

July 30, 2007

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 05000373/2007003; 05000374/2007003

Dear Mr. Crane:

On June 30, 2007, 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 11, 2007, with the Plant Manager, Mr. Daniel Enright, and other members of your staff.

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

Based on the results of this inspection, two NRC-identified findings of very low safety significance were identified. Both of these findings identified also involved violations of NRC requirements. However, because the findings associated with these violations were of very low safety significance and because the issues were entered into the licensee's corrective action program, the NRC is treating these issues as Non-Cited Violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of any 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, DC 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, DC 20555-0001; and the NRC Resident Inspectors' Office at the LaSalle County Station.

In accordance with the 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA by Nirod Shah for/**

Kenneth Riemer, Chief  
Branch 2  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000373/2007003; 05000374/2007003  
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  
Vice President - Mid-West Operations Support  
Vice President - Licensing and Regulatory Affairs  
Director Licensing - Mid-West Regional  
Operating Group  
Manager Licensing - Clinton and LaSalle  
Senior Counsel, Nuclear, Mid-West Regional  
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Assistant Attorney General  
Illinois Emergency Management Agency  
State Liaison Officer  
Chairman, Illinois Commerce Commission

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Letter to C. Crane from K. Riemer dated July 30, 2007

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INSPECTION REPORT 05000373/2007003; 05000374/2007003

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 05000373; 05000374

License Nos: NPF-11; NPF-18

Report No: 05000373/2007003; 05000374/2007003

Licensee: Exelon Generation Company, LLC

Facility: LaSalle County Station, Units 1 and 2

Location: Marseilles, Illinois

Dates: April 1, 2007, through June 30, 2007

Inspectors: D. Kimble, Senior Resident Inspector  
F. Ramírez, Resident Inspector  
A. Dahbur, Reactor Engineer  
M. Mitchell, Health Physicist  
S. Sheldon, Reactor Engineer  
J. Yesinowski, Illinois Dept. of Emergency Management

Approved by: Kenneth Riemer, Chief  
Branch 2  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000373/2007003, 05000374/2007003; 04/01/2007 - 06/30/2007; LaSalle County Station, Units 1 & 2; Triennial Fire Protection and Surveillance Testing Report.

The inspection was conducted by resident inspectors and regional inspectors. The report covers a three-month period of resident inspection, and an announced baseline inspection of the radiation protection program. Two Green findings and two associated non-cited violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Nuclear Regulatory Commission (NRC) Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

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

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

- Green. The inspectors identified a finding of very low safety significance during a monthly low pressure core spray (LPCS) pump run on Unit 1. Specifically, operations personnel performing LOS-LP-Q1, "LPCS System Inservice Test," did not exhibit proper work control and execution while performing this test. As such, operations personnel did not conduct an adequate pre-job brief and did not have the required copy of the emergency restoration attachment in the field. In addition, when prompted by the inspector for the emergency restoration procedure, the operators in the field were incorrectly provided with an attachment to a different procedure. A non-cited violation of Technical Specification 5.4.1, "Procedures," was also identified for failure to follow the required precaution steps in the continuous use procedure that specifically require operators in the field to have a copy of the emergency restoration attachment.

The inspectors determined that the finding was more than minor because if left uncorrected the finding could become a more significant safety concern. Specifically, if the licensee continues to perform surveillance tests without the required in-field copies of emergency restoration attachments, in a more complex evolution, the operators might not be successful in returning a safety significant system back to standby status. However, because the steps provided by the emergency restoration procedure were simple enough that the operators could have returned the LPCS system to standby if need be, the finding was of very low safety significance. This finding is also related to the cross cutting area of Human Performance (work practices) because the licensee did not define and effectively communicate the expectations regarding procedural compliance and the operations personnel did not follow the procedure. Corrective actions by the licensee included coaching and counseling of the operators involved and a next shift communication message to all operators regarding the incident. (Section 1R22.2)

- Green. The inspectors identified a non-cited violation (NCV) of the LaSalle County Station Operating License for the failure to establish the required physical protection or separation of cables to ensure that one redundant train of systems necessary to achieve and maintain hot shutdown condition was free of fire damage. The licensee instead relied on operator manual actions for post-fire Safe Shutdown (SSD) in the event of a fire in non-alternate shutdown areas. The manual actions were not identified in the SSD procedures. Since the inspection in 2005, the licensee implemented appropriate procedure changes and incorporated the required manual actions.

The finding was more than minor because it affected the attribute of protection against external factors (i.e., fire) and it impacted the objective of the mitigating systems cornerstone. The failure to ensure that one redundant train of systems necessary to achieve and maintain hot shutdown condition free of fire damage and failure to provide adequate instructions for manual actions in shutdown procedures could have adversely impacted the operators's ability to promptly take appropriate actions and could have complicated safe shutdown in the event of a fire. The finding was of very low safety significance (Green) based on a Phase 1 SDP evaluation completed in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process." (Section 4OA5.1)

**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 May 8, 2007, power was reduced to approximately 82 percent to permit entry into the low pressure feedwater heater bay in order to effect repairs on the 14A low pressure feedwater heater normal drain valve controller. Operation at full power was resumed later that same day. On May 19, 2007, power was reduced to approximately 60 percent to facilitate various control rod surveillance tests, a control rod sequence exchange, and minor steam leak repairs in the feedwater heater bay. The unit returned to operation at full power on May 21, 2007. Finally, on June 14, 2007, the licensee reduced power to about 58 percent in order to perform suppression testing in an attempt to localize a possible leaking fuel assembly. The location of the suspected new fuel leak was identified and two control rods were inserted in an attempt to suppress the local core power in the vicinity of the leaking fuel assembly. The unit returned to operation at full power on June 18, 2007, and 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 April 14, 2007, power was reduced to approximately 76 percent to permit emergent repairs to the mechanical linkage for one of the three position indication transmitters associated with main turbine control valve (TCV) No. 3. However, unexpected oscillations of TCVs 1, 2, and 4 occurred when TCV No. 3 was closed to set up for the repairs, and the licensee was forced to abort the repair attempt. The unit was subsequently returned to full power operation on April 15, 2007, and the repairs put on hold pending an investigation into the TCV oscillations. The investigation revealed that the oscillations were due to incorrect steam line constants within the recently installed digital electro-hydraulic turbine control (DEHC) system (Section 1R12). The licensee subsequently swapped DEHC control from reactor steam dome pressure to turbine throttle pressure to alleviate the problem. On April 16, 2007, power was reduced to approximately 67 percent in another attempt to conduct repairs on the No. 3 TCV position indication linkage. Following the successful completion of the repairs, the unit was restored to operation at full power later that same day. On May 27, 2007, power was reduced to approximately 65 percent to facilitate various control rod surveillance tests and a control rod sequence exchange. The unit returned to operation at full power later the same day. Finally, on June 14, 2007, the licensee reduced power to about 80 percent in order to perform emergent repairs to the mechanical linkage for one of the three position indication transmitters associated with TCV No. 4. The failure was similar, but not identical, to the previous position indication failure on TCV No. 3, and resulted in the licensee beginning an extensive investigation into possible causes for the failures. Following repairs to the No. 4 TCV position indication linkage, the unit returned to operation at full power later that same day. The unit continued to operate 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 Protection (711111.01)

##### .1 Summer Seasonal Readiness Preparations

###### a. Inspection Scope

The inspectors performed a review 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. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the TSO and the plant during off-normal or emergency events;
- The explanations for the events;
- The estimates of when the offsite power system would be returned to a normal state; and
- The notifications from the TSO to the plant when the offsite power system was returned to normal.

