use.

  The inspectors determined that the finding was more than minor in that it increased the probability of failure of a safety-related system, Division 1 125 Vdc power. The finding was assessed to be of very low safety significance because it did not represent a design or qualification deficiency, did not represent any actual loss of safety function for any system, and did not screen as risk significant due to seismic, fire, flooding, or other severe weather related events. No violations of regulatory requirements were identified. (Section 1R13)

Cornerstone: Occupational Radiation Safety

- Green. A finding of very low safety significance was self-revealed when a craft person, setting up scaffold in a radiation area, created access to a yet unposted and unmonitored high radiation area (HRA) in the Unit 2 turbine building, and then entered the HRA by climbing the scaffold. This occurrence was detected when the individual’s electronic dosimeter (ED) alarmed above the dose rate setting of 80 millirem per hour. The workers immediately acknowledged the alarm, secured the work area, exited the radiologically controlled area (RCA), and notified the radiation protection (RP) department. The RP department confirmed that a HRA existed above the platform of the scaffolding. The individuals were administratively locked out of the RCA and the licensee initiated a prompt investigation. Additionally, all site personnel were notified of this event through a station safety alert. The licensee entered the issue into their corrective action system as condition report (CR) 218052. The fundamental cause of this finding was related to the cross-cutting area of Human Performance.

The cause of this event was incomplete procedural adherence. The finding was more than minor as it could be reasonably viewed as a precursor to a more significant event. The finding was of very low safety significance because the personnel were using EDs that alarm to warn personnel of higher than expected dose rates or accumulated dose. The issue was a Non-Cited Violation of Technical Specifications 5.7.1(a) and (b), which require that: (a) each entry way to a HRA shall be barricaded and conspicuously posted as a HRA; and (b) that access to, and activities in each area shall be controlled by means of a radiation work permit that includes specification of radiation dose rates in the immediate work area and other appropriate radiation protection equipment and measures. (Section 2OS1.1)

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 June 2, 2004, power was reduced briefly to about 85 percent at the request of the utility's load dispatcher due to decreased system demand. Full power operation was resumed later that same day. On June 19, 2004, power was reduced to approximately 59 percent to facilitate a control rod pattern adjustment and various minor maintenance activities on the unit's feedwater system. Full power operation resumed on June 23, 2004, and the unit remained operating at or near full power for the remainder of the inspection period.

Unit 2

The unit began the inspection period operating at full power. On May 29, 2004, power was reduced to approximately 50 percent to support a control rod pattern adjustment and several minor maintenance activities (Section 1R14.1). The unit returned to full power operation on May 30, 2004. During routine 345 kV switchyard operations on June 4, 2004, a disconnect arm failed in an intermediate position. On June 5, 2004, reactor power was reduced to approximately 15 percent to permit the main generator to be removed from service in support of the disconnect repairs in the switchyard (Section 1R14.2). Repairs were completed and the main generator synchronized to the grid on June 6, 2004. The unit returned to full power operation on June 8, 2004, and remained operating at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

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

1R01 Adverse Weather (71111.01)

.1 Summer/Hot Weather Preparations

a. Inspection Scope

The inspectors performed a walkdown of the licensee's preparations for summer weather for selected systems, including conditions that could lead to loss of off-site power and conditions that could result from high temperatures. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. The inspectors' reviews focused specifically on the following plant systems:

- Ultimate heat sink
- Core standby cooling system (CSCS)

This review constituted a single inspection sample.

b. Findings

No findings of significance were identified.

.2 Review of Site Specific Weather Condition – High Winds/Severe Thunderstorm

a. Inspection Scope

The inspectors performed a walkdown of the licensee's preparations for adverse weather, including conditions that could lead to loss of off-site power and other conditions that could result from high winds or tornado-generated missiles. The licensee's procedures and preparations for an impending severe thunderstorm were reviewed by the inspectors and were verified to be adequate. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to the specific adverse weather condition that was approaching. Additionally, the inspectors reviewed the UFSAR and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures.

This review constituted a single inspection sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial Equipment Alignment Verification

a. Inspection Scope

The inspectors performed partial walkdowns and alignment verifications 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 2 low pressure core spray (LPCS) and 2A residual heat removal (RHR) system
- Unit 2 reactor core isolation cooling (RCIC) system
- Unit 1 automatic depressurization system (ADS) and instrument nitrogen (IN) systems
- Unit 1 reactor recirculation flow control valve hydraulics

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

These partial system walkdowns constituted four inspection samples.

b. Findings

No findings of significance were identified.

.2 Semiannual Complete System Alignment Verification

Due to the system's risk significance, the inspectors selected the Unit 1 and Unit 2 control rod drive (CRD) systems for a complete walkdown and alignment verification. The inspectors walked down the system to verify mechanical and electrical equipment lineups, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation.

The full system walkdown constituted a single inspection sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors walked down several 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. The following areas were inspected:

- Fire zone 8B1; Unit 2 Division 3 diesel generator room - elevation 710'6"
- Fire zone 8B2; Unit 2 Division 2 diesel generator room - elevation 710'6"
- Fire zone 8B3; Unit 2 Division 3 diesel day tank room - elevation 710'6"
- Fire zone 8B4; Unit 2 Division 2 diesel day tank room - elevation 710'6"
- Fire zone 8C1; Unit 2 Division 3 diesel oil storage tank room - elevation 674'0"
- Fire zone 8C2; Unit 2 Division 2 diesel oil storage tank room - elevation 674'0"
- Fire zone 8C3; Unit 2 Division 3 core standby cooling system (CSCS) pump room - elevation 674'0"
- Fire zone 8C4; Unit 2 Division 2 CSCS pump room - elevation 674'0"
- Fire zone 8C5; Unit 2 Division 1 CSCS pump room - elevation 674'0"

The inspectors reviewed the control of transient combustibles and ignition sources, fire detection equipment, manual suppression capabilities, passive suppression capabilities, automatic suppression capabilities, barriers to fire propagation, and any compensatory measures the licensee had enacted due to degraded fire protection features.

Review of these fire zones constituted nine inspection samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

.1 Annual External Flooding Review

a. Inspection Scope

The inspectors reviewed the licensee's flooding mitigation plans and equipment to determine consistency with design requirements and the risk analysis assumptions related to seasonal external flooding. As discussed in NRC Inspection Report 05000373/2003003; 05000374/2003003, 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. As a result, the inspectors focused on changes made to the facility over the past year that might affect the site's "dry" classification. Walkdowns and reviews performed considered design measures, seals, drain systems, contingency equipment condition and availability of temporary equipment and barriers, performance and surveillance tests, procedural adequacy, and compensatory measures.

This annual external flooding review constituted a single inspection sample.

b. Findings

No findings of significance were identified.

.2 Semiannual Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the licensee's flooding mitigation plans and equipment to determine consistency with design requirements and the risk analysis assumptions related to internal flooding. The following specific plant areas particularly susceptible to internal flooding were inspected:

- Unit 1 CSCS rooms
- Unit 2 CSCS rooms

Walkdowns and reviews performed considered design measures, seals, drain systems, contingency equipment condition and availability of temporary equipment and barriers, performance and surveillance tests, procedural adequacy, and compensatory measures.

This semiannual internal flooding review constituted a single inspection sample.

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 an evaluated simulator scenario and reviewed licensed operator performance in mitigating the consequences of events. The scenario included multiple failures of various emergency core cooling systems. The resulting plant transient yielded a scram with a loss of coolant accident. Areas observed by the inspectors included: clarity and formality of communications, timeliness of actions, prioritization of activities, procedural adequacy and implementation, control board manipulations, managerial oversight, and group dynamics.

This quarterly training observation constituted a single inspection sample.

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:

- Off site AC power
- On site emergency AC power
- Unit 1 and Unit 2 motor-driven reactor feed pumps (MDRFP)

The inspectors' review included verification of the licensee's categorization of specific issues. These involved 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.

These quarterly Maintenance Rule effectiveness reviews constituted three inspection samples.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed and observed emergent work, preventive maintenance, or planning for risk significant maintenance activities. The inspectors observed maintenance or planning for the following activities or risk significant systems undergoing scheduled or emergent maintenance.

- Unit 1 and Unit 2 high pressure core spray (HPCS) systems cooling water valve replacement and infrequent maintenance activities
- 0 emergency diesel generator (EDG) maintenance window
- Unit 1 Division 1 125 Vdc battery charger current imbalance troubleshooting
- Unit 1 turbine electro-hydraulic control (EHC) -22 Vdc power supply troubleshooting
- Unit 1 and Unit 2 EDG CO2 fire suppression system repairs
- Unit 1 instrument nitrogen bottle bank pressure regulator replacement
- Unit 2 forced outage L2F39

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.

These reviews constituted seven inspection samples.

b. Findings

Introduction

A finding of very low safety significance (Green) was self-revealed when plant electricians performing troubleshooting on the Unit 1 Division 1 125 Vdc battery charger induced an external ground onto the system. The electricians had selected an unfiltered AC oscilloscope for use in the troubleshooting, which was not a compatible instrument with the DC system. Although the inspectors determined that the event had increased the probability of failure of a safety-related system, Division 1 125 Vdc power, the finding was not considered a violation of regulatory requirements.

Description

On April 27, 2004, electrical maintenance personnel were assigned to perform troubleshooting on the Unit 1 Division 1 125 Vdc battery charger, 1DC009E. The work package instructions called for the electricians to use an oscilloscope to perform troubleshooting activities. The electricians obtained a DC-powered oscilloscope from the station tool room to perform the checks, but when the DC-powered oscilloscope was taken into the plant and connected to the specific test points to be tested, the oscilloscope did not respond as expected.

The electricians disconnected the oscilloscope and returned to the shop to check the instrument's operation. When the DC-powered oscilloscope did not respond properly on the shop bench, the electricians decided to obtain another oscilloscope from the measuring and test equipment (M&TE) room to complete the troubleshooting work on the 125 Vdc battery charger.

At the measuring and test equipment room, the electricians found only one available AC-powered oscilloscope. As the AC-powered instrument's first test lead was being applied to the test point on the battery charger, a small arc was observed. The electricians immediately removed the test lead, but the induced ground from the unfiltered AC-powered oscilloscope caused numerous Division 1 alarm annunciators to be activated in the Unit 1 main control room.

