November 17, 2005

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, UNIT 2
NRC SUPPLEMENTAL INSPECTION REPORT 05000374/2005012

Dear Mr. Crane:

On October 7, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed a supplemental inspection using Inspection Procedure (IP) 95001, "Inspection For One Or Two White Inputs In A Strategic Performance Area," at your LaSalle County Station, Unit 2. The enclosed report documents the inspection findings which were discussed on October 13, 2005, with the Site Vice-President, Ms. Susan Landahl, and other members of your staff.

In May 2001, a question regarding an April 6, 2001, scram on Unit 2 was entered into the Frequently Asked Questions (FAQ) process for resolution. The question involved whether or not this event should be counted against the Scram with Loss of Normal Heat Removal (SLNHR) Performance Indicator (PI). In May 2005, this issue was resolved via the process specified in the Nuclear Energy Institute (NEI) guidance document "Regulatory Assessment Performance Indicator Guideline," NEI 99-02, and determined to count against the SLNHR PI for the 2nd Quarter 2001. Because this indicator is tracked for 12 quarters of data and Unit 2 had experienced subsequent SLNHRs in September 2001 and July 2003, the indicator value for this PI achieved a value of 3 (White) for the 3rd and 4th Quarters of 2003, and the 1st Quarter of 2004. Because this value had exceeded the Green/White threshold for the SLNHR PI, this represented a reduction in safety margin characterized by its White color designation and adversely affected the Initiating Events cornerstone. The reduced safety margin associated with this performance indicator warranted a supplemental NRC inspection and assessment of your actions to improve performance in the Initiating Events cornerstone of the Operational Reactor Safety strategic performance area.

We have concluded the following with respect to your staff's actions based on our review of your root cause evaluations and other corrective action program entries for all three events. First, because your staff appears to have adequately addressed the underlying root causes and contributing causes for the loss of normal heat removal associated with these scrams, no significant weaknesses were identified. However, it appears that some of these causes were addressed incidentally by other processes, and not by focused corrective program actions as would be expected after a NRC PI Green/White threshold is exceeded.

Additionally, several corrective action programmatic weaknesses were identified involving your staff's identification and evaluation of these issues. These weaknesses included not performing an overall root or common cause evaluation, weaknesses in CAP process independent assessment, weaknesses in scram risk assessment, inadequate prioritization of actions, and an overall weakness in CAP response. Detailed discussions of these weaknesses may be found in Sections 02.01.c, 02.02.a, 02.02.d, 02.03.a, and 02.03.b of this report, and have the potential to affect your staff's ability to identify and evaluate issues relative to your PI program.

Finally, several performance deficiencies in the area of procedural compliance were identified by NRC inspectors. These deficiencies involved your staff's implementation of individual PI and Corrective Action Program (CAP) procedures with respect to this White PI. Problems included not assigning the correct significance level to a corrective action as described in CAP procedures, not entering a FAQ submission error into the CAP as required by procedure, not conservatively reporting unresolved PI data as specified in your PI data reporting procedure, and not submitting a mid-quarter PI data correction as required by station procedures and NEI 99-02. In aggregate, these procedural compliance issues have the potential to affect the timeliness and accuracy of information submitted in accordance with your PI program, which is a key input to the Reactor Oversight Process.

During this inspection, one finding of very low safety significance (Green) was identified related to the non-programmatic procedural compliance problems discussed above. However, because your submission of PI program data is voluntary and not required by code or regulation, no associated violation of regulatory requirements was identified by the NRC.

If you contest the subject or significance of the finding documented in this report, you should provide a response within 30 days of the date of this inspection report, with a 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 60532-4351; 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. 50-374
License Nos. NPF-18

Enclosure: Inspection Report 05000374/2005012
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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REGION III

Docket No:	50-374
License No:	NPF-18
Report No:	05000374/2005012
Licensee:	Exelon Generation Company, LLC
Facility:	LaSalle County Station, Unit 2
Location:	2601 N. 21st Road Marseilles, IL 61341
Dates:	September 26 through October 7, 2005
Inspectors:	D. Eskins, Resident Inspector J. Yesinowski, Illinois Dept. of Emergency Management
Approved by:	Bruce L. Burgess, Chief Branch 2 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000374/2005012; 09/26/2005 - 10/07/2005; LaSalle County Station, Unit 2; Supplemental Inspection - Scrams With Loss of Normal Heat Removal White Performance Indicator.