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:

- Emergency diesel generators (EDGs) and EDG ventilation systems;
- Offsite power supplies; and
- The plant ultimate heat sink.

This review constituted a single inspection sample.

###### b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

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

- Unit 1 Division 1 residual heat removal service water (RHRSW) system; and
- Unit 2 high pressure core spray (HPCS) system

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

These reviews constituted two partial equipment alignment inspection samples.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Zone Inspections

a. Inspection Scope

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

- Fire Zone 7A1, Unit 1 - Division 3 EDG ventilation equipment room, elevation 736'0";
- Fire Zone 3E, Unit 2, elevation 761'0";
- Fire Zone 4C1, control room, elevation 768'0";
- Fire Zone 3H4, Unit 2 reactor core isolation cooling (RCIC)/low pressure core spray (LPCS) cubicle, elevation 694'6";
- Fire Zone 2H2, Unit 1 HPCS cubicle, elevation 694'6"; and
- Fire Zone 5A2, Unit 2 turbine driven reactor feed pump zone, elevation 768'0" and 749'0"

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 contingency fire watches that were in effect.

These reviews constituted six quarterly fire protection inspection samples.

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill Observation

a. Inspection Scope

To evaluate the readiness of licensee personnel to fight fires, the inspectors observed the response of the site's fire brigade to an unannounced, simulated fire in the Technical Support Center 125 Vdc battery room. The following aspects of the response were reviewed:

- Use of protective clothing and self-contained breathing apparatus (SCBAs);
- Use of fire hoses to demonstrate the capability to reach all necessary fire hazard locations without flow constrictions;
- Testing of hose nozzle patterns prior to entering the fire area;
- Entry into the fire area in a controlled manner;
- Presence of sufficient fire fighting equipment at the scene for the fire brigade to properly perform their fire fighting duties;
- Effectiveness and clarity of the fire brigade leader's directions;
- Efficiency and effectiveness of radio communications between plant operators and fire brigade members;
- Checking for fire victims and fire propagation into other plant areas; and
- Effectiveness of simulated smoke removal operations.

The inspectors' review of this annual fire drill constituted a single inspection sample.

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, especially changes such as jersey barriers added as part of recent external security measures. 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 and 2 EDGs; and
- Unit 1 and 2 safety-related switchgear 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 equipment and instrumentation failures, and the transient resulted in a complex loss of coolant accident (LOCA) with a Site Area Emergency declaration. 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, emergency plan execution, and group dynamics.

This quarterly licensed operator 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 of the Code of Federal Regulations (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 inspector identified issue or problem that potential impacted system work practices, reliability, or common cause failures:

- Unit 2 DEHC system due to a high issue rate during the short time the system has been in service; and
- Unit 1 and Unit 2 feedwater heater level control valve issues.

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

These maintenance effectiveness reviews constituted two 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 2 LPCS system planned maintenance window;
- Unit 2 Division 2 emergency core cooling system (ECCS) maintenance window;
- 2A EDG planned maintenance window;
- Unit 2 standby gas treatment (SBGT) system planned maintenance window;
- Unit 1 LPCS availability during testing; and

- 'B' auxiliary equipment room ventilation (VE) compressor emergent replacement activities.

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 maintenance risk assessment and emergent work control reviews constituted six inspection samples.

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.

- OE 07-02: EDG Fuel Storage Capacity;
- OE 07-03: Drywell Head Connection Bolts; and
- OE 06-02, Revision 4: Instrument Nitrogen System.

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

The inspectors' review of these operability evaluations and issues constituted three inspection samples.

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.

- 'B' VE system compressor post-replacement testing;
- Unit 2 LPCS water leg pump post-maintenance testing;
- 0A diesel fire pump testing following a seasonal maintenance window; and
- 2B EDG operability test following maintenance.

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.

The inspectors' review of these post maintenance testing activities constituted four inspection samples.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 General Surveillance Tests

a. Inspection Scope

The inspectors selected the following general 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:

- Fast start test run of the 0 EDG; and
- Unit 1 fuel channel distortion and control blade interference testing.

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.

The review of these general surveillance testing activities by the inspectors constituted two inspection samples.

b. Findings

No findings of significance were identified.

.2 Inservice Testing (IST) Required by the American Society of Mechanical Engineers (ASME) Operations and Maintenance Code

a. Inspection Scope

Based on the relatively high risk significance of the system, the inspectors selected the following Code pump IST activities for review:

- Quarterly IST for Unit 1 RCIC pump; and
- Unit 1 LPCS pump quarterly IST.

The inspectors observed the performance of the test, including reviews for preconditioning, applicability of acceptance criteria, test equipment calibration and control, procedural use, documentation of test data, Technical Specification applicability, compliance with 10 CFR 50.55a, "Codes and Standards," impact of testing relative to performance indicator reporting, and evaluation of the test data.

The review of these IST quarterly pump surveillances constituted two inspection samples.

b. Findings

Introduction

The inspectors identified a finding of very low safety significance (Green) during a monthly LPCS pump run on Unit 1. Specifically, operations personnel performing LOS-LP-Q1, "LPCS System Inservice Test," did not exhibit proper work control and execution while performing this test. As such, operations personnel did not conduct an adequate pre-job brief and did not have the required copy of the emergency restoration attachment in the field. In addition, when prompted by the inspector for the emergency restoration procedure, the operators in the field were incorrectly provided with an attachment to a different procedure. A non-cited violation of Technical Specification 5.4.1, "Procedures," was also identified for failure to follow the required precaution steps in the continuous use procedure that specifically require operators in the field to have a copy of the emergency restoration attachment.

Description

On June 8, 2007, the inspectors observed Unit 1 operations personnel perform the monthly LPCS pump run utilizing LOS-LP-Q1, "LPCS System Inservice Test." LPCS inservice tests, which normally check for proper pump vibrations, flows and pressures, are normally performed on a quarterly basis. Because the pump vibration levels had been in the alert range, the test has been performed monthly for the past several months. During the June 8<sup>th</sup> pump run, the inspectors identified that one of the precautions in LOS-LP-Q1, which requires a continuous level of use, stated that under the guidance provided by Nuclear Management and Resources Council (NUMARC) 93-01, Section 11, the LPCS system may be considered available for on-line risk purposes during the use of the procedure provided the equipment can be 'promptly' restored to standby by a dedicated operator. In addition, the precaution specified that in



order to assure the actions can be performed 'promptly' the attachment for emergency restoration provided the necessary actions to restore the system to standby in the event of a LOCA. The procedure also stipulated that the dedicated operator must be briefed on these actions to be able to accomplish them in the minimum amount of time.

The inspectors questioned the operator in the field and asked to see a copy of the emergency restoration attachment. The operator did not have a copy of the attachment in hand. The operator immediately notified the Work Execution Center (WEC) supervisor and requested that a copy of the emergency restoration procedure be brought out to the field so that the pump run could be continued as required. Later, during the document review, the inspectors identified that the attachment that was sent out to the field was an attachment to a different procedure. The operators were handed a copy of the emergency restoration attachment for LOS-LP-Q2, "LPCS Valve Inservice Test," instead of LOS-LP-Q1. Fortunately, the in-field steps to restore LPCS to standby were the same for both procedures, therefore, in the event it was needed, the attachment for LOS-LP-Q2 would have worked.