Work was stopped and appropriate notifications made. An investigation by the licensee determined that the apparent cause of the event was the use of an AC-powered oscilloscope on DC-powered equipment without appropriate filtering capabilities, as well as personnel not fully understanding the limitations for the instrument's use.

Analysis

The inspectors determined that the electricians' use of an improper test instrument on the Unit 1 Division 1 125 Vdc battery charger constituted a licensee performance deficiency that warranted a significance evaluation. Using NRC Inspection Manual Chapter (IMC) 0612, Appendix B, "Issue Screening," the inspectors also determined that the issue was of more than minor significance in that it had an adverse impact on the Mitigating Systems Reactor Safety Cornerstone objective "to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage)." Specifically, the ability to select and use the proper oscilloscope was within the electricians' skill-of-the-craft knowledge, and their use of the wrong oscilloscope unnecessarily jeopardized the availability, reliability, and capability of the Unit 1 Division 1 125 Vdc system by introducing a momentary ground onto that system. Because the inspectors assessed the main cause for the finding to involve the cross-cutting aspect of human performance, the finding is also discussed in Section 4OA4, "Cross-Cutting Aspects of Findings," in this report.

Using IMC 0609, Attachment A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors assessed the significance of the finding using the Phase 1 SDP. During the Phase 1 SDP, the inspectors determined that the finding did not represent a design or qualification deficiency, did not represent any actual loss of safety function for any system, and did not screen as risk significant due to seismic, fire, flooding, or other severe weather related events. As a result, the finding was determined to be of very low safety significance (Green), and within the licensee's response band. (FIN 05000373/2004003-01)

Enforcement

In reviewing the finding, the inspectors determined that the licensee's procedures and instructions for the Unit 1 Division 1 125 Vdc battery charger troubleshooting were adequate for the task, and that the performance deficiency involved was a human performance/skill-of-the-craft error on the part of the electricians assigned to the work. Specifically, basic electrical instrument M&TE selection and use, such as the selection of a DC-powered oscilloscope for use on DC equipment, was within the expected skills, knowledge, and training for the electricians involved. As a result, the inspectors determined that the finding did not represent any violation of regulatory requirements. The licensee had entered the issue into their corrective action program as CR 217217.

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

.1 Unit 2 Load Reduction and Rod Pattern Exchange – May 29-30, 2004

a. Inspection Scope

The inspectors monitored the execution of the licensee's deep power reduction and control rod sequence exchange over the weekend of May 29-30, 2004. The inspectors reviewed operator and reactor engineering performance during periods of power maneuvering, and verified that personnel actions were in accordance with approved plant procedures. Additionally, the inspectors reviewed the changes to the station's on-line risk profile that resulted from the event.

The inspectors' review of this evolution constituted a single inspection sample.

b. Findings

No findings of significance were identified.

.2 Unit 2 Emergent Main Generator Outage to Perform 345 kV Disconnect Repairs

a. Inspection Scope

The inspectors monitored the licensee's response to a failure of a disconnect arm on the generator-side of the 2-3 main generator 345 kV output breaker. During a routine switching operation to facilitate 345 kV switchyard maintenance on June 4, 2004, the 'B' phase arm for the specified disconnect became stuck in an approximately 40 degree semi-open position. Subsequent repairs to the disconnect over the weekend of June 5-6, 2004, required that reactor power be reduced and that the Unit 2 main generator be removed from service (L2F39).

The inspectors verified that initial operator responses, as well as subsequent recovery actions, were in accordance with approved plant procedures. Additionally, the inspectors reviewed the licensee's changes to the station's on-line risk profile that resulted from the evolution.

The inspectors' review of this event constituted a single inspection sample.

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.

- 2E22-F004 (HPCS injection valve) breaker trip settings
- Unit 1 and Unit 2 reactor vessel pressure/temperature curve adjustments
- Unit 2 turbine control valve No. 4 recirculation pump trip on fast closure capability
- Unit 1 and Unit 2 standby gas treatment train flow controller signal converter power supply

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

These reviews constituted four inspection samples.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

Semiannual Review of Operator Workaround Cumulative Effects

a. Inspection Scope

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

This review constituted a single inspection sample.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (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.

- Unit 1 high pressure core spray cooling water system after replacement of 1E22-F325
- Unit 2 high pressure core spray system after maintenance activities and cooling water valve replacement
- 0 EDG test runs following completion of diesel maintenance window
- 'B' diesel fire pump following spring and 6 month maintenance
- 1A control rod drive water pump following gearbox repair
- Unit 2 low pressure core spray system water leg pump replacement

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, Technical Specification 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, Technical Specifications, and UFSAR design requirements.

These post-maintenance testing reviews constituted six inspection samples.

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.

- 'B' diesel fire pump operational check
- Unit 1 and Unit 2 secondary containment isolation damper operability testing
- Unit 1 high pressure core spray pump quarterly test
- Unit 1 and Unit 2 control rod cycling

- Unit 2 ‘A’ residual heat removal pump quarterly test
- Unit 1 reactor core isolation cooling pump quarterly cold quick start

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.

Observation of these surveillance tests constituted six inspection samples.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors reviewed a simulator-based training evolution to evaluate drill conduct and the adequacy of the licensee’s critique of performance to identify weaknesses and deficiencies. The inspectors selected simulator scenarios that the licensee had scheduled as providing input to the Drill/Exercise Performance Indicator. The inspectors observed, when applicable, 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 simulator scenario observed resulted in an unusual event and alert classifications.

Observation of this drill constituted one inspection sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Radiation Worker Performance

a. Inspection Scope

The inspectors reviewed one radiological problem report which found that the cause of the event was due to radiation worker errors in determining if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

This review represented one inspection sample.

b. Findings

Introduction

A Green self-revealed finding and associated Non-Cited Violation (NCV) were identified when one of three mechanics who were logged onto a general all-building scaffold activities radiation work permit (RWP) entered a yet unsurveyed and unposted high radiation area (HRA), contrary to the licensee's Technical Specifications. The finding was self-revealed when the mechanic's electronic dosimeter (ED) alarmed as he entered an 88 mrem/hour dose field on the deck of the scaffold platform during its construction.

Description

On April 30, 2004, three mechanics were assigned to start building scaffolding per work order task 633272-05, "Erect Scaffolding for 2CP40MD Filter Replacement." The workers received a pre-job brief from their supervisor, including work to be performed, authorized department dose estimate for the job, and RWP for the work. The work direction was to build the base section of the scaffold in preparation for completing the remainder on May 3, 2004, when the filter replacement was scheduled to begin.

The workers proceeded to the radiation protection (RP) desk to sign on to RWP 10004310. The RWP was not ready because the RP technician (RPT) was currently performing a specific survey for the condensate polisher (CP) filter area to prepare the RWP. The workers were instructed to use the all-building scaffold RWP 10003945, and to contact the RPT prior to start of the work for working dose rates. This RWP contained proper controls for the assigned activity that was not in a HRA. The workers entered the radiologically controlled area (RCA) and proceeded to the work area at approximately 10:00 a.m., and left the RCA at between 11:00 and 11:30 a.m. when they had determined that they received close to the department dose goal for the job (12 millirem).

After lunch, the mechanical maintenance department (MMD) supervisor authorized an increase in the job dose goal to 20 millirem and the workers returned to the scaffold building work. When they returned to the job site, the workers began placing the scaffold planks on the upper cross members while standing on the floor. The workers attached a ladder to the scaffold and one worker climbed the ladder to secure the planking and install a handrail. While on the planking platform and securing the ladder, one of the workers received a dose rate alarm at 88 millirem per hour. The workers immediately acknowledged the alarm, secured the work area, and notified the RP department. Following this, they exited the RCA and reported to the RP department for debrief. An RPT surveyed the area and confirmed that a HRA existed above the platform of the scaffolding.

The individual received a total dose of 6 millirem, and the maximum dose rate measured by the ED was 88 millirem/hour. However, the individual did not receive any additional unplanned dose as a result of the event.

The failure to assure that each entry way to a high radiation area is barricaded and conspicuously posted as a high radiation area and that access to, and activities in each area, are controlled by means of an RWP that includes specification of radiation dose rates in the immediate work area and other appropriate radiation protection measures is contrary to Technical Specification 5.7.1(a) requiring an entry control, and 5.7.1(b) requiring that an appropriate RWP be utilized by workers.

The licensee's initial prompt investigation determined the cause to be a failure of human performance error prevention techniques and failure to follow direction of RPTs. Specifically, the technicians misunderstood the RWP requirements, lacked a questioning attitude, lacked self-checking, and lacked peer-checking in making the decision to enter the platform, an area of the scaffolding above 7 feet, without a radiation survey. The individuals were administratively locked out of the RCA following the incident. Additionally, all site personnel were notified of this event through a station safety alert.

Analysis

The performance deficiency associated with this event was failure to follow the RWP. The finding, which is under the Occupational Radiation Safety Cornerstone, does not involve the application of traditional enforcement because it did not result in actual safety consequences or potential to impact the NRC's regulatory function, and was not the result of any willful actions. The finding was more than minor as it could be reasonably viewed as a precursor to a more significant event. Because the inspectors assessed the main cause for the finding to involve the cross-cutting aspect of human performance, the finding is also discussed in Section 4OA4, "Cross-Cutting Aspects of Findings," in this report.

Enforcement

Technical Specifications 5.7.1.a. and b. require for high radiation areas with dose rates not exceeding 1.0 rem per hour at 30 centimeters from the radiation source, that: (a) each entry way to such an area shall be barricaded and conspicuously posted as a

HRA; and (b) that access to, and activities in each area be controlled by means of a RWP that includes specification of radiation dose rates in the immediate work area and other appropriate radiation protection equipment and measures.

Contrary to the above, on April 30, 2004, a mechanical maintenance mechanic received a dose rate alarm while building a scaffold on the 710 foot elevation of the Unit 2 turbine building. The worker entered an elevated dose rate area above the floor, an area that was not normally surveyed, and this action was contrary to the limits of the RWP.