This report covers a supplemental inspection performed by the resident inspectors. This inspection identified one Green finding. No violations of regulatory requirements 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.

The NRC performed this supplemental inspection in accordance with Inspection Procedure 95001, “Inspection For One Or Two White Inputs In A Strategic Performance Area,” to assess the licensee’s evaluation associated with a White performance indicator in the Scrams With Loss of Normal Heat Removal area of the Initiating Events cornerstone. During this supplemental inspection, the inspectors determined that the licensee did not perform an overall evaluation of the events that led to a White PI in the area of Scrams With Loss of Normal Heat Removal. However, licensee actions taken to address other aspects of plant performance appeared to also address the root causes of these events. Additionally, the licensee plans to conduct a root cause evaluation for these events. Based on the actions taken and planned, the inspectors identified no significant weaknesses in the licensee’s programs.

However, inspectors did identify several corrective action programmatic weaknesses involving the identification and evaluation of these issues. These weaknesses included not performing an overall root or common cause evaluation, weaknesses in CAP process independent assessment, weaknesses in scram risk assessment, inadequate prioritization of actions, and overall weakness in CAP response. The weaknesses are documented in Sections 02.01.c, 02.02.a, 02.02.d, 02.03.a, and 02.03.b of this report, and had the potential to affect the licensee’s ability to identify and evaluate issues relative to their PI program.

Inspectors also identified several non-programmatic performance deficiencies in the area of procedural compliance. These deficiencies involved the implementation of PI reporting and CAP procedures with respect to this White PI and included not assigning appropriate significance to a corrective action, not entering a FAQ submission error into the CAP, not conservatively reporting unresolved PI data, and not submitting a mid-quarter PI data correction. In aggregate, these procedural compliance issues had the potential to affect the timeliness and accuracy of PI information provided by the licensee to the NRC, which is a key input to the Reactor Oversight Process (ROP).

The licensee’s corrective actions for each of the plant trips contributing to the White performance indicator were determined to correspond with the root and contributing causes identified by the root cause evaluations. At the conclusion of the inspection, the corrective actions were either completed or were being tracked for completion. The licensee had also established a process for performing reviews to assess the effectiveness of these corrective actions.

Given the licensee's acceptable performance in addressing the root causes and contributing causes of the individual plant scrams which contributed to the SLNHR White PI and that the current value of this PI is Green, the White performance indicator will only be considered in the assessment of plant performance for a total of four quarters in accordance with the guidance in Inspection Manual Chapter 0305, "Operating Reactor Assessment Program."

The one finding of very low safety significance which was identified during the inspection is summarized below.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a finding of very low safety significance. Specifically, the inspectors identified several examples where the licensee did not adequately implement applicable corrective action and performance indicator procedural requirements associated with the White PI issue. Because the submission of PI program data is voluntary and not required by code or regulation, no associated violations of regulatory requirements were identified by the inspectors.

  Because this finding was related to a PI that exceeded a threshold, the inspectors determined that it was of more than minor significance. The inspectors determined that the finding was not suitable for SDP evaluation because non-compliance with CAP and PI procedures did not directly result in degraded or inoperable equipment. Therefore, this finding was reviewed by NRC Regional Management, in accordance with IMC 0612, Section 05.04c, and determined to be of very low safety significance. Corrective actions by the licensee include the planned completion of an overall root cause evaluation (RCE) to identify problems, evaluate root causes, and determine corrective actions relative to this White PI. (Section 02.02.a)

B. Licensee-Identified Violations

No violations of significance were identified.

Report Details

Cornerstone: Initiating Events

01 Inspection Scope

This supplemental inspection was performed to assess the licensee's root cause evaluations and CAP actions associated with the Unit 2 Scrams With Loss of Normal Heat Removal (SLNHR) PI in the area of the Initiating Events cornerstone, which exceeded the Green/White threshold in the 2nd Quarter of 2003 through the 1st Quarter of 2004. The three scrams that involved the Loss of the Normal Heat Removal (LNHR) path to the main condenser and caused this performance indicator Green/White threshold to be exceeded are described below:

- On April 6, 2001, a maintenance induced short circuit in the feedwater control logic lead to an automatic reactor scram with loss of normal heat removal. This short circuit caused the failure of a fuse in the 120 Vac input to the feedwater control power supply, which resulted in the loss of power to multiple components in the feedwater control logic. This induced a false reactor water level 3 signal that caused both reactor recirculation pumps to automatically shift to slow speed. The resultant level swell caused reactor water level to reach the high level trip setpoint and the Turbine-Driven Reactor Feedwater Pumps (TDRFPs) and main turbine to trip as designed. This resulted in an automatic reactor scram. Because the Motor-Driven Reactor Feedwater Pump (MDRFP) was unavailable due to maintenance and both TDRFPs were tripped and not easily recoverable from inside the control room, this event resulted in a loss of the normal heat removal path to the main condenser.