After the pump run, operations supervisory personnel concluded that the pre-job brief did not specifically cover the actions required on the attachment for emergency restoration as specified in LOS-LP-Q1. The licensee entered this issue into the corrective action program through IR 638608.

### Analysis

The inspectors determined that the overall lack of work control and proper execution of the LPCS pump run was a performance deficiency that warranted evaluation using the SDP. Specifically, the aggregate effect of the operators not conducting a proper pre-job brief, not having the required in-field copy of the procedure and being provided with the attachment to a different procedure when questioned by the inspectors, resulted in a very poor job execution on the part of the operations personnel. Using IMC 0612, Appendix B, "Issue Screening," the inspectors determined that the finding was more than minor because if left uncorrected the finding could become a more significant safety concern. Specifically, if the licensee continues to perform surveillance tests without the required in-field copies of emergency restoration attachments, in a more complex evolution, the operators might not be successful in returning a safety significant system back to standby status.

To assess significance of the finding, the inspectors used IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations" and determined that Mitigating Systems was the only cornerstone affected. Using the Mitigating Systems column on the Phase 1 SDP worksheet, the inspectors determined that the finding was not a design or qualification deficiency; did not represent the loss of a safety function; did not represent the loss of a single train for greater than the Technical Specifications allowed outage time; did not involve risk-significant non-Technical Specification equipment; and was not potentially risk significant due to seismic, flooding, or severe weather. In this case, the steps provided by the emergency restoration procedure were simple enough that the operators could have returned the LPCS system to standby if need be. Therefore, the finding screened as Green and was considered to be of very low safety significance.

The finding is also related to the cross cutting area of Human Performance as defined in IMC 0305, "Operating Reactor Assessment Program." Specifically, the finding is related to the Work Practices component because the licensee did not define and effectively communicate the expectations regarding procedural compliance and the operations personnel did not follow the procedure. [H.4(b)]

### Enforcement

Technical Specification 5.4.1 requires, in part, that written procedures shall be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 8.b(2)(j) of Appendix A to Regulatory Guide 1.33 requires that specific procedures for surveillance tests, inspections, and calibrations of ECCS should be written and implemented within the licensee's required set of written procedures. Procedure LOS-LP-Q1, "LPCS System Inservice Test," requires the operations personnel to have a copy of the emergency restoration attachment in the field to be able to promptly restore the system to standby in the event of a LOCA.

Contrary to the above, on June 8, 2007, operations personnel while performing the procedure LOS-LP-Q1 did not have a copy of the emergency restoration procedure attachment in the field, which would have resulted in the operators not having guidance to promptly restore the system back to standby status in case of a LOCA. The licensee entered this issue into their Corrective Action Program (CAP) as IR 638608. Corrective actions by the licensee included coaching and counseling of the operators involved and a next shift communication message to all operators regarding the incident. Because the licensee has entered the issue into their CAP and the finding is of very low safety significance, this violation of Technical Specification 5.4.1.a is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000374/2007003-01)

### .3 Reactor Coolant System (RCS) Leak Detection System Testing

#### a. Inspection Scope

The following RCS leak detection system testing activity was selected by the inspectors for review:

- Unit 1 and Unit 2 drywell floor drain sump RCS leak detection system shiftly surveillance tests.

The inspectors observed the performance of the testing activity, including reviews for preconditioning, integration of the testing activities with other plant work, applicability of acceptance criteria, test equipment calibration and control, procedural use, documentation of test data, Technical Specification applicability, and evaluation of test data.

The review of these RCS leak detection system shiftly tests by the inspectors constituted a single inspection sample.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The resident 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 inspector observed, when applicable to each scenario, the classification of events, notifications to off-site agencies and, protective action recommendation development. Observations were compared to the licensee's observations during the drill critique 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 Alert and General Emergency classifications.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Public Radiation Safety**

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

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the most current Radiological Effluent Release Report to verify that the program was implemented as described in Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual (RETS/ODCM) and to determine if ODCM changes were made in accordance with Regulatory Guide 1.109 and NUREG-0133. The inspectors determined if the modifications made to radioactive waste system design and operation changed the dose consequence to the public. There were no radioactive waste system changes during the inspection period. The inspectors verified that technical and/or 10 CFR 50.59 reviews were performed when required and determined whether radioactive liquid and gaseous effluent radiation monitor setpoint calculation methodology changed since completion of the modifications. The inspectors determined if anomalous results reported in the current Radiological Effluent Release Report were adequately resolved.

The inspectors reviewed RETS/ODCM to identify the effluent radiation monitoring systems and accompanying flow measurement devices, effluent radiological occurrence performance indicator incidents in preparation for onsite follow-up, and the UFSAR description of all radioactive waste systems.

These reviews constituted a single inspection sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked-down the major components of the gaseous and liquid release systems (e.g., radiation and flow monitors, demineralizers and filters, tanks, and vessels) to observe current system configuration with respect to the description in the UFSAR, ongoing activities, and equipment material condition.

The inspectors reviewed the routine processing (including sample collection and analysis) of radioactive liquid waste to verify that appropriate treatment equipment was used and that radioactive liquid waste was processed in accordance with procedure requirements and observed the sampling and compositing of liquid blowdown line samples. The inspectors verified that the licensee did not make liquid discharges during the inspection period. The inspectors reviewed routine processing (including sample collection and analysis) and release of radioactive gaseous effluent to verify that appropriate treatment equipment is used and that the radioactive gaseous effluent is processed and released in accordance with RETS/ODCM requirements. The inspectors reviewed several radioactive gaseous effluent release permits, including the projected doses to members of the public.

The inspectors reviewed the records of abnormal releases or releases made with inoperable effluent radiation monitors and reviewed the licensee's actions for these releases to ensure an adequate defense-in-depth was maintained against an unmonitored, unanticipated release of radioactive material to the environment. The inspectors observed that the licensee did not make any abnormal releases during the inspection period.

The inspectors assessed the licensee's understanding of the location and construction of underground pipes and tanks, and storage pools (spent fuel pool) that contain radioactive contaminated liquids. The inspectors evaluated the licensee's potential for unmonitored leakage of contaminated fluids to the groundwater as a result of degrading material conditions or aging of facilities. The licensee's capabilities (such as monitoring wells) of detecting spills or leaks and of identifying groundwater radiological contamination both on site and beyond the owner controlled area was reviewed along with the licensee's technical bases for its onsite groundwater monitoring program. The inspectors discussed with the licensee, its understanding of groundwater flow patterns for the site, and in the event of a spill or leak of radioactive material, if the licensee's

staff had the capabilities necessary to estimate the pathway of a plume of contaminated fluid, both on site and beyond the owner controlled area.

The inspectors reviewed the licensee's technical justification for changes made by the licensee to the ODCM as well as to the liquid or gaseous radioactive waste system design, procedures, or operation since the last inspection to determine whether the changes affect the licensee's ability to maintain effluents As-Low-As-Reasonably-Achievable (ALARA) and whether changes made to monitoring instrumentation resulted in a non-representative monitoring of effluents.