Because entry into the RCA was properly conducted under an all-building scaffold activities RWP, the entry into the HRA was monitored by EDs. Therefore, the event is of very low safety significance and the finding is within the licensee's response band. The licensee had entered the issue into their corrective action system as condition report 218052. The associated violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000374/2004003-02)

2PS3 Radiological Environmental Monitoring Program (REMP) And Radioactive Material Control Program (71122.03)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the most current Annual Environmental Monitoring Report and licensee assessment results to verify that the REMP was implemented as required by Technical Specifications and the Off-Site Dose Calculation Manual (ODCM). The inspectors reviewed the report for changes to the ODCM with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, interlaboratory comparison program, and analysis of data. The inspectors reviewed the ODCM to identify environmental monitoring stations and reviewed licensee self-assessments, audits, licensee event reports, and interlaboratory comparison program results. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) for information regarding the environmental monitoring program and meteorological monitoring instrumentation. The inspectors reviewed the scope of the licensee's audit program to verify that it met the requirements of 10 CFR 20.1101(c).

This review represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked down 30 percent of the air sampling stations and approximately 10 percent of the thermoluminescence dosimeter (TLD) monitoring stations to determine whether they were located as described in the ODCM and to determine the equipment material condition.

The inspectors observed the collection and preparation of a variety of environmental samples (e.g., ground and surface water, milk, vegetation, sediment, and soil) and verified that environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were in accordance with procedures.

The inspectors verified that the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the UFSAR, NRC Safety Guide 23, and licensee procedures. The inspectors verified that the meteorological data readout and recording instruments in the control room and at the tower were operable. The inspectors compared readout data (e.g., wind speed, wind direction, and differential temperature) in the control room and at the meteorological tower to identify if there were any line loss differences.

The inspectors reviewed each event documented in the Annual Environmental Monitoring Report which involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement for the cause and corrective actions and conducted a review of the licensee's assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection, etc.). The inspectors reviewed the associated radioactive effluent release data that was the likely source of the released material.

The inspectors reviewed significant changes made by the licensee to the ODCM as the result of changes to the land census or sampler station modifications since the last inspection. The inspectors reviewed technical justifications for changed sampling locations. The inspectors verified that the licensee performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

The inspectors reviewed the calibration and maintenance records for five air samplers and composite water samplers. The inspectors reviewed calibration records for the environmental sample radiation measurement instrumentation (i.e., count room). The inspectors verified that the appropriate detection sensitivities with respect to Technical Specifications/ODCM were utilized for counting samples (i.e., the samples meet the Technical Specifications/ODCM required lower limits of detection). The inspectors reviewed quality control charts for maintaining radiation measurement instrument status and actions taken for degrading detector performance.

The inspectors reviewed the results of the REMP sample vendor's quality control program, including the interlaboratory comparison program to verify the adequacy of the vendor's program and the corrective actions for any identified deficiencies. The inspectors reviewed audits and technical evaluations the licensee performed on the vendor's program. The inspectors reviewed QA audit results of the program to determine whether the licensee met the Technical Specifications/ODCM requirements.

These reviews represented six inspection samples.

b. Findings

No findings of significance were identified.

.3 Unrestricted Release of Material From the Radiologically Controlled Area (RCA)

a. Inspection Scope

The inspectors observed the locations where the licensee monitored potentially contaminated material leaving the RCA, and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use to verify that the work was performed in accordance with plant procedures.

The inspectors verified that the radiation monitoring instrumentation was appropriate for the radiation types present and was calibrated with appropriate radiation sources. The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material and verified that there was guidance on how to respond to an alarm which indicates the presence of licensed radioactive material. The inspectors reviewed the licensee's equipment to ensure the radiation detection sensitivities were consistent with the NRC guidance contained in Inspection and Enforcement (IE) Circular 81-07 and IE Information Notice 85-92 for surface contamination and HPPOS-221 for volumetrically contaminated material. The inspectors verified that the licensee performed radiation surveys to detect radionuclides that decay via electron capture. The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters (i.e., counting times and background radiation levels). The inspectors verified that the licensee had not established a "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, Licensee Event Reports, and Special Reports related to the radiological environmental monitoring program since the last inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also verified that the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors also reviewed corrective action reports from the radioactive effluent treatment and monitoring program since the previous inspection, interviewed staff and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

- Initial problem identification, characterization, and tracking
- Disposition of operability/reportability issues
- Evaluation of safety significance/risk and priority for resolution
- Identification of repetitive problems
- Identification of contributing causes
- Identification and implementation of effective corrective actions
- Resolution of Non-Cited Violations (NCVs) tracked in the corrective action system
- Implementation/consideration of risk significant operational experience feedback

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

Cornerstones: Initiating Events, Mitigating Systems, and Public Radiation Safety

.1 Initiating Events and Mitigating Systems 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^{st} quarter of 2004:

- Unplanned scrams per 7000 critical hours
- Scrams with loss of normal heat removal
- Safety system functional failures

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.”

These reviews constituted six inspection samples.

b. Findings

No findings of significance were identified.

.2 Radiation Safety Performance Indicator Verification

a. Inspection Scope

The inspectors reviewed the licensee records to determine if the licensee had identified any Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences during the previous four calender quarters. The inspectors used PI guidance and definitions contained in Nuclear Energy Institute (NEI) Document 99-02, Revision 2, “Regulatory Assessment Performance Indicator Guideline,” as well as reviews of selected documents, including licensee event reports and condition reports, to verify the accuracy of the licensee’s RETS/ODCM Radiological Effluent Occurrences PI data.

This review constituted a single inspection sample.

b. Findings

No findings of significance were identified.

.3 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the 1st quarter 2004 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)

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 routine inspections documented above, 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 issue.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program (CAP) Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program (CAP). This review was accomplished through inspection of the station's daily condition report packages.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6 month period of January 2004 through June 2004, although some examples expanded beyond those dates when the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

b. Findings

No findings of significance were identified. No significant issues were identified.

.4 Selected Issue Follow-up Inspection: Licensee Corrective Actions for Recent High Radiation Area (HRA) Findings and Violations

Introduction

In previous months, the licensee has experienced several radiological control events in which personnel have violated Technical Specification requirements regarding entry into HRAs. The inspectors selected these events and their corrective actions as an annual sample to review the licensee's problem identification and resolution program:

- December 30, 2003. Three contract workers, under the direction of a contractor supervisor, violate a HRA rope boundary in the Unit 1 'A' turbine-driven feed pump room to accomplish scaffold construction for a valve. (URI 05000373/2004002-03)

- January 20, 2004. During the recent Unit 1 refuel outage, two contractor technicians logged onto a general area radiation work permit (RWP) entered the 1B residual heat removal (RHR) room, a posted HRA. The technicians were returning from another job in the plant and decided to "swing by" the 1B RHR room to scope out a different job coming up in the next several days. One of the individual's electronic dosimeters (EDs) alarmed at a rate above the 50 mrem/hr set point, but this apparently went unnoticed by the worker. The error was detected when the individual later logged out of his RWP and received an "ERROR - CONTACT HP" message due to his ED recording a rate above its alarm set point. (NCV 05000373/2004002-04)

- January 21, 2004. A mechanic on loan from another Exelon station was working on an elevated platform in the Unit 1 heater bay. The actual valve the mechanic needed to get to was located on another platform in the heater bay perhaps 12 to 15 feet away. Rather than descend the ladder for the current platform and climb back up on the other platform's ladder, the mechanic exited his platform by crawling through the platform's guard railing and "shinnying" across some piping to the second platform. The second platform was posted at the base of its ladder, its sole point of normal access, as a contaminated HRA. The violation was self-revealed when the mechanic, who exited the second platform via the same path that he used to get there and had no knowledge that he ever was in a contaminated HRA, alarmed the personnel contamination monitors when he attempted to leave the site's radiologically controlled area (RCA). (NCV 05000373/2004002-05)

- January 25, 2004. Three contract pipe fitters and their supervisor entered a HRA without the proper brief and in violation of proper postings in the Unit 1 694' reactor building raceway. The licensee's investigation showed that at least one pipe fitter recognized the HRA boundary as needing special requirements for entry and failed to warn his co-workers. (URI 05000373/2004002-06)

- April 30, 2004. Station mechanics building a scaffold in support of a Unit 2 condensate polisher pre-filter replacement, failed to adhere to verbal pre-job instructions and written RWP instructions calling for direct radiation protection

(RP) technician coverage for the parts of the job that involved building scaffolding at heights above 7 feet in the power block. One of the mechanics' electronic dosimeters (EDs) alarmed on high dose rate when he climbed above the 7 foot limit. Subsequent follow-up investigation by the licensee determined that the scaffolding represented an unposted HRA and that the entry into this area by the construction mechanics without direct RP technician coverage, as had been previously briefed, was a violation of station Technical Specifications. (NCV 05000374/2004003-02)

This review constituted a single inspection sample.

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors reviewed the condition reports (CRs) and follow-up investigations for the above events to verify that the licensee's identification of the problems were complete, accurate, and timely, and that the consideration of extent of condition review, generic implications, common cause, and previous occurrences was adequate.

(2) Issues

The inspectors reviewed CR 197645, "Ineffective Corrective Actions for HRA Entries," and associated documents. The licensee's root cause report (RCR) for this CAP issue did not identify a root cause for the HRA events that occurred during the 2004 Unit 1 refuel outage. Furthermore, the contributing cause identified in the RCR primarily focused on issues such as plant layout, training adequacy, and procedures and processes. No substantive evaluation of possible radiation worker cultural issues was performed.

Subsequently, the licensee initiated CR 218052, "Worker Received Dose Rate Alarm During Scaffold Build," in response to an additional HRA event on April 30, 2004. In this case, the licensee's RCR concluded that a review of recent radiological events and corrective actions did not identify any that were ineffective or that would have prevented the April 30th event. Additionally, the licensee concluded that the April 30th HRA event was not a repeat of any of the previous events.

In independently reviewing the HRA condition reports for common cause issues, previous occurrences, and similar conditions, the inspectors concluded that the licensee's assessments in this area were somewhat narrowly focused. All of the events noted similarly suggest a radiation worker culture at the station as one which views RP requirements as more of an impedance to work accomplishment than as an assistance. Interviews that the inspectors conducted with various qualified radiation workers, both contractor and permanent station personnel alike, indicated that a number were increasingly frustrated with seemingly growing RP requirements. The licensee's CAP assessments missed an opportunity to broadly address this area.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors reviewed the HRA CRs noted above to assess the licensee's evaluation and disposition of performance issues, and application of risk insights for prioritization of issues.