- On September 3, 2001, fuse failure caused the loss of power to the feedwater flow control system which led to a manual reactor scram with loss of normal heat removal. These fuses provided power to the safety-related 241Y Bus undervoltage and degraded voltage relays. When these fuses failed, a false undervoltage condition was sensed on the bus and a 241Y Bus trip was initiated which, in turn, resulted in a loss of the power supply to the feedwater control circuitry. Due to the loss of power to the feedwater control system, the demand signal for the TDRFPs went to zero and Reactor Pressure Vessel (RPV) water level began to decrease rapidly. Attempts to restore RPV water level by taking manual control of the TDRFPs were unsuccessful due to all controls and indications on the manual/automatic control stations being de-energized. As RPV water level decreased below plus 20 inches in an uncontrolled manner, operators scrammed the reactor in accordance with plant procedures. The RPV water level continued to decrease below level 2, which initiated an automatic start of the High Pressure Core Spray (HPCS) and Reactor Core Isolation Cooling (RCIC) systems. As a result, the RPV level began to rise rapidly and HPCS and RCIC automatically isolated on high RPV water level. As water level continued to rise, operators closed the Main Steam Isolation Valves (MSIVs), per

procedure, at plus 73 inches to prevent intrusion of water into the main steam lines. The closure of the MSIVs isolated the normal heat removal path to the main condenser.

- On July 7, 2003, the failure of the Main Power Transformer (MPT) 'B' phase disconnect switch resulted in an automatic reactor scram with loss of normal heat removal. This failure caused a main generator lockout which triggered a trip of the main turbine. The reactor automatically scrammed after the main turbine trip. This failure also resulted in an electrical transient in the switchyard that tripped off all circulating water pumps for the unit. The loss of circulating water flow resulted in a loss of the normal heat removal path to the main condenser.

This supplemental inspection was performed in accordance with Inspection Procedure 95001, "Inspection For One Or Two White Inputs In A Strategic Performance Area." The following inspection results are organized by the specific inspection requirements of Inspection Procedure 95001, which are noted in italics in each section.

02 Evaluation of Inspection Requirements

02.01 Problem Identification

a. Determination of who (i.e., licensee, self-revealing, or NRC) identified the issue and under what conditions.

On April 6, 2001, a scram occurred on Unit 2 that was initially not considered a SLNHR by the licensee. The licensee believed that even though the 2A TDRFP had tripped, it was available for use to restore RPV level. NEI 99-02 guidance on this PI provides in the definition for LNHR that a complete loss of all main feedwater flow will be counted against this indicator if it cannot be easily recovered from the control room without the need for diagnosis or repair. Inspectors believed that the 2A TDRFP met this criteria and was not available for use. This issue was submitted via the NRC's FAQ process for resolution. In May 2005, information presented by the licensee included the conclusion that the 2A TDRFP was fully recoverable from the control room using normal operating procedures without diagnosis or repair. However, the inspectors noted that the licensee's Feedwater operating procedure in effect at the time of the scram specifically required an action outside the control room to restart the TDRFP. As a result, the FAQ was resolved to credit the April 6, 2001, scram against the SLNHR PI due to the complete loss of all reactor feedwater flow.

One procedural compliance performance deficiency was noted. The inspectors determined that the error in the licensee's FAQ panel presentation regarding operator actions required outside the control room to start the 2A TDRFP was not entered into the licensee's CAP, as required by plant procedures. Because this error was material to the resolution of the FAQ and, had inspectors not presented corrected information there was a potential for non-conservatively affecting the accuracy of an NRC PI, the inspectors determined that not entering this issue into the CAP for resolution constituted a procedural compliance performance deficiency, which is included as an example under the finding discussed in Section 02.02.a of this report.

The September 3, 2001, scram was credited as a Scram With Loss of Normal Heat Removal performance indicator occurrence due to the complete closure of at least one MSIV in each main steam line.

The July 7, 2003, scram was credited as a Scram With Loss of Normal Heat Removal performance indicator occurrence due to a loss of all circulating water flow as a heat removal path from the main condenser.