The inspectors reviewed a selection of monthly, quarterly, and annual dose calculations to ensure that the licensee properly calculated the offsite dose from radiological effluent releases and to determine if any annual RETS/ODCM (i.e., Appendix I to 10 CFR 50 values) were exceeded.

The inspectors reviewed air cleaning system surveillance test results to ensure that the system was operating within the licensee's acceptance criteria. The inspectors reviewed surveillance test results (or methodology) the licensee used to determine the stack and vent flow rates. The inspectors verified that the flow rates were consistent with RETS/ODCM or UFSAR values.

The inspectors reviewed records of instrument calibrations performed since the last inspection for each point of discharge effluent radiation monitor and flow measurement device and reviewed any completed system modifications and the current effluent radiation monitor alarm setpoint value for agreement with RETS/ODCM requirements. The inspectors also reviewed calibration records of radiation measurement (i.e., counting room) instrumentation associated with effluent monitoring and release activities and the quality control records for the radiation measurement instruments.

The inspectors reviewed the results of the interlaboratory comparison program to verify the quality of radioactive effluent sample analyses performed by the licensee. The inspectors reviewed the licensee's quality control evaluation of the interlaboratory comparison test and associated corrective actions for any deficiencies identified. The inspectors reviewed the licensee's assessment of any identified bias in the sample analysis results and the overall effect on calculated projected doses to members of the public. In addition, the inspectors reviewed the results from the licensee's quality assurance program audits to determine whether the licensee met the requirements of the RETS/ODCM.

In total, these reviews constituted nine inspection samples.

b. Findings

No findings of significance were identified.

### .3 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 radioactive effluent treatment and 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 NCVs tracked in the corrective action system; and
- Implementation/consideration of risk significant operational experience feedback.

These reviews constituted a single inspection sample.

#### b. Findings

No findings of significance were identified.

## 4. **OTHER ACTIVITIES**

### 4OA1 Performance Indicator Verification (71151)

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

#### .1 Data Submission Issue

##### a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the First Quarter 2007 performance indicators for any obvious inconsistencies prior to its public release in accordance with IMC 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures conducted during the period, the inspectors verified that the licensee entered the problems identified during the inspection into their CAP. Additionally, the inspectors verified that the licensee was identifying issues at an appropriate threshold and verified that problems included in the licensee's corrective action program were properly addressed for resolution. Attributes reviewed included: the 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.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program 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 CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews did not constitute any additional inspection samples. Instead, by procedure they were considered part of the inspectors' daily plant status monitoring activities.

b. Findings

No findings of significance were identified.

.3 Selected Issue Follow-up Inspection: Generic Letter 89-13 Corrective Actions

Introduction

During the First Quarter of 2006, the inspectors identified several issues associated with the licensee's GL 89-13 program. The inspectors reviewed these issues in terms of Effectiveness of Problem Identification and in terms of Prioritization and Evaluation of Issues. As a result, during the Third Quarter of 2006, two non-cited violations were documented against these issues. NCV 05000373/2006005-02; 05000374/2006005-02 was associated with an inadequate procedure used for GL 89-13 Program thermal performance tests on Residual Heat Removal (RHR) heat exchangers. NCV 05000373/2006005-03; 05000374/2006005-03 was associated with the licensee's failure to promptly correct identified issues associated with the GL 89-13 Program for RHR heat exchangers. The inspectors selected the condition reports associated with these NCVs for an annual sample review of the licensee's problem identification and resolution program. This time the inspectors re-visited the issues related to the GL 89-13 Program to review the Effectiveness of Corrective Actions associated with the two NCVs that were documented during the previously mentioned inspection period.

a. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed multiple condition reports, associated with the NCVs identified during the Third Quarter of 2006, to determine if the corrective actions were commensurate with the significance of the issues identified and that the corrective actions were adequately implemented. In addition, the inspectors verified that corrective actions were appropriately focused to correct the problem.

(2) Issues

The inspectors reviewed several documents associated to the condition reports written to correct the issues identified during the Third Quarter of 2006. The licensee wrote Engineering Change (EC) 361808, GL 89-13 Program for RHR Heat Exchangers, to address and correct issues documented in NCV 05000373(4)/2006005-02 and 05000373(4)/2006005-03. The issues addressed by this EC were mostly programmatic since they were focused towards the licensee's objective of improving the GL 89-13 Program, specifically issues related to the RHR heat exchangers. The corrective actions included conducting an analysis that determined how the licensee was meeting the requirements of GL 89-13 and revising commitments to the NRC to be consistent with their current program. The corrective actions and evaluations conducted in EC 361808 appeared to be adequate and the disposition of performance issues appeared to be proper.



The inspectors also reviewed the effectiveness of the corrective actions associated with IR 458571, "Results of 1A RHR Thermal Performance Test Indeterminate." This IR addressed issues associated with the RHR thermal performance test procedure, because in the past, the inspectors identified that the licensee's program for testing the RHR heat exchangers was not in compliance with the requirements of GL 89-13. The inspectors noted that the corrective actions required by IR 458571 appropriately addressed the inadequacies of the procedure and were properly implemented to preclude recurrence.

In addition, the inspectors reviewed multiple condition reports identified through independent searches. Among those were IR 515613 and 534870. In general, these IRs were focused on performing several changes to the RHR heat exchanger portion of the GL 89-13 Program and bringing it back to full compliance with the NRC requirements. Corrective actions related to each condition report appeared to be adequate and were focused on the apparent cause of each condition.

The inspectors reviewed IR 583801. This IR, generated in January of 2006, documented the licensee had identified that as-left inspections were not being performed on heat exchangers in accordance with ER-AA-340-1002. Procedure ER-AA-340-1002, Service Water Heat Exchanger Component Inspection Guide, requires an as-left inspection on service water heat exchangers, after they undergo maintenance, to ensure that it is left in an acceptable condition before resuming operations. However, in March of 2007, after the 2B RHR heat exchanger was tested and cleaned during the outage, the licensee failed to perform an as-left inspection before it was returned to normal operations. IR 603360 was generated to document this issue. Even though the licensee identified the missed inspection (and the violation of ER-AA-340-1002) they failed to initially take proper corrective actions since it reoccurred a little over a year after identifying the deficiency for the first time. The inspectors concluded that despite the as-left inspection not being performed there was enough data to justify that the 2B RHR heat exchanger would still perform its safety function.

#### 4OA5 Other

.1 (Closed) Unresolved Item (URI) 05000373/2005006-01; 05000374/2005006-01: "Licensee Relied on Operator Manual Actions for Post-fire SSD"

a. Inspection Scope

An unresolved item was opened during the 2005 triennial fire protection inspection regarding the licensee's failure to provide physical protection or separation to meet the station's license condition. Instead, the licensee relied upon the use of operator manual actions in the event of a fire in non-alternate shutdown areas, which were not captured in the licensee's procedures.

The inspectors completed follow-up reviews of this issue, and determined that the URI could be closed. The inspectors' reviews of this issue were considered to be a part of the original inspection effort, and as such did not constitute any additional inspection samples.

b. Findings

Introduction

The inspectors identified a finding of very low safety significance and an associated NCV of the LaSalle County Station Operating License for the failure to establish the required physical protection or separation of cables to ensure that one redundant train of systems necessary to achieve and maintain hot shutdown condition was not susceptible to damage by fire. The licensee instead relied on operator manual actions for post-fire SSD in the event of a fire in non-alternate shutdown areas. Specifically, the Safe Shutdown Analysis (SSA) indicated that a fire in Fire Zone 2F1 could affect the cabling for the Unit 1 HPCS injection valve and RCIC isolation valve. Under this scenario, the analysis credited a manual action to locally open the HPCS injection valve. The SSA also indicated a similar action for Unit 2. The licensee failed to provide adequate instructions for these manual actions in the station's SSD procedures.