(2) Issues

Corrective actions were based on a qualitative assessment of risk. For the issues reviewed, the inspectors did not find any discrepancies with the apparent risk and the categorization assigned by the licensee.

With respect to the evaluation of the issue, as discussed in part (a) above, the inspectors noted that the licensee had concluded that the April 30th HRA event was not a repeat of any of the previous events. In reviewing this conclusion, the inspectors determined that it was narrowly focused. During the January 2004 Unit 1 refuel outage, inspectors had previously identified a finding involving a radiological posting issue for a raised platform. As with the April 30th HRA event, personnel accessing the raised platform during construction work had unknowingly entered elevated radiation fields. Despite the fact that one of the licensee's corrective actions for the April 30th HRA event involved reiterating RP fundamentals concerning accessing elevated areas, the licensee's RCR for the April 30th HRA violation failed to note the similarities with the earlier raised platform violation and missed an opportunity to fully explore a potential weakness at the site involving RP practices associated with personnel accessing overhead elevations.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors noted that the licensee had previously self-identified that corrective actions taken for early 2004 HRA boundary violations were largely ineffective in CR 197645, "Ineffective Corrective Actions for HRA Entries." As a result, the inspectors focused on the effectiveness of corrective actions from the most recent HRA violation on April 30, 2004.

The inspectors reviewed the related HRA condition reports to determine if the CAP addressed generic implications. Additionally, the inspectors verified that corrective actions were appropriately focused to correct the problem.

(2) Issues

Immediately following the April 30, 2004, HRA event, the licensee implemented a number of immediate corrective actions on the next plant work day, May 3, 2004. These immediate corrective actions, among other items, included administratively removing RCA access by revising active RWPs and requiring all radiation workers to re-read and re-sign the RWPs prior to regaining RCA access, providing RP technicians to brief and re-emphasize radiation protection fundamentals with all personnel, and requiring all personnel to check in with an RP technician prior to all RCA entries.

While the initial licensee effort with these corrective actions was aggressive and deliberate on May 3, 2004, inspectors noted that the licensee's focus on these corrective actions decayed rapidly as the week progressed. An NRC Branch Chief performing a routine site visit on May 6, 2004, had to prompt an on-duty RP technician to receive the radiation protection fundamentals brief. When the same RP technician was asked by the Branch Chief as to why all the changes in the RP area were taking place, the technician was not aware that the corrective actions were for a HRA event on the preceding Friday and could not articulate any reasons for the changes. In a similar fashion, the following week another inspector not routinely assigned to the site was not briefed by RP technicians concerning the new "check in prior to any RCA entry" policy. Ultimately, the licensee placed more robust controls into effect to strengthen these corrective actions, but not until after being prompted by the inspectors.

4OA3 Event Follow-up (71153)

Cornerstone: Initiating Events

June 28, 2004, Earthquake Notice of an Unusual Event (NOUE)

a. Inspection Scope

Inspectors responded to the station following notification of a seismic event in the early morning hours on June 28, 2004. At 1:11 a.m. CDT, seismic monitoring equipment at the station detected ground movement measuring from approximately 0.01g to approximately 0.03g. Numerous personnel at the station noticed the physical ground movement, and the lower of the station's two seismic alarms, with a setpoint of 0.01g, was actuated.

Plant operators responded to the earthquake by entering the station's emergency plan and declaring a notice of unusual event (NOUE). The licensee confirmed the occurrence of an earthquake measuring 4.5 on the Richter Scale with an epicenter about 10 miles NW of the station through discussions with personnel on duty at the U.S. Geological Survey National Earthquake Information Center in Denver, Colorado. Additional actions taken by the licensee included walkdown inspections of all accessible areas of the plant, the switchyard, and the cooling lake levee for any signs of damage, and verification that the earthquake magnitude was below the operating-basis earthquake (OBE) value of 0.1g.

In response to the event, the inspectors observed plant parameters and status, including mitigating systems and fission product barriers; evaluated the performance of mitigating systems and licensee actions; and confirmed that the licensee properly reported the event as required by 10 CFR 50.72 and the licensee's emergency plan. The inspectors verified that all systems responded to the event as designed, and that no human performance errors complicated the event response. At 3:55 am CDT, the licensee terminated the NOUE declaration following an assessment that no plant damage had occurred as a result of the earthquake.

The inspectors' review of this event constituted one inspection sample.

b. Findings

No findings of significance were identified.

4OA4 Cross-Cutting Aspects of Findings

Cornerstones: Mitigating Systems and Occupational Radiation Safety

Human Performance

Two 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 involved a failure on the part of electrical maintenance personnel to select the proper instrument for troubleshooting a problem associated with the Unit 1 Division 1 125 Vdc battery charger. In so doing, the electricians created a momentary ground on the safety-related system, as evidenced by several control room alarm annunciators that were activated.

- A finding described in Section 2OS1.1 involved the failure of personnel to follow established plant procedures and radiological practices with respect to HRAs. A mechanical maintenance worker, who had been properly briefed on the radiological controls associated with the job, made an unauthorized entry onto an elevated platform prior to the platform receiving the appropriate radiation survey. The platform was, in fact, in a HRA.

As can be seen from the above descriptions of each issue, these human performance deficiencies involved the failure of personnel to adhere to established plant procedures and skill-of-the-craft practices.

4OA5 Other

.1 Offsite Power System Operational Readiness (TI [Temporary Instruction] 2515/156)

a. Inspection Scope

The inspectors reviewed licensee maintenance records, event reports, corrective action documents and procedures, and conducted various interviews with engineering, maintenance, and operations personnel to confirm the operational readiness of the offsite power systems in accordance with NRC requirements and licensee procedures. Specifically, the inspectors reviewed the licensee's procedures and processes for ensuring that the grid reliability conditions are appropriately assessed during periods of maintenance in accordance with the 10 CFR 50.65(a)(4). The inspectors also assessed electric grid reliability and performance through a review of historical and current data to verify compliance with 10 CFR 50.63, Technical Specifications, and General Design Criterion 17. Lastly, the inspectors assessed the licensee's implementation of operating experience that was applicable to the site, as well as corrective action documents to ensure issues were being identified at an appropriate threshold, assessed for significance, and then properly dispositioned.

b. Findings and Observations

No finding of significance were identified.

In accordance with TI 2515/156 reporting requirements, data obtained during the TI inspection was provided to NRC Headquarters for further analysis.

The inspectors have summarized below the licensee's responses to the significant issues reviewed during the TI inspection.

(1) Required switchyard voltages and notification requirements are controlled in Exelon energy delivery (EED) transmission operations temporary operating order TOO-041204-1-TDa. In accordance with this order, the transmission dispatcher attempts to take immediate corrective actions to restore actual or predicted low voltage by switching in capacitor banks or raising the reactive power (VAR) output from nearby generating units. If these actions are unsuccessful in restoring the required voltage, the Exelon Nuclear duty officer (NDO) is notified. The NDO then notifies the operations shift manager at the affected nuclear station. The NDO is also notified when voltage returns to the required level.

Prior to April 2004, the required voltages and notifications described above were to be provided by EED transmission operations in accordance with transmission control procedure 1-1.0, Revision 3. On April 1, 2004, Exelon Nuclear was informed by EED that the required minimum voltage values, provided by Exelon Nuclear in 2003, had not been implemented. In response, EED developed TOO-041204-1-TDa described above. Exelon Nuclear generated corrective action program condition report (CR) 212781 to document this issue and develop corrective actions. Affected nuclear sites also initiated CRs. Actions resulting from CR 212781 include the following:

- Determine the cause of the circumstances described above.
- Develop a project plan to ensure adequate voltage at the nuclear site switchyards.

The CRs written at the affected nuclear sites will document a historical review of switchyard voltages to determine if offsite power operability requirements have historically been met. The site CRs for LaSalle County Station are 214700, 212781, and 216462. Exelon energy delivery also indicated that the LaSalle County Station switchyard voltage was below 354 kV for a total of 82 hours for the past year. The LaSalle County Station UFSAR, Section 8.2.3.2, indicates that the minimum predicted switchyard voltage at LaSalle is 354 kV. However, the detailed voltage evaluation for the auxiliary system is based on a minimum switchyard voltage of 352 kV (Reference

Calculations L-000295, L-001561, and ELMS-AC+ data files). This voltage value assures that the electrical system will respond to a loss of coolant accident (LOCA) (no loss of offsite power) without unnecessarily challenging the EDGs.

The switchyard voltage data shows that the switchyard voltage fell below 352 kV during four different time periods. Site engineering reviewed plant process computer records for these time periods and found that one unit was either offline or in startup for each occasion. Since EED indicated that the reported voltage may not match the voltage on the high side of the station auxiliary transformer (SAT) any time the unit is offline or in startup because the reported voltage is Bus 10 (Unit 1) and Bus 3 (Unit 2), site engineering requested additional data. Exelon energy delivery then provided the minimum voltages at the switchyard buses that feed SATs 142 and 242 during these time periods. This data shows that voltage at the high side of the SATs remained above 354 kV during these time periods. Thus, the switchyard voltage did not drop below the analyzed value of 352 kV during the past year.

In addition, Exelon Nuclear issued an internal nuclear event report (NER) NC-04-002 on May 11, 2004, to direct additional actions. These additional actions include ensuring that the sites have adequate procedural guidance to respond to notification of low voltage by EED.

(2) The transmission operations organization was notified of the minimum voltage requirement for the bounding design basis accident – that is, the loss of coolant accident (LOCA) – load by means of a transmittal of design information. The voltage requirement is determined for the most heavily loaded (bounding) safety bus from maximum LOCA loading through the System/reserve auxiliary transformer with the safety bus voltage at the reset of the degraded voltage relay. This bounds the relay setpoint and normal operating voltage needs.