All of the scrams were determined to have been self-revealing events by the inspectors.

b. Determination of how long the issue existed, and prior opportunities for identification.

The April 6, 2001, Unit 2 scram was not initially classified by the licensee as a SLNHR. Inspectors considered the event to be a SLNHR. To resolve how this event was to be counted in the PI program, it was submitted for resolution to the NRC's FAQ process. In its 2nd Quarter 2001 PI data, the licensee did not conservatively report this event as a SLNHR. In May 2005, this FAQ was resolved and it was determined that the scram should count against the SLNHR PI. Because two subsequent SLNHR events had occurred in September 2001 and July 2003, the corrected LaSalle Unit 2 SLNHR PI exceeded the Green/White threshold from the 3rd Quarter 2003 though the 1st Quarter 2004. This PI had previously been reported non-conservatively as Green. This corrected information was reported by the licensee during the normal 2nd Quarter data submission in July 2005.

Two procedural compliance performance deficiencies were identified. LS-AA-2010, "Monthly Data Elements for NRC/WANO Unit/Reactor Shutdown Occurrences," required that unresolved issues involving PI data be conservatively reported pending resolution. Additionally, in accordance with NEI 99-02 and LS-AA-2001, "Collecting and Reporting of NRC Performance Indicator Data," PI data corrections resulting in a threshold shift should be made as soon as practical with a mid-quarter report to the NRC. Because the licensee did not initially conservatively report this PI data and did not submit a mid-quarter report as required by their procedures, the July 2003 crossing of the Green/White PI threshold was not reported until July 2005. The licensee did not identify these procedural errors and enter them into their CAP until prompted by inspectors. Because these errors were directly related to the timely and conservative reporting of information to the NRC, the inspectors determined that not identifying these errors and not entering them into the CAP was a procedural compliance performance deficiency, which is included as an example under the finding discussed in Section 02.02.a of this report.

c. Determination of the plant-specific risk consequences (as applicable) and compliance concerns associated with the issue.

In response to each of the three reactor scrams, the inspectors evaluated plant parameters, operator actions, and overall plant status including the availability of mitigating systems. Because the scrams on April 6, 2001, and September 3, 2001, involved a number of equipment performance anomalies and operational complications, the events were reviewed in more detail and were the subject of special inspections conducted in accordance with Inspection Procedure 93812, "Special Inspection," as

documented in NRC Inspection Reports 05000374/2001009 and 05000374/2001017. For the scram on July 7, 2003, the event was inspected via the quarterly baseline Inspection Report 05000373/2003004; 05000374/2003004. Previously, the inspectors had concluded that each individual event was of very low safety significance.

Two programmatic weaknesses were identified in this area by the inspectors. Root Cause Report (RCR) 49049, which evaluated the April 6, 2001, scram did not contain either a quantitative or qualitative plant specific risk assessment for the event. Furthermore, a later root cause reviewing this scram (RCR 53835-12) as part of a series of events also did not perform a plant specific risk assessment for this event or note that the risk assessment in RCR 49049 was inadequate. Additionally, because the licensee did not perform an overall RCE specifically for the LNHR aspects of these events, the overall plant specific risk significance of these three events was not evaluated. In this case, an opportunity was missed to evaluate potential changes to the assumed initiating event frequency for SLNHR in the plant-specific PRA.

02.02 Root Cause and Extent of Condition Evaluation

a. Evaluation of method(s) used to identify root cause(s) and contributing cause(s).

The licensee performed RCEs for issues involved with each of the three plant events which caused the SLNHR PI to cross the Green/White threshold. These root cause evaluations were:

- RCR 49049, "Automatic Reactor Protection System (RPS) Actuation (Scram) Due to Main Turbine Trip on High Vessel Level Because of Blown Fuse in Feedwater System Logic During Maintenance;"
- RCR 75014-12, "Bus 241Y Potential Transformer Primary Side Failed Fuses;"
- RCR 75014-20, "Operating Response to U2 Scram Document Event Response by Operations to U2 Scram;" and
- RCR 166562, "LaSalle Unit 2 Scram due to Main Power Transformer (MPT) B Phase Disconnect Switch Failure."

These evaluations were conducted using a structured methodology to evaluate the root causes and contributing causes of the events. These included root cause trees and event and casual factors analyses. The documented root cause evaluations adequately described the methods used to identify the root causes for the events.