Description

Unresolved Item 05000373/2005006-01; 05000374/2005006-01 was opened during the 2005 triennial fire protection inspection regarding the licensee's failure to provide physical protection or separation to meet the station's license condition and instead relied upon the use of non-proceduralized operator manual actions in the event of a fire in non-alternate shutdown areas. Specifically, the inspectors noted that the SSA in the licensee's Fire Protection Report, sections H.4.2.11.1 and H.4.2.12.1, relied on operator manual actions to achieve and maintain SSD. In the event of a severe fire in Fire Zones 2F-1 or 3F-1, the licensee relied upon operator manual actions instead of meeting the physical protection or separation guidance contained in Appendix A to Branch Technical Position No. ASB 9.5-1 and the requirements of 10 CFR 50, Appendix R, Section III.G.2. The operator manual actions were to be accomplished outside the main control room (MCR) and were relied upon for achieving and maintaining SSD from the MCR. The licensee did not receive NRC approval for a deviation from these requirements. The inspectors also noted that these operator manual actions were not specifically identified in procedures. Instead, the licensee depended on operator training to respond to the component failures as indicated in Procedure HU-LA-104-101, "Procedure Use and Adherence," Section 4.9.1, "Actions Required to Manually Duplicate an Automatic Action That Has Failed to Automatically Occur May Be Performed from Memory," and as indicated in Section 4.9.2, "Manual Initiation of Automatic Actions That Failed to Occur May Be Performed from Memory Without Procedure."

The licensee's SSA described two methods credited for SSD in the event of a fire, the "Basic" method used from the MCR and the "Alternate" method used from the remote shutdown panel. The "Basic" method utilized the HPCS system and the "Alternate" method utilized the RCIC system for reactor water makeup. The SSA, Section H.4.2.11.1, indicated that a fire in Fire Zone 2F1 could affect the cabling for the Unit 1 HPCS injection valve, 1E22-F004, and the Unit 1, RCIC isolation valve, 1E51-F063.

Under this scenario, the HPCS injection valve could then be manually opened. The SSA, Section H.4.2.12.1, indicated a similar action for the Unit 2 HPCS injection valve, 2E22-F004, and the RCIC isolation valve, 2E51-F063, in the event of a fire in Fire Zone 3F1.

Safety Evaluation Report (SER), NUREG-0519 Supplement No. 7, Section 9.5.8, indicated that the licensee provided a commitment, in a letter dated November 28, 1983, to meet the requirements of Appendix R with the deviations identified and accepted by the NRC staff. The licensee could not locate an approved deviation for the above manual operator action of manually opening the HPCS injection valve. The SER Supplement No. 5 also indicated that based on the NRC evaluation, the staff concluded that the licensee's fire protection program, with the accepted deviations for SSD, met the guidelines contained in Appendix A to Branch Technical Position No. ASB 9.5-1, the technical requirements of Appendix R to 10 CFR 50, and Criterion III of the General Design Criteria, and were therefore acceptable.

During the 2005 inspection, the inspectors walked down the operator manual actions discussed above and reviewed them against the feasibility guidance contained in NRC Inspection Procedure 71111.05T, Enclosure 2, "Inspection Criteria for Fire Protection Manual Actions." The inspectors concluded that although the operator manual actions were not specifically listed in the licensee's procedures and could have resulted in a delay in performing the necessary actions, they were feasible and could be reasonably accomplished within the assumed time frame for completion. Specifically, per Nuclear Design Information Transmittal LAS-ENDIT-H035, "Appendix R Evaluation for Task No. 22," and Procedure LOA-FX-101/201, "Unit 1 and Unit 2 Safe Shutdown with a Loss of Offsite Power and a Fire in the Control Room or Auxiliary Electric Equipment Room," either HPCS or RCIC would be required to provide reactor water makeup within 20 minutes.

The inspectors reviewed the URI and determined that the above described operator manual actions were not previously approved in the licensee fire protection program. The licensee's failure to provide physical protection or separation for cables associated with the HPCS injection valves and RCIS isolation valves and incorporate the required manual actions associated with the HPCS valves into procedures could have delayed and adversely affected safe shutdown in the event of a severe fire in Fire Zone 2F1 or 3F1.

Since the inspection in 2005, the licensee has revised Procedure LOA-FP-101, Attachments C and D, for Fire Zones 2F1, 2G1, 3F1 and 3G1 and incorporated the required manual actions to locally operate the 1(2)E22-F004, HPCS injection valves.

### Analysis

The inspectors determined that the licensee's failure to provide physical protection or separation for cables associated with HPCS and RCIS isolation valves and incorporate the required manual actions associated with the HPCS valves into procedures in the event of a severe fire in Fire Zone 2F1 or 3F1 was a performance deficiency warranting a significance evaluation. The inspectors concluded that the finding was of more than minor significance in accordance with IMC 0612, "Power Reactor Inspection Reports,"

Appendix B, "Issue Screening," because the failure to provide adequate instructions in the shutdown procedure to promptly open the HPCS injection valves could have adversely impacted the operators' ability to promptly take appropriate actions and could have complicated safe shutdown in the event of a fire. As such, this finding affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).

The inspectors reviewed IMC 0609, "Significance Determination Process," Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," and determined that since the finding affected fire protection, a significance determination evaluation under IMC 0609, Appendix F, was required. The inspectors completed a significance determination of this issue using IMC 0609, Appendix F, "Fire Protection Significance Determination Process." The finding was determined to be of very low safety significance (Green) IMC 0609, Appendix F, Attachment 2, "Degradation Rating Guidance Specific to Various Fire Protection Program Elements." Because the procedural deficiency was compensated for by the experience of the licensee's operators and the inspectors determined that the manual action was feasible (emergency lighting, ladder and handwheel for the valve were available to accommodate the manual actions), a degradation rating of "Low" was assigned to this issue.

Additionally, the inspectors concluded that this finding did not have a cross-cutting aspect.

### Enforcement

License condition 2.C.25 and 2.C.15 of the LaSalle County Station Unit 1 and Unit 2 Operating Licenses, respectively, requires, in part, that the licensee implement and maintain all provisions of the approved fire protection program as described in the licensee's UFSAR, and as approved in NUREG-0519, "Safety Evaluation Report," dated March 1981 through Supplement No. 8 and all associated amendments. The license conditions also indicates that the licensee may make changes to the approved fire protection program without prior approval of the NRC only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. Section 9.5.8, "Appendix R Statement," states, in part, that although the fire protection rule (Appendix R) does not apply to LaSalle County Station, based on the NRC staff's review and evaluation of the licensee's fire protection program that all the requirements of Appendix R are met. Section III.G.2 of Appendix R to 10 CFR 50 requires, in part, that where cables or the equipment of a redundant train of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, one of the three specified means of ensuring that one of the redundant trains remains free of fire damage shall be provided.