(3) Two computer programs are used to determine the post trip voltage. First, the current transmission system conditions are determined by comparing telemetered unit status, transmission line status, transformer status, switchyard / transmission substation voltage and power flow data from selected locations across the system. Load flows are performed and the results are compared to the telemetered data; the load flow model is modified and iterated until the calculated results match the collected data. This is referred to as "state estimation." Once the transmission system conditions are known, the model is used to determine the impact of any one of five hundred failures of major transmission system components (or "contingencies"). The failures studied include a trip of each operating nuclear power unit. Each contingency is studied separately; once the result is found, the component is restored and another contingency is evaluated. If any contingency exceeds established acceptance criteria, an alarm is generated. The transmission operator can then determine the contingency of concern and the value of the exceeded parameter (such as switchyard voltage at a nuclear power plant). The post trip voltage for each nuclear power plant is calculated every 10 minutes.

(4) On a continuing basis, in accordance with procedure OP-AA-101-113-1004, "Guidelines for the Morning Plant Status Reports," grid conditions are communicated to the station via a morning plant status call. In accordance with OP-MW-108-107-1001, "Station Response to Grid Capacity Conditions," for grid conditions other than Green, the nuclear

duty officer notifies the station of actual and projected conditions. In accordance with procedure WC-AA-101, “On-Line Work Control Process,” the operating shift continuously evaluates the risk of the scheduled on-line maintenance activities based upon conditions such as the power grid stability, the weather forecast, and the current plant system, structure, and component (SSC) status. If severe weather (high wind, severe thunderstorm warning, tornado watch/warning) is expected, planned unavailability of AC power sources is deferred. Risk is reassessed if emergent conditions result in a plant configuration that has not been previously assessed. In accordance with procedure OP-MW-108-107, “Interface Agreement between ComEd Energy Delivery and Exelon Nuclear,” transmission operations (TO) is required to communicate and coordinate scheduled transmission system equipment outages, and to notify the station operations department of any work affecting start-up power sources.

(5) In accordance with WC-AA-101, “On-Line Work Control Process,” risk management actions are taken for all risk significant SSCs made unavailable. Systems, structures, and components needing protection are those SSCs which, if lost concurrent with SSCs that are unavailable for planned maintenance, would cause an unplanned entry into an Orange or Red risk configuration. Protective actions are commensurate with the risk significance of the work and may include, but are not limited to, announcement of risk status, notification of protected trains/divisions, posting of signs, or placement of barriers. Further, station Technical Specifications require that, with one EDG inoperable, periodic surveillances be performed to ensure the operability of the offsite AC sources. Additionally, as a matter of practice for EDG maintenance/testing, the work weeks are dedicated to Division 1, 2, or 3, which provides train separation in terms of risk exposure.

Switchyard activities would require a risk evaluation as part of the on-line work control process described above. Activities rendering switchyard breakers or transmission lines out-of-service during EDG maintenance or testing would result in risk levels that would be avoided (i.e., Orange risk level) without specific permission and controls. Additionally, the switchyard is locked and activities in the switchyard require authorization by station operations.

(6) A review of LaSalle LERs dating back to 1984 was performed. Only one LER was identified that meets the TI definition of loss of offsite power event.

At 11:47 a.m. on September 14, 1993, LaSalle Unit 1 was operating at full power when the system auxiliary transformer (SAT) experienced a differential current auto-trip and fast transfer to the unit auxiliary transformer (UAT). The voltage transient on the affected electrical buses resulted in the 1B turbine-driven reactor feed pump (TDRFP) going to zero speed and flow. The reactor scrammed on low water level due to the decreased feed flow. When the main electrical generator tripped as part of the normal scram response, the UAT was de-energized resulting in a loss of power to all Unit 1 onsite AC buses. The EDGs auto started as expected and re-energized the safety buses. The cause of the event was water intrusion over time into the bus duct due to degraded duct seals. The water accumulated in the bus duct until a sufficient amount of water was present to create a short circuit between the bus bars. Offsite power being fed into the switchyard remained available throughout the event. Severe weather was not a factor in the initiating event.

Offsite power being fed into the switchyard remained available throughout the event. Unit 2 was in a refueling outage with its safety buses energized via the Unit 2 SAT. Since the alternate offsite circuit path for Unit 1 is from Unit 2 via the safety bus unit ties, offsite power was immediately available to the Unit 1 safety buses via the unit tie buses and the associated unit tie breakers; however, the LaSalle probabilistic risk assessment (PRA) model human reliability analysis (HRA) calculation A2, "Operator Fails to Cross Tie 4kV Bus to Other Unit," uses an execution time of 15 minutes. Human reliability analysis calculation A2 is based on JPM P-AP-02 and LOA-AP-101/201 and site-specific operator interviews. The calculation A2 summarizes that the action is straightforward, but the procedure is complicated, requires communication between multiple operators, and may require outside control room actions for some scenarios when jumpering logic is required. For this reason, the recovery time defined for the LaSalle LOOP event in the EPRI LOOP report is given as 15 minutes.

(7) Following the August 2003 northeast blackout, the Institute of Nuclear Power Operation (INPO) issued significant event notice (SEN) 242, "Grid Instability/Transmission Line Failures." On September 10, 2003, Exelon Nuclear generated CR 175196 and assigned each nuclear site to review this SEN and the lessons learned for applicability. These reviews were completed in late 2003.

Following completion of the site reviews in response to CR 175196, corporate licensing for Exelon Nuclear determined that additional site reviews were necessary. CR 210832 was generated on March 25, 2004, and directed that each site review five specific items in preparation for the summer 2004 seasonal readiness. These five items included:

- A review of procedures that direct restoration of systems following a loss of offsite power to ensure effectiveness and proper prioritization.
- A review of normal restart surveillance procedures for ability to perform following a loss of offsite power to support unit restart.
- A determination as to whether or not a loss of capability to produce demineralized make-up water posed a restart impact, and alternatives to minimize the impact.
- An evaluation of unit output voltage regulator design and operation under degraded grid conditions and verification that procedures adequately address predicted voltage regulator response.
- A verification of adequate contingency plans to contact the transmission system operator following loss of offsite power.

.2 <u>(Closed) Unresolved Item 05000373/2003005-04</u>: Unit 1 Unanticipated Reactor Vessel Level Transient During Feed Pump Transfer.

On the morning of December 11, 2003, the 1A turbine-driven reactor feed pump (TDRFP) and 1C motor-driven reactor feed pump (MDRFP) were supplying feedwater flow to the Unit 1 reactor vessel. Reactor power was approximately 50 percent. At 5:29 a.m., an automatic feed pump transfer was initiated by operators to secure the 1A TDRFP and begin feeding the reactor vessel with the 1B TDRFP. During the transfer sequence, a reactor vessel high level alarm, level 7, was received and reactor vessel level was observed to be rising towards + 50 inches. Operators took manual control of reactor water level and stabilized it back within the normal operating band.

Preliminary reviews of the transient data indicate that reactor vessel level reached + 49 inches, or within 6 inches of level 8, which is the reactor vessel high level scram setpoint.

The inspectors conducted numerous interviews with operations and engineering personnel to determine if a licensee performance deficiency and subsequent inspection finding related to the transient existed. Based on the results of these reviews, the inspectors determined that the operating crew had maintained positive control over reactor level throughout the event, in spite of the + 49 inch level that was reached. Consequently, no licensee performance deficiencies associated with the event were identified, and the inspectors determined that there were no findings of significance or violations of regulatory requirements involved.

.3 (Closed) Unresolved Item 05000373/2003005-01; 05000374/2003005-01: Conformance with Simulator Requirements Specified in 10 CFR 55.46.

A letter from the licensee to the NRC dated October 17, 2000, requested an exemption from the requirements of 10 CFR 55.31(a)(5) in order to take credit for reactivity manipulations performed on the site specific simulator prior to rulemaking on 10 CFR 55.46 taking effect. In a letter from John Zwolinski of the NRC to Oliver Kingsley of Exelon, dated July 2, 2001, the NRC accepted the alternate method of performing reactivity manipulations based on the understanding that the licensee met all the commitments made to the NRC in letters dated October 17, 2000, November 22, 2000, and April 5, 2001. The inspectors reviewed the licensee's letter and simulator testing results. The inspectors concluded that the licensee reviewed the results of the simulator testing and determined that any deviation from acceptance criteria was acceptable. The inspectors also determined that the observed deviation in the test results from acceptance criteria would not have any significant impact on simulator performance observed by the operators during simulated reactivity manipulations. Finally, the inspectors concluded that the licensee met the commitments made to the NRC in their October 17, 2000, November 22, 2000, and April 5, 2001 letters.

.4 Review of Institute of Nuclear Power Operations (INPO) Report

The inspectors completed a review of the final report for the INPO September 2003 evaluation, transmitted to the licensee on March 23, 2004.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to the Site Vice President, Mr. G. Barnes, and other members of licensee management on July 13, 2004. 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 exit meetings were conducted for:

- An occupational radiation safety radiological access control and radiological environmental monitoring program (REMP) inspection with the Site Vice President, Mr. G. Barnes, on May 7, 2004.

- A biennial operator requalification program inspection – follow-up telephone exit with Mr. J. Lindsey on June 23, 2004.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

G. Barnes, Site Vice President
S. Landahl, Plant Manager
T. Connor, Maintenance Director
L. Coyle, Operations Director
D. Czufin, Site Engineering Director
A. Ferko, Nuclear Oversight Manager
F. Gogliotti, System Engineering Manager
B. Kapellas, Radiation Protection Manager
J. Lindsey, Operations Training Manager
M. Martin, Chemist and ODCM Coordinator
J. Rappeport, Nuclear Oversight
W. Riffer, Emergency Planning Manager
T. Simpkin, Acting Regulatory Assurance Manager
C. Wilson, Station Security Manager

Nuclear Regulatory Commission

B. Burgess, Chief, Region III, Reactor Projects Branch 2

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000373/2004003-01	FIN	Division 1 125 Vdc Battery Charger Grounded Due to Use of Wrong Test Instrument (Section 1R13)
05000374/2004003-02	NCV	Unauthorized Entry into a High Radiation Area by Maintenance Personnel Building Scaffolding Prior to Required Radiation Protection Surveys (Section 2OS1.1)

Closed

05000373/2004003-01	FIN	Division 1 125 Vdc Battery Charger Grounded Due to Use of Wrong Test Instrument (Section 1R13)
05000374/2004003-02	NCV	Unauthorized Entry into a High Radiation Area by Maintenance Personnel Building Scaffolding Prior to Required Radiation Protection Surveys (Section 2OS1.1)
05000373/2003005-04	URI	Unanticipated Reactor Vessel Level Transient During Feed Pump Transfer (Section 4OA5.2)
05000373/2003005-01; 05000374/2003005-01	URI	Conformance with Simulator Requirements Specified in 10 CFR 55.46. (Section 4OA5.3)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

1R01 Adverse Weather

Procedures:
- LOA-TORN-001; High Winds/Tornado; Revision 3
- OP-MW-108-107-1001; Station Response to Grid Capacity Conditions; Revision 0
- EN-LA-402-0005; Extreme Heat Implementation Plan - LaSalle; Revision 2
- LOA-DIKE-001; Lake Dike Damage/Failure; Revision 4

Condition Reports:
- 223149; FP Panels Susceptible to Transients Caused by Severe Weather; 5/24/04
- 227349; U-2 Div 1 Ground Alarm During Rain; 6/10/04
- 227759; Continued Transformer Grounds; 6/11/04

Miscellaneous:
- 2004 LaSalle Summer Readiness Duty Team Guide; 5/15/04

1R04 Equipment Alignment

Procedures:
- LOP-RH-04E; Unit 2 Residual Heat Removal System Electrical Checklist; Revision 13
- LOP-RH-03E; Unit 2 RHR Service Water System Electrical Checklist; Revision 5
- LOP-RH-05; Operation of the RHR Service Water System; Revision 26
- LOP-LV-02M; Unit 2 Locked Valve Position Checklist; Revision 8
- LOP-DC-07E; Unit 2 Division I 125vdc Distribution Electrical Checklist; Revision 9
- LOP-LP-02E; Unit 2 Low Pressure Core Spray System Electrical Checklist; Revision 5
- LOP-LP-02M; Unit 2 Low Pressure Core Spray System Mechanical Checklist; Revision 11
- LOP-RI-02M; Unit 2 Reactor Core Isolation Cooling System Mechanical Checklist; Revision 18
- LOP-RI-02E; Unit 2 Reactor Core Isolation Cooling System Electrical Checklist; Revision 14
- LOP-MS-03; Preparation for Standby Operation of the Automatic Depressurization System; Revision 6
- LOP-DC-02E; Unit 1 Div I 125VDC Distribution Electrical Checklist; Revision 7
- LOP-DC-03E; Unit 1 Div II 125VDC Distribution Electrical Checklist; Revision 6
- LOP-MS-01E; Unit 1 Main Steam Electrical Checklist; Revision 7
- LOP-MS-01M; Unit 1 Main Steam System Startup from Hot Standby Mechanical Checklist; Revision 16
- LOP-IN-01; Drywell Pneumatic System Startup and Operation; Revision 22
- LOP-RD01; Filling, Venting, and Startup of the Control Rod Drive System; Revision 24
- LOP RD-01E; Unit 1 Control Rod Drive Electrical Checklist; Revision 3
- LOP RD-01M; Unit 1 Control Rod Drive Mechanical Checklist; Revision 17
- LOP RD-02E; Unit 1 Control Rod Drive Electrical Checklist; Revision 6
- LOP RD-02M; Unit 1 Control Rod Drive Mechanical Checklist; Revision 14
- LOP-RD-18; Raising Reactor Water Level using CRD; Revision 6

Condition Reports and Issue Resolutions:
- 205807; Problems with Rebuilt CRDMs Installed during L1R10; 3/3/04
- 213918; EC to Support CRD Solenoid Replacement; 4/8/04
- 168281; CRD 22-23 High Temperature Alarm would not Clear; 7/19/03
- 176179; Core Average Scram Time Speeds do not Meet COLR NSS Times; 9/17/03
- 173644; Degraded Trend in Number of Double Notching Control Rods; 8/29/03
- 215693; Vibe Analysis IDs Adverse Trend on 1A CRD Gearbox 1C11-C001A; 4/19/04
- 220687; CRD Charging Water Pressure Low Alarm; 5/13/04
- 217002; Turned off Breaker for Subloop B1 Before B2 Was Running; 4/26/04
- 220687; CRD Charging Water Pressure Low Alarm; 5/12/04
- 222043; Plant Materiel Condition Issues - NRC Identified; 5/18/04

1R05 <u>Fire Protection</u>

Updated Final Safety Analysis Report; Revision 13:
- Appendix H; Fire Hazards Analysis
- Section 9.5.1; Fire Protection System

Technical Requirements Manual:
- Section 3.7.j; Fire Suppression Water System; Revision 1
- Section 3.7.k; Deluge and Sprinkler Systems; Revision 1
- Section 3.7.m; Fire Hose Stations; Revision 1

Mechanical Maintenance Procedures:
- LMS-FP-15; TRM Fire Hose Stations Inspection; Revision 18

Exelon Procedures:
- OP-MW-201-007; Fire Protection System Impairment Control; Revision 0
- CC-AA-201; Plant Barrier Control Program; Revision 3

Surveillances:
- LMS-ZZ-03; Inspection of Fire Doors Separating Safety Related Fire Areas; Revision 7

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

NRC Inspection Report 05000373/2003003; 05000374/2003003; 7/29/2003

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

Procedures:
- LOA-FLD-001; Flooding; Revision 5
- LTS-1000-29; Watertight Door and Penetration Inspection; Revision 10

WO 00465469; Watertight Door and Penetration Inspection per LTS-1000-29; 1/31/2004

LaSalle PRA Risk Insights Regarding Internal Flooding

1R11 Licensed Operator Requalification Program

Licensed Operator Requalification Scenario Guide 04-3-05; Revision 1

OP-AA-108-105; Equipment Deficiency Identification and Documentation; Revision 1

1R12 Maintenance Effectiveness

NRC IN 98-07; Offsite Power Reliability Challenges from Industry Deregulation; 2/27/1998

Condition Reports and Issue Resolutions:
- 214700; Switchyard Voltage at LaSalle; 4/13/04
- 216462; Switchyard Voltage Below UFSAR Value of 354 kV; 4/22/04
- 212781; Switchyard Voltage at MWROG Plants; 4/2/04
- 175196; INPO SEN 242, Grid Instability / Transmission Line Failures; 9/10/03
- 210832; Summer Readiness – Lessons Learned; 3/25/04
- 171232; Inaccurate Unavailability Data in April 2003 NEI Monthly PI; 8/12/03
- 178786; NRC Questions during PMT/Operability Testing of 0 EDG; 10/1/03
- 188262; 1A DG Output Breaker Failure to Close; 11/26/03
- 188681; ACB 1423 Failed to Close During LOP-DG-02; 12/2/03
- 210954; 1A DG Did Not Come to 900 RPM During the Performance of LOS-DG-M2; 3/26/04
- 214547; Bolted Connections from Generator Leads to Bus; 4/12/04
- 168458; Bus Tie 2-3 bus 3, 345kV Disconnect Not Fully Rotated; 7/21/03
- 220520; The Unavailability of Line L0104 at LaSalle; 5/12/04
- 226078; OCB 2-3 Bus 3 Disconnect ‘B’ Phase Arm Stuck at 45 Degrees; 6/4/04
- 226903; MDRFP Reliability; 6/8/04
- 226493; Flex Hose to Motor Driven Feed Pump has Hole in It; 6/7/04
- 226609; OG Flow Reduction Observed While Draining MDRFP; 6/8/04
- 226479; MDRFP Braided Hose Leak; 6/7/04
- 222683; Auto Trip of U2 MDRFP Lube Oil Pump; 5/21/04
- 229810; U1 MDRFP Disch Press Indication; 6/19/04
- 229815; Lube Oil System on U-1 MDRFP; 6/19/04

Procedures:
- OP-MW-108-107-1001; Station Response to Grid Capacity Conditions; Revision 0
- OP-AA-108-109; Seasonal Readiness; Revision

Miscellaneous:
- Unit 1 MDRFP Maintenance Rule Performance Data 6/1/02 - 6/25/04
- Unit 2 MDRFP Maintenance Rule Performance Data 6/1/02 - 6/25/04

1R13 Maintenance Risk Assessments and Emergent Work Control

Work Orders:
- 551674-01; Perform ‘0’ EDG Inspection Per LMS-DG-01; 4/26/04
- 517675-01; MM Disassemble/ Weld/ IN/ Inspect/ Blue Chk/ Reassemble/ Repack; 4/14/04
- 497096-03; OP PMTs No Leaks and Flow Test LOS-DG-Q3 Att B5; 4/14/04
- 497096-04; EP PMT VT-2 on Valve After Replacement; 4/14/04
- 517650-03; OP PMTs No Leaks and Flow Test LOS-DG-Q3 Att B5; 4/14/04
- 517650-12; EP PMT VT-2 on Valve After Replacement; 4/14/04
- 677891-02; -22 Volt Power Supply on PMG; 5/6/04

Procedures and Forms:
- MA-AA-716-025, Attachment 2; Scaffold Request Form; Revision 0
- LMS-DG-01; Main Emergency Diesel Unit Surveillances; Revision 32
- LOS-DG-Q1; ‘0’ EDG Auxiliaries Inservice Testing; Revision 37
- LOS-DG-Q3; 1B (2B) Diesel Generator Auxiliaries Inservice Test; Revision 40
- LOS-DG-Q3; 1B (2B) Diesel Generator Auxiliaries Inservice Test; Revision 40
- LOS-DG-M3; 2B Diesel Generator Fast Start; Revision 53
- LIP-EH-27; EHC Running Checks; Revision 4

Condition Reports:
- 217275; Power Supply Swapping Between House and PMG on -22 VDC; 4/27/04
- 218055; U-1 Reactor Pressure Increase During -22 VDC PMG Power Supply; 4/30/04
- 218057; Adjustment of -22 Volt PMG Power Supply; 4/30/04
- 218138; MSV #1 Limit Switch Fails to Close When Valve is Full Open; 5/1/04
- 218199; EHC Electrical Malfunction Alarm; 5/1/04
- 218261; “Bypass Jack in Control” Illuminated During TG Weekly Surveillances; 5/2/04
- 226201; 1IN038 New Pressure Regulator has a Leak; 6/6/04
- 217217; Unexpected Ground and Annunciator Input Alarms; 4/27/2004
- 197186; Unit 1 Division 1 Battery Charger 1DC09E Percent Current Unbalanced Out of Tolerance; 1/23/2004