Contrary to the above, prior to August of 2005, in the event of a fire in either Fire Zone 2F1 or 3F1 the licensee failed to ensure that one redundant train of systems would remain free from fire damage. Specifically, the licensee failed to protect the cables and/or circuits associated with the HPCS injection valves, 1(2)E-22-F004, in Fire Zones 2F1 and 3F1. The licensee also failed to incorporate the manual actions to

locally operate the HPCS isolation valves into the applicable SSD procedures. This could have adversely impacted the operators' ability to promptly take appropriate actions and could have complicated safe shutdown in the event of a fire in one of these zones. The licensee has entered the issue into their CAP as IR 364228 and incorporated the required manual actions to locally operate the HPCS injection valves, 1(2)E22-F004, into procedure LOA-FP-101. Because this finding was of very low safety significance and because it had been entered into the licensee's CAP, the violation of the licensee's facility operating license is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000373/2007003-02; 05000374/2007003-02)

.2 (Closed) URI 05000373/2005006-04; 05000374/2005006-04: "Justification Inadequate for Detection System Not Meeting National Fire Protection Association (NFPA) 72E Requirements"

a. Inspection Scope

An unresolved item was opened during the 2005 triennial fire protection inspection associated with the licensee's justification for deviating from the NFPA code of record (72E-1974, "Automatic Fire Detectors") for the installation of automatic smoke detectors. Specifically, the inspectors were concerned that the analysis did not adequately justify the quantity and location of smoke detectors in several safety-related fire zones.

During a walkdown of Unit 2 Fire Zones 4E2, Auxiliary Electrical Equipment Room; 4E4, Division 2 Switchgear and 125 Vdc Battery Room; 4F2, Division 1 Switchgear and 250/125 Vdc Battery Rooms; and 5D2, Division 3 HPCS Switchgear and 125 Vdc Battery Room, the inspectors noted several concerns regarding the spacing and installation of smoke detectors. Specifically, the smoke detectors were located below beams that were 18 inches and larger in depth, and several smoke detectors were located below the cable trays in the fire zone. Also, the inspectors noted that an aisle located in Fire Zone 4E4 did not have smoke detectors installed in the beam pocket, as required per NFPA code 72E-1974.

In response to a previously identified NRC violation in December 12, 1983, for similar concerns, the licensee performed an analysis which included justification for the smoke detectors' installation and recommended modifications. During the 2005 inspection, the inspectors reviewed the analysis which justified the installation of the smoke detectors, and concluded that the analysis was inadequate. Specifically, the analysis did not address several critical aspects of the detectors and did not include details to sufficiently document the basis for acceptability.

The licensee entered the inspectors' concerns into their CAP as IR 368883. The licensee also performed an evaluation that was completed by a fire protection consultant on May 9, 2007, which provided more detailed justifications, literature review, and technical findings for smoke detector response under conditions of forced ventilation and smoke stratification in an electrical equipment room. The licensee initiated an Engineering Change Request, EC 365979, to incorporate the May 9, 2007, evaluation into their calculation of record, L-003289.

The inspectors completed follow-up reviews of this issue, and determined that the URI could be closed. The inspectors' reviews of this issue were considered to be a part of the original inspection effort, and as such did not constitute any additional inspection samples.

b. Findings

No findings of significance were identified.

.3 (Closed) URI 05000374/2007002-03: "A 10 CFR 50.59 Screening Performed to Support Reactor Vessel Disassembly Procedure Changes Does Not Apply to De-Tensioning the Drywell Head in Mode 3"

On February 26, 2007, the inspectors conducted a detailed review of the licensee's activities surrounding the early de-tensioning of half of the drywell head closure bolts at the start of a scheduled Unit 2 refueling outage. In reviewing the licensee's change to the reactor disassembly procedure that had introduced the ability to partially de-tension the drywell head in Mode 3, the inspectors identified that the licensee's procedure change had not been adequately supported by a 10 CFR 50.59 screening or evaluation. The screening the licensee had performed in accordance with 10 CFR 50.59 was intended to support numerous changes to the reactor vessel disassembly procedure, and was written in a highly generic fashion as a result. Upon closer review, the inspectors identified that the document addressed only the removal of drywell head shield blocks in Mode 3, and that the de-tensioning of drywell head closure bolts in Mode 3 was not addressed at all. At the end of the First Quarter 2007 inspection period, the licensee was still in the process of developing a 10 CFR 50.59 screening and/or evaluation to support the Mode 3 drywell head de-tensioning procedure changes. As a result, this issue was considered unresolved, pending the inspectors' receipt and review of the licensee's 10 CFR 50.59 screening and/or evaluation.

From April 23, 2007 through May 18, 2007, NRC regional inspectors conducted a periodic baseline "Evaluation of Changes, Tests, or Experiments (10 CFR 50.59), and Permanent Plant Modifications" inspection. The licensee's final 10 CFR 50.59 evaluation and associated documents related to this issue were examined as part of this inspection, the results of which were documented in NRC Inspection Report 05000373/2007007; 05000374/2007007 (ADAMS Accession Number ML071550429). As a result, the inspectors determined that this URI could be closed. The inspectors' reviews of this issue were considered to be a part of the original inspection effort, and as such did not constitute any additional inspection samples.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to the Plant Manager, Mr. Daniel Enright, and other members of licensee management on July 11, 2007. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exits were conducted for:

- A periodic Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems program inspection with the Plant Manager, Mr. Dan Enright, and other members of licensee management on May 25, 2007.
- Follow-up of two URIs associated with the 2005 Triennial Fire Protection Inspection (URI 05000373/2005006-01; 05000374/2005006-01 and URI 05000373/2005006-04; 05000374/2005006-04) with Site Vice President, Ms. Susan Landahl, and other members of licensee management on May 31, 2007, via telephone.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

S. Landahl, Site Vice President  
D. Enright, Plant Manager  
J. Bashor, Site Engineering Director  
R. Bassett, Emergency Preparedness Manager  
R. Chrzanowski, Chemistry Manager  
T. Connor, Maintenance Director  
R. Ebright, Site Training Director  
B. Ginter, Engineering Programs Manager  
F. Gogliotti, System Engineering Manager  
B. Kapellas, Radiation Protection Manager  
S. Marik, Work Management Director  
J. Rappeport, Nuclear Oversight Manager  
D. Rhodes, Operations Director  
J. Rommel, Design Engineering Manager  
T. Simpkin, Regulatory Assurance Manager  
H. Vinyard, Shift Operations Superintendent  
C. Wilson, Station Security Manager

#### Nuclear Regulatory Commission

K. Riemer, Chief, Reactor Projects Branch 2



## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000373/2007003-01	NCV	Failure to properly control and execute work during a Unit 1 LPCS Inservice Test. (Section 1R22.2)
05000373/2007003-02; 05000374/2007003-02	NCV	Licensee Relied on Operator Manual Actions for Post-fire SSD. (Section 4OA5.1)

### Closed

05000373/2007003-01	NCV	Failure to properly control and execute work during a Unit 1 LPCS Inservice Test. (Section 1R22.2)
05000373/2007003-02; 05000374/2007003-02	NCV	Licensee Relied on Operator Manual Actions for Post-fire SSD. (Section 4OA5.1)
05000373/2005006-01; 05000374/2005006-01	URI	Licensee Relied on Operator Manual Actions for Post-fire SSD. (Section 4OA5.1)
05000373/2005006-04; 05000374/2005006-04	URI	Justification Inadequate for Detection System Not Meeting NFPA 72E Requirements. (Section 4OA5.2)
05000374/2007002-03	URI	A 10 CFR 50.59 Screening Performed to Support Reactor Vessel Disassembly Procedure Changes Does Not Apply to De-Tensioning the Drywell Head in Mode 3. (Section 4OA5.3)

### Discussed

None.

## LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

### 1R01 Adverse Weather

#### Issue Reports:

633497; NOS ID – 2007 Summer Readiness Preparation Deficiencies; 5/24/2007

#### Procedures:

- OP-AA-108-107-1001; Station Response to Grid Capacity Conditions; Revision 2
- OP-AA-108-111-1001; Severe Weather and Natural Disaster Guideline; Revision 2
- EN-LA-402-0005; Extreme Heat Implementation Plan – LaSalle; Revision 8
- LOA-TORN-001; High Winds / Tornado; Revision 7
- LOS-ZZ-A2; Preparation For Winter/Summer Operation; Revision 33
- LOA-GRID-001; Low Grid Voltage; Revision 7

LaSalle 2007 Summer Readiness Duty Team Guide

### 1R04 Equipment Alignment

#### Issue Reports:

- 603360; 2B RHR HX As-Left Inspection Not Performed by Engineering; 3/13/2007
- 614974; 2B RHR Heat Exchanger level Indicator Indicating Low; 4/14/2004

#### Procedures:

- LOP-RHWS-1AM; Unit 1 A RHR Service Water System Mechanical Checklist; Revision 1
- LOP-HP-02M; Unit 2 High Pressure Core Spray Mechanical Checklist; Revision 15
- LOP-HP-02E; Unit 2 High Pressure Core Spray Electrical Checklist; Revision 5

### 1R05 Fire Protection

#### Miscellaneous Fire Protection Documents:

- LaSalle County Station - Fire Protection Report
- Fire Drill Scenario No. 75, TSC 125 vdc battery Fire; 4/12/2007
- Fire Brigade PQD Qualification Report; Report Generated on 5/24/2007

#### Procedures:

- CC-AA-211; Fire Protection Program; Revision 2
- LOA-FP-201; Unit 2 Fire Protection System Abnormal; Revision 9
- LRP-1360-13; Pneumatic System Quality Surveillance; Revision 7
- RP-LA-825-1003; Maintenance Care and Inspection of ISI Magnum SCBA; Revision 5
- OP-AA-201-003; Fire Drill Performance; Revision 8
- OP-AA-201-005; Fire Brigade Qualification; Revision 5

### 1R06 Flood Protection Measures

#### Issue Reports:

- 635218; NRC ID – LES-LS-01 Purpose Statement A.2 Incorrect; 5/30/2007

#### Procedures:

- LES-LS-01; Inspection of Magnetrols and Capacity Check for Sumps in Flood Control Zone and Other Related Sumps; Revision 13
- LOA-DIKE-001; Lake Dike Damage/Failure; Revision 7
- LOA-FLD-001; Flooding; Revision 8
- LTS-1000-29; Water Tight Door and Penetration Inspection; Revision 11

### LaSalle PRA Risk Insights Regarding Internal Flooding

### 1R11 Licensed Operator Requalification Program

#### Dynamic Simulator Scenario Guide:

- ESG 06; Revision 1

### 1R12 Maintenance Effectiveness

#### Issue Reports:

- 605171; Digital EHC Modification Test Exceptions; 3/16/2007
- 607154; Received Alarm EHC Minor; 3/21/2007
- 607716; Declared U2 BPV #1 INOP Due to an EHC leak; 3/22/2007
- 614548; Multiple Card Issues Since Unit 2 Startup on Digital EHC; 4/8/2007
- 615127; Unexpected MCR Digital EHC Diagnostic Alarm; 4/10/2007
- 617113; Digital EHC Diagnostic Alarms; 4/14/2007
- 617318; Erratic EHC Pressure Control; 4/15/2007
- 620114; Received Momentary DEHC Network Alarms; 4/21/2007
- 620154; DEHC Alarms from Swapping GC Pumps; 4/22/2007
- 621367; EHC Minor Alarm; 4/25/2007
- 622338; Unexpected MCR Digital EHC Alarm; 4/26/2007
- 623032; Digital EHC Unexpected Alarm During LOS-TG-W2; 4/28/2007
- 626026; 14A Heater Drain Valve Controller Output Exceeds Special Log Limit; 5/6/2007

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

#### Issue Reports:

- 621365; LPCS Pressure Reads Lower Than Expected; 4/25/2007
- 621366; LPCS/'A' LPCI Low Pressure Alarms; 4/25/2007
- 621305; RHR/LPCS Keep Fill Rigs Don't Keep System Filled; 4/24/2007
- 622693; NRC ID – RCIC Operability concern with LPCS Keep Fill Rig; 4/27/2007
- 623665; NRC ID – Concern in Unit 2 RCIC/LPCS Room; 4/30/2007
- 629995; 0B VE Refrigeration Machine Tripped; 5/15/2007
- 640035; NRC ID – WC-AA-101 Guidance Challenged; 6/13/2007

#### Procedures:

- WC-AA-101; On-line Work Control Process; Revision 13

### 1R15 Operability Evaluations

#### Operability Evaluations:

- OE 07-03; Drywell Head Connection Bolts; Revision 0
- OE 06-02; Instrument Nitrogen and Safety Relief Valves 1(2)B21-F013C, D, E, S, and U; Revision 4
- OE 07-02; Emergency Diesel Generator Fuel Storage Capacity; Revision 0

#### Issue Reports:

- 622610; EC 364755 Difficult to Follow; 4/27/2007
- 582762; Risk of Receiving Unapproved Ultra Low Sulfur Diesel Fuel; 1/24/2007
- 612524; Non-Conservative Tech Specs for EDG Fuel Storage Capacity; 4/3/2007

#### LaSalle Updated Final Safety Analysis Report

EC 364755; Impact of USLD Fuel on the Emergency Diesel Generators and Fuel Oil Storage System; Revision 0

S07-011; Unit 0 Standing Order, EDG Storage Tank Minimum Values; Revision 1

### 1R19 Post-Maintenance Testing

#### Issue Reports:

- 630999; Potential Wiring Discrepancies (B-VE work); 5/8/2007
- 629995; 0B VE Refrigeration Machine Tripped; 5/15/2007

#### Procedures:

- LOS-FP-M6; Diesel Fire Pump Operational Check; Revision 9
- LOS-LP-Q1; LPCS System Inservice Test; Revision 44
- LOS-DG-M3; 2B Diesel Generator Operability Test; Revision 65

#### Work Orders:

- 01017987; New B VE Compressor Noisy; 4/11/2007

#### Drawings and Prints:

- M-1468; Refrigerant Piping Auxiliary Electrical Equipment Room HVAC System 0B; Revision H

### 1R22 Surveillance Testing

#### Issue Reports:

- 625212; Unexpected Alarm in Unit 1 Control Room; 5/3/2007
- 638608; LOS-LP-Q1 Issues, 6/8/2007