HLA Briefings:
- Unit 1 EHC -22 Vdc Power Supply Adjustment, Voltage Monitoring for Back-up Speed Amplifier/Bypass Jack in Control, per WO 00677891
- Unit 1 Main Turbine Generator Backup Speed Amplifier Voltage and BPV Jack In Control Adjustments per WO 677891-02

Complex Troubleshooting Plan (per MA-AA-716-004, Revision 2) for Unit 1 EHC control systems problems

Drawings and Prints:
- 125D5719, Sheet 5, Figure 42-2D; GE Schematic – DC Power and Grounding System; Revision 1

Updated Final Safety Analysis Report, Revision 14:
- Section 15.2.2A; Generator Load Rejection
- Section 15.2.3A; Turbine Trip Without Bypass
- Table 8.3-12; 125 Vdc Battery (Division 1) Load Requirements

Engineering Changes:
- 347383; Nitrogen Bottle Bank Pressure Regulating Valve Design Change; Revision 1

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

Procedures:
- OP-AA-300; Reactivity Management; Revision 0
- OP-AB-300-1001; BWR Control Rod Movement Requirements; Revision 1
- LGP-2-1; Normal Unit Shutdown; Revision 63
- OP-AA-108-107; Switchyard Control; Revision 1
- LOS-RP-M5; Turbine Control Valve Monthly Surveillance; Revision 7
- LOP-EH-10; Operation of Main Turbine Valves for Troubleshooting or Maintenance; Revision 2

Condition Reports:
- 226573; Critique of REMA L2C10–12, U2 5/29/04 Load Drop/Seq Exch; 6/7/04

Reactivity Maneuver Plan:
- L2C10-012; NF-AB-702, Attachment 2; Revision 0

1R15 Operability Evaluations

Engineering Analyses:
- 346827; MCC Settings for Motor Operated Valves 1(2) E22-F004; Revisions 0, 1, 1A, and 1B
- 348676; Review Possibility of 1(2)E22-F004 Automatic Position Reversal During an Accident or Transient; Revision 0
- 349735; Evaluation of Voltages in Standby Gas Treatment System (SBGT) Flow Control Damper Logic Circuit; Revision 0

Operability Evaluations:
- OE04-005; Standby Gas Treatment System (VG) Component 1(2) PA17J; Revision 0
- OE03-016; Reactor Vessels 1(2) B13-D003 P/T Curves; Revisions 0, 1, 2, and 3

Condition Reports and Issue Resolutions:
- 214992; 2E22-F004 Circuit Breaker Found with a Magnetic Setting of 4; 4/14/04
- 226230; Unit 2 CV#4 Failure to Fast Close During LOS-RP-M5; 6/6/04
- 227806; Voltage and Current Measurements at Bus 136X-1 and 236X-1; 6/11/04
- 227790; Bench Test Required for Validyne Power Supply; 6/11/04
- 227948; Flawed Assumption Found in Calcs AZ40, AZ41, AZ42, and AZ43; 6/11/04
- 220659; P/T Curve Analysis Identifies Additional Shift Required; 5/12/2004

Procedures:
- LOS-RP-M5; Turbine Control Valve Monthly Surveillance; Revision 7

Updated Final Safety Analysis Report, Revision 14:
- Section 6.3.2.2.1; High Pressure Core Spray (HPCS) System

Unit ½ Standing Order S05-04; Conservative Technical Specifications Decisions; 2/11/04

1R16 Operator Workarounds

1st Quarter 2004 Operations Department Aggregate Review of Operator Challenges

1R19 Post-Maintenance Testing

Procedures:
- LOS-DG-Q3; 1B(2B) Diesel Generator Auxiliaries Inservice Test; Revision 40
- ER-AA-335-015; VT-2, Visual Examination Record; Revision 3
- LOS-DG-M3; 2B Diesel Generator Fast Start; Revision 53
- LOP-FP-02; Fire Pump Diesel Startup and Shutdown; Revision 14
- LMS-FP-12A; Diesel Fire Pump Engine 6 Month Surveillance; Revision 10
- LMS-FP-12D; Diesel Fire Pump Engine Spring Surveillance; Revision 10
- LMP-DG-03; Diesel Generator Air Start Motor Replacement; Revision 9
- LMS-DG-01; Main Emergency Diesel Unit Surveillances; Revision 32
- LOP-DG-02; Diesel Generator Startup and Operation; Revision 35
- LOS-DG-M1; 0 Diesel Generator Operability Test, Attachment 0-Fast, 0 Diesel Generator Fast Start; Revision 48
- LMP-RD-18; Control Rod Drive Water Pump Maintenance; Revision 5
- LOS-HP-Q1; Unit 1HPCS Operability and Inservice Test; Revision 49
- LOS-RH-Q1; Unit 2 A RHR System Operability and Inservice Test; Revision 56
- LOS-LP-Q1; Unit 2 LPCS System Operability and Inservice Test; Revision 40

Work Orders:
- 497096-03; OP PMTs No Leaks and Flow Test LOS-DG-Q3 Att B5; 4/14/04
- 497096-04; EP PMT VT-2 on Valve After Replacement; 4/14/04
- 517650-03; OP PMTs No Leaks and Flow Test LOS-DG-Q3 Att B5; 4/14/04
- 517650-12; EP PMT VT-2 on Valve After Replacement; 4/14/04
- 677551-01; OP LOS-DG-M3 U2 HPCS DG Fast Start Att 2B-Fast; 4/15/04
- 677567-01; OP LOS-DG-M3 U2 DG Run Att 2B-Idle; 4/15/04
- 574104-01; 'B' Diesel Fire Pump 6 Month Surveillance; 5/5/04
- 635194-01; 'B' Diesel Fire Pump Spring Surveillance; 5/5/04
- 575205-01; EM Perform Battery Replacement and Cursory Charger Inspect; 5/5/04
- 421993-01; MM Replace the Valve; 5/3/04
- 421993-02; OP PMT: Leak Check 0FP215B Byp Strainer Drain Vlv; 5/6/04
- 694283-02; EM Check Contacts of Kim Hot Start Pressure Switch; 5/7/04
- 685989-01; LOS-FP-M6 B DFP Monthly Run Surv Att B; 5/6/04
- 689117-01; MM Gearbox Vibes have Increased. Inspect and Repair as Needed; 5/20/04
- 689117-02; CMO Vibration Testing; 5/20/04
- 689117-03; OPS PMT Functional and Check for Leaks; 5/20/04
- 689117-04; MM Oil Leak @ Lube Oil Piping & Cuno Filter Will Not Turn; 5/24/04
- 667261-01; OP LOS-HP-Q1 U1 HPCS Pump Run Att 1A; 5/20/04

- 672236-01; OP LOS-RH-Q1 2A RHR Att 2A; 6/2/04
- 421977-03; U2 LPCS System Operability and Inservice Test; 6/21/04

Condition Reports and Issue Resolutions:
- 218971; NRC Discovered Two Loose Bolts on “0B” DFP Engine; 5/10/04
- 160135; Crack Found in Joint Area of Exhaust Manifold; 5/22/03
- 217022; Cracks Found in Adapter Piece; 4/26/04
- 217218; Hydro-Motor Not Positioning Damper to Full Closed; 4/27/04
- 217337; Control Device for Breaker Damaged, Breaker Inoperative; 4/28/04
- 217577; Out of Spec Reading During LOS-DG-M1 for 0DG01K; 4/29/04
- 218378; Common Diesel Generator Ventilation Recirc. Damper Followup; 5/3/04
- 218848; ‘0’ DG Voltage Regulator Settings; 5/5/04
- 222801; Leak on Gearbox Oil Piping Union When Returned to Service; 5/21/04

‘0’ EDG Maintenance Recovery Sequence; 4/26/04

1R22 Surveillance Testing

Procedures:
- LOS-FP-M6; Diesel Fire Pump Operational Check; Revision 5
- LOP-FP-02; Fire Pump Diesel Startup and Shutdown; Revision 14
- LOS-CS-Q1; Secondary Containment Damper Operability Test; Revision 26
- LGA-002; Secondary Containment Control; Revision 3
- LOS-AA-W1; Technical Specifications Weekly Surveillances; Revision 50
- NF-AB-702; Attachment 1 Reactivity Maneuver Approval Form; Revision 0
- LOS-RD-M2; Attachment B CRD Withdraw Stall Flow; Revision 3
- LOS-RI-Q5; Attachment 1A Unit 1 Reactor Core Isolation Cooling System Pump Operability and Inservice Test in Mode 1,2,and 3; Revision 20

Condition Reports:
- 219986; Unit 1 Main Steam Tunnel Temperature > 130 for 10 Minutes; 5/10/04
- 218971; NRC Discovered Two Loose Bolts on “0B” DFP Engine; 5/10/04
- 226492; Unit 1 RCIC Turbine Steam Leak Identified; 6/7/04
- 226477; Oil Leak on RCIC; 6/7/04

Work Orders:
- 685989-01; LOS-FP-M6 B DFP Monthly Run Surv Att B; 5/6/04
- 667695-01; OP LOS-CS-Q1 U2 Sec Cont (VR) Dampers Att 2A; 5/10/04
- 663557-01; OP LOS-CS-Q1 U1 Sec Cont (VR) Dampers Att 1A; 5/10/04
- 692067-01; OP LOS-RD-M2 CRD Withdraw Stall Flows Att B; 5/28/04
- 674205-01; OP LOS-RI-Q5 U1 RCIC Cold-Quick Start Att 1A; 6/7/04

Miscellaneous:
- L2C10-010; Unit 2 Reactivity Maneuver Plan; 5/28/04

1EP6 Drill Evaluation

Procedures:
- LS-AA-2120; Monthly Data Elements for NRC Drill/Exercise Performance; Revision 4

- EP-MW-114-100; Attachment 1 Nuclear Accident Reporting System (NARS); Revision 3

Miscellaneous:
- NRC Form 361; Reactor Plant Event Notification Form filled out as part of the drill; 5/18/04
- LaSalle Quarterly PI Drill Guide; April 2004