#### Procedures:

- LOS-RI-Q3; RCIC System Pump Operability and Valve Inservice Tests in Conditions 1, 2, and 3; Revision 42
- LOS-RI-Q5; RCIC System Pump Operability and Valve Inservice Tests in Conditions 1, 2, and 3, and Cold Quick Start; Revision 26
- LOS-RD-SR7; Channel Interference Monitoring; Revision 9
- LTS-1100-4; Scram Insertion Times; Revision 28
- LOS-DG-M1; 0 Diesel Generator Operability Test; Revision 58
- LOS-LP-Q1; LPCS System Inservice Test; Revision 44

- LOS-AA-S101; Unit 1 Shiftly Surveillance; Revision 42
- LOS-AA-S102; Unit 2 Shiftly Surveillance; Revision 48

Second Ten Year Interval IST Program; Revision 8

1EP6 Drill Evaluation

LaSalle Second Quarter 2007 Full Scale Performance Indicator (PI) Mini Drill Scenario;  
4/24/2007

2PS1 Radioactive Gaseous And Liquid Effluent Treatment And Monitoring Systems

Annual Reports:

- Annual Radiological Effluent Release Report; 2005
- Annual Radiological Environmental Operating Report; 2005
- Annual Radiological Effluent Release Report; 2006
- Annual Radiological Environmental Operating Report; 2006

Procedures:

- LRP-1820-24; Unit 1 RBCCW Process Radiation Monitor Calibration; 5/16/2007
- LRP-1820-24; Unit 2 RBCCW Process Radiation Monitor Calibration; 10/24/2006
- LRP-1820-24; Unit 1 RHR-1A Process Radiation Monitor Calibration; 4/5/2005
- LRP-1820-24; Unit 1 RHR-1B Process Radiation Monitor Calibration; 1/18/2007
- LRP-1820-24; Unit 2 RHR-2A Process Radiation Monitor Calibration; 8/31/2006
- LRP-1820-24; Unit 2 RHR-2B Process Radiation Monitor Calibration; 5/2/2006
- LRP-1820-24; Unit 1 Service Water Process Radiation Monitor Calibration; 8/8/2006
- LRP-1820-24; Unit 2 Service Water Process Radiation Monitor Calibration; 1/14/2006
- CY-LA-170-301; Off-Site Dose Calculation Manual; Revision 0
- EN-AA-407; Response to Unplanned Discharges, Spills, and Venting of Licensed Radionuclides to Groundwater, Surface Water, or Soil; Revision 0
- LIS-PR-002; Station Vent Main Stack Effluent and Sampler Flow Rate Monitor Calibration; Revision 18
- CY-AA-170-400; Radiological Goundwater Protection Program; Revision 1
- CY-LA-170-4160; Radioactive Goundwater Protective Program Scheduling and Notification; Revision 0
- LCP-310-08; Airborne Tritiated Water Sampling Analysis; Revision 16
- LCP-310-52; Wide Range Gas Monitor Normal Noble Gas; Iodine; Particulate Sampling; Revision 1
- LIS-PR-003; Standby Gas Treatment System Sampler Flow Rate Monitor Calibration; Revision 15
- LIS-PR-002; Station Vent Main Stack Effluent and Sampler Flow Rate Monitor Calibration; Revision 18
- LCP-310-14; Sampling and Compositing Cooling Pond Makeup and Blowdown Samples; Revision 9

Assessments:

- SART 564965-04; Self-Assessment: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems; 3/30/2007
- FASA-AT 215729-05; Self-Assessment: RETS Liquid and Gaseous Effluents and Performance Indicator Validation; 5/5/2005

Issue Reports:

- 345069; Observed Increase in Station Vent Stack Noble Gas Monitor Response; 5/17/2005
- 353479; Waste Oil Drum Leak - Building 20; 7/15/2005
- 355580; Flat Roof Drain Leaking on Floor to Outside Radiologically Controlled Area; 7/27/2005
- 363264; Medical Iodine-131 Detected in Sewage Treatment Plant; 8/16/2005
- 447149; Inconsistent Offsite Dose Calculation Manual Requirements; 1/29/2006
- 469796; Issues/Enhancements Identified in 10 CFR 50.75(g) Documentation; 3/23/2006
- 476242; Nuclear Oversight Identified: Lack of Implementation of Regulatory Guide 4.15; 4/7/2006
- 477233; Nuclear Oversight Identified: Incorrect Statement in Annual Radioactive Effluent Report; 4/11/2006
- 478257; Nuclear Oversight Identified: CY-LA-170-301 Offsite Dose Calculation Manual Enhancements; 4/13/2006
- 537056; Tritium in One Well and Two Surface Water Samples Greater Than 200 Picocuries per Liter; 9/27/2006

4OA2 Identification and Resolution of Problems

Issue Reports

- 458571; Results of 1A RHR Thermal Performance Test Indeterminate; 2/21/2006
- 463253; ACE Needed to Evaluate RHR HX Thermal Performance Testing; 2/21/06
- 473455; NRC Identified Discrepancies with the 89-13 Program; 3/31/2006
- 478852; 89-13 Program PI for First Quarter 2006 is Yellow; 4/14/2006
- 479741; LTS-200-17 RHR HX Thermal Performance Test Issues; 4/17/2006
- 515613; GL 89-13 Issues with HX Monitoring Program; 8/01/2006
- 583801; Lack of Formal As-Left Inspections; 1/26/2006
- 603360; 2B RHR HX As-Left Inspection not Performed by Engineering; 3/13/2007
- 522479; Evaluation of 2B RHR HX Indeterminate Tests not Documented; 8/22/2006
- 534870; Engineering Check-in Revealed Deficiencies in the GL 89-13 Program; 9/22/2006

EC 361802; GL 89-13 Program for RHR Heat Exchangers; Revision 0

Generic Letter 89-13 Program Basis Document; Revision 4

LTS-200-17; RHR Heat Exchanger Thermal Performance Monitoring; Revision 9

ER-AA-340-1002; Service Water Heat Exchanger Component Inspection Guide; Revision 3

4OA5 Other

Schirmer Engineering Report; Literature Review and Technical Findings, Smoke Detector Response Under Conditions of Forced Ventilation and Smoke Stratification in an Electrical Equipment Room; 5/9/2007

Procedure:

- LOA-FP-101; Unit 2 Fire Protection System Abnormal; Revision 9

Issue Reports:

- 368883; Fire Detector Locations in Fire Zone 4E4; 8/31/2005
- 364228; HPCS Injection Valve Manual Action; 8/18/2005

## LIST OF ACRONYMS USED

AC	Alternating Current
ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DC	Direct Current
DEHC	Digital Electro-Hydraulic Control
EC	Engineering Change
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
HPCS	High Pressure Core Spray
IMC	Inspection Manual Chapter
IR	Inspection Report or Issue Report
LOCA	Loss of Coolant Accident
LPCS	Low Pressure Core Spray
MCR	Main Control Room
NCV	Non-Cited Violation
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
NUMARC	Nuclear Management and Resources Council
ODCM	Offsite Dose Calculation Manual
PI	Performance Indicator
PMF	Probable Maximum Flood
RCIC	Reactor Core Isolation Cooling
RETS	Radiological Effluent Technical Specifications
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
SBGT	Standby Gas Treatment
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SER	Safety Evaluation Report
SSA	Safe Shutdown Analysis
SSD	Safe Shutdown
TCV	Turbine Control Valve
TSO	Transmission System Operator
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
Vdc	Volts Direct Current
VE	Auxiliary Equipment Room Ventilation
WEC	Work Execution Center