2OS1 Access Control to Radiologically Significant Areas

CR 218052; Prompt Investigation Report: Mechanical Maintenance Department Worker Receives Dose Rate Alarm During Scaffold Building Activity for the 2D CP Filter 92CP40MD

2PS3 Radiological Environmental Monitoring Program (REMP) And Radioactive Material Control Program

REMP-6; Environmental, Inc. Pump Maintenance; Revision 9

REMP-6; Environmental, Inc. Field Rotameter Calibration; Revision 7

EIML-SPM-1-16; Sampling Procedures Manual; Revision 7

Interlaboratory Comparison Program Results 2003

Final Progress Report to Exelon Nuclear, Radiological Environmental Monitoring Program (REMP) for LaSalle County Station; January - December 2003

2002 Annual Radiological Environmental Monitoring Operating Report; dated May 15, 2003

2002 Radioactive Effluent Release Report; dated May 1, 2003

FASA AT# 192832-05; Radiological Environmental Monitoring Program (REMP); Revision 1

Corporate Comparative Audit Report 2003 REMP/ODCM/Non-Radiological Effluent Monitoring/NPDES; dated December 12, 2003

NUPIC Audit; dated June 3, 2003

Procedures:
- CY-AA-170-1000; Radiological Environmental Monitoring Program and Meteorological Program Implementation; Revision 0
- LRP-5822-11; SAM Calibration Data Sheet; Revision 9
- RP-AA-500; Radioactive Material Control; Revision 5
- RP-AA-503; Unconditional Release Survey Method; Revision 0

Condition Reports:
- 133720; Error in the ODCM; December 2, 2002
- 134000; Potential Unmonitored Release of Radioactive Material; December 4, 2002
- 135110; Implementing New REMP Program LLDs; December 11, 2002
- 135430, Connector Malfunction Not Documented in CAP; December 12, 2002
- 135663; Two Vendor Identified MET Tower Issues; December 13, 2002
- 140627; Annual NET Tower Site Survey; January 22, 2003
- 152107; MET Tower W/D Instrumentation Failed Channel Check; April 3, 2003
- 154638; MET Tower Wind Speed Indicator (375) Inoperable; April 18, 2003
- 168209; Loss of Power to REMP Air Sample Pump L-03; July 18, 2003
- 115106; REMP Sediment Sample Result Slightly Above LLD Levels; July 10, 2002
- 168209; Loss of Power to REMP Air Sample Pump L-03; July 18, 2003
- 172492; Review of August 2003 Offsite Dose Forecast; August 21, 2003
- 181558; REMP Vendor QA Audit Extent of Condition; October 17, 2003
- 181574; REMP Sample Collector Quality/Performance Assessments; October 17, 2003
- 182473; NOS Identified Omission in Annual Report; October 23, 2003
- 182478; NOS Identified No Enumeration of Livestock in Annual Report; October 23, 2003
- 182499; NOS Identified Editorial Problems with Annual NRC Report; October 23, 2003
- 195907; I-131 Detected in WWTF Effluent Composite; January 17, 2004

4OA1 Performance Indicator Verification

Procedures:
- LS-AA-2001; Collecting and Reporting of NRC Performance Indicator Data; Revision 13
- LS-AA-2080; Monthly Data Elements for NRC Safety System Functional Failure; Revisions 3 and 4
- LS-AA-2020; Monthly Performance (PI) Data Elements for Unplanned Scrams with Loss of Normal Heat Removal; Revision 3
- LS-AA-2010; Monthly Performance (PI) Data Elements for Unplanned Scrams per 7000 Critical Hours; Revision 3
- LS-AA-2010; Monthly Data Elements for NRC/WANO Unit/Reactor Shutdown Occurrences; Revision 4

4OA2 Identification and Resolution of Problems

Condition Reports:
- 192902; Workers Enter High Radiation Area Without Proper Brief; 12/30/2003
- 196455; ED Dose Rate Alarm; 1/20/2004
- 196819; Mechanic Inadvertent Entry into High Rad Area During Walkdown; 1/21/2004
- 197457; Workers Enter High Rad Area Without Brief; 1/21/2004
- 197645; Ineffective Corrective Actions for HRA Entries; 1/26/2004
- 218052; Worker Received Dose Rate Alarm During Scaffold Build; 4/30/2004
- 219920; (NRC ID) Unclear Expectations Provided to the Desk RP Techs; 5/10/2004
- 222882; (NRC ID) Potential for RWP Pick List to Show RWP Improperly; 5/21/2004
- 224641; NOS ID Unauthorized HRA Entry; 5/29/2004
- 225163; High Rad Postings; 6/2/2004

- 226163; Scaffold Survey Tag; 6/5/2004
- 227839; Rad Worker Performance Deficiencies Identified; 6/11/2004
- 228740; NOS ID RP Missed Opportunity to Reinforce Expectations; 6/15/2004

4OA3 Event Follow-up

Procedures:
- LOR-1PM10J-B503; Seismic Operating Basis Earthquake (OBE) / Safe Shutdown Earthquake (SSE) Level Exceeded; Revision 6
- LOR-1PM10J-B504; Strong Motion Seismic Instrument System Initiated; Revision 3
- EP-AA-111; Emergency Classification and Protective Action Recommendations; Revision 7
- EP-AA-115; Termination and Recovery; Revision 3
- EP-AA-1005; Radiological Emergency Plan Annex for LaSalle Station; Revision 16

Updated Final Safety Analysis Report, Revision 13:
- 1.2.2.1.5; Geology and Seismology
- 2.5; Geology, Seismology, and Geotechnical Information

Condition Reports:
- 232131; Seismic Monitoring Data; 6/28/2004
- 232197; Lack of Procedural Direction for Obtaining Data from Seismic Monitors; 6/29/2004
- 231928; Confirmed Seismic Event; 6/28/2004

4OA5 Other

Condition Reports:
- 214700; Switchyard Voltage at LaSalle; 4/13/04
- 212781; Switchyard Voltage at MWROG Plants; 4/1/04
- 216462; Switchyard Voltage Below UFSAR Value 354 kV; 4/22/04
- 227349; U-2 Div 1 Ground Alarm During Rain; 6/10/04
- 227759; Continued Transformer Grounds; 6/11/04
- 180237; Simulator Core Performance Testing; 10/9/2003

Procedures:
- LOA- GRID-001; Low Grid Voltage; Revision 0
- LOA-TORN-001; High Winds/Tornado; Revision 3
- OP-MW-108-107-1001; Station Response to Grid Capacity Conditions; Revision 0
- WC-AA-114; Unit 1 Shutdown Margin Test; 2/4/2002
- LTS-1100-1; Shutdown Margin Determination; Revision 13

Updated Final Safety Analysis Report, Revision 13:
- 8.2.3; Adequacy of Offsite Power Distribution Systems

NRC Information Notice 98-07; Offsite Power Reliability Challenges from Industry Deregulation; 2/27/88

Unit 0 Standing Order S04-11; 345 KV Switchyard Voltage; 5/3/04

ANSI/ANS 3.5; American National Standard – Nuclear Power Plant Simulators for Use in Operator Training; 1985

Simulator Open Work Request Report; dated October 7, 2003

Core Reactivity Test Series:
- BWR-REAC-CR-02; Steady State Conditions at Power; Revision 0
- BWR-REAC-CR-02; Critical Conditions at 170 Degrees Fahrenheit; Revision 0
- BWR-REAC-CR-04; Moderator Temperature Coefficient of Reactivity; Revision 0

LIST OF ACRONYMS USED

AC	Alternating Current
ADS	Automatic Depressurization System
ALARA	As-Low-As-Is-Reasonably-Achievable
APRM	Average Power Range Monitor
ARM	Area Radiation Monitor
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CAR	Corrective Action Request
CFR	Code of Federal Requirements
CP	Condensate Polisher
CR	Condition Report
CRD	Control Rod Drive
CSCS	Core Standby Cooling System
CY	Calendar Year
DC	Direct Current
d/p	Differential Pressure
DRP	Division of Reactor Projects
ECCS	Emergency Core Cooling System
ED	Electronic Dosimeter
EDG	Emergency Diesel Generator
EED	Exelon Energy Delivery
EHC	Electro-Hydraulic Control
HPCS	High Pressure Core Spray
HRA	High Radiation Area
IMC	Inspection Manual Chapter
I&E	Inspection and Enforcement
IN	Instrument Nitrogen
INPO	Institute of Nuclear Power Operations
IR	Inspection Report
kV	Kilovolt
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LHRA	Locked High Radiation Area
LOCA	Loss of Coolant Accident
LPCS	Low Pressure Core Spray
MDRFD	Motor-Driven Reactor Feed Pump
MMD	Mechanical Maintenance Department
M&TE	Measuring & Test Equipment
NCR	Non-Conformance Report
NCV	Non-Cited Violation
NDO	Nuclear Duty Officer
NEI	Nuclear Energy Institute
NER	Nuclear Event Report
NOUE	Notice of Unusual Event
NRC	U.S. Nuclear Regulatory Commission
OBE	Operating-Basis Earthquake

ODCM	Off-Site Dose Calculation Manual
PI	Performance Indicator
PMF	Probable Maximum Flood
PRA	Probabilistic Risk Assessment
psid	Pounds Per Square Inch Differential
psig	Pounds Per Square Inch Gauge
RCA	Radiologically Controlled Area
RCIC	Reactor Core Isolation Cooling
RCR	Root Cause Report
REMP	Radiological Environmental Monitoring Program
RHR	Residual Heat Removal
RMC	Reactor Manual Control
RP	Radiation Protection
RPS	Reactor Protection System
RPT	Radiation Protection Technician
RWP	Radiation Work Permit
SAT	Station Auxiliary Transformer
SDP	Significance Determination Process
SEN	Significant Event Notice
SRI	Safety Review Item
SSC	Systems, Structures, and Components
TDRFP	Turbine-Driven Reactor Feed Pump
TI	Temporary Instruction
TLD	Thermoluminescent Dosimeters
TO	Transmission Operations
TS	Technical Specification
UAT	Unit Auxiliary Transformer
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
USAR	Updated Safety Analysis Report
Vac	Volts Alternating Current
VAR	Volts-Amp Reactive
Vdc	Volts Direct Current