Two programmatic weaknesses were identified. Inspectors determined that because a formal evaluation of the White PI was not performed, the licensee's CAP was ineffective at identifying causes of LNHR relative to these events. Specifically, inspectors determined that a vulnerability in the feedwater control system was potentially a root cause in both the April and September 2001 events. This vulnerability was due to the dependence of the system on a single power supply. However, even though this vulnerability was known to some members of the licensee's organization, it was neither acknowledged nor dispositioned per the CAP relative to these events. Inspectors also determined that justification for not performing a RCE was not documented in the CAP until prompting by inspectors. When the decision not to perform a RCE was documented, the reasoning was without procedural justification and independence from

inspector's questions. Specifically, the licensee partially justified not performing a RCE because the problem had been fixed due to modifications to the Circulating Water (CW) motor excitation circuit and installation of the digital feedwater system. Both modifications had previously been discussed with the licensee by the inspectors in an attempt to determine corrective actions not formally addressed by their CAP.

Two procedure compliance performance deficiencies were identified by the inspectors. The licensee's CAP categorizes Issue Reports (IRs) in with investigation classes 'A' through 'D.' An 'A' investigation class requires a root cause analysis. A 'D' investigation class requires no formal investigation. LA-AA-120, "Issue Identification and Screening Process," mandates that a RCE be performed for any White, Yellow or Red NRC Inspection Finding or NRC Performance Indicator. The licensee did not conduct an overall RCE for the White SLNHR PI, nor did the individual RCEs evaluate the LNHR aspects of these events. The licensee's CAP dispositions IRs with significance levels 1 to 5. The purpose of the significance level assignment per LA-AA-120 is to define the actual consequence of the issue. A significance level 1 issue has the highest significance and is defined as an event that results in a major impact. A significance level 2 event is defined as an event that results in a moderate impact, and a significance level 3 event is defined as an event that results in minor impact. LA-AA-120 also lists a NRC PI designated as a White color as a specific example of a significance level 2 issue. This procedure further states that issues should be classified using the highest applicable level. However, Issue Report 337953 dispositioned the issues involving the White PI as a significance level 3 and an investigation type 'D.' These procedural compliance issues, as well as those discussed in Section 02.01.a and Section 02.01.b, resulted in the identification of the following finding by the inspectors:

Introduction

A finding of very low safety significance (Green) was identified by the inspectors. Specifically, licensee personnel did not properly implement CAP and PI procedures with respect to the reporting, problem identification, and evaluation of a White NRC PI.

Discussion

Per the NRC's Reactor Oversight Process (ROP), inspection, assessment, and enforcement programs for commercial nuclear reactors have two primary inputs. One is the collection of information via inspections. The other is through the voluntary reporting of performance indicator data by licensees. Because these performance indicators are a primary basis for the assessment of licensee safety performance, it is essential that data provided by the licensee for these PIs is accurate and that licensee corrective action programs are capable of identifying and resolving issues affecting the accuracy of PI data submissions.

In the following examples, inspectors identified procedural compliance issues affecting the ability of the licensee to accurately report PI data. These examples are grouped by program.

Corrective Action Program Issues:

- The licensee did not enter a FAQ panel presentation error into the CAP (Section 02.01.a);
- The licensee did not perform an adequate root cause evaluation of the events which caused a Green/White PI threshold shift (Section 02.02.a); and
- The licensee did not assign the correct significance level, as discussed in plant procedures governing the licensee's CAP, to an issue involving an NRC White PI (Section 02.02.a).

Performance Indicator Program Issues:

- The licensee did not conservatively report unresolved PI data, as required by station procedures (Section 02.01.b); and
- The licensee did not submit a mid-quarter correction for data resulting in a Green/White PI threshold shift, as specified in NEI 99-02 and station procedures (Section 02.01.b).

Analysis

The inspectors determined that these examples of weaknesses in procedural compliance and implementation constituted a performance deficiency warranting a significance evaluation. Since the issue was related to a performance indicator that had crossed a Green/White threshold, the inspectors determined that the finding was more than minor, as discussed in IMC 0612, Appendix B, "Issue Disposition Screening."

The inspectors determined that this finding was not suitable for SDP evaluation because the weaknesses in CAP and PI procedure implementation and compliance did not directly result in degraded or inoperable equipment. Therefore, this finding was reviewed by Regional Management, in accordance with IMC 0612, Section 05.04c. Because the licensee's PI had returned to Green in the 2nd Quarter 2004 and the inspectors did not identify any significant licensee programmatic weaknesses, NRC Regional Management determined the finding to be of very low safety significance (Green) and within the licensee's response band.

Enforcement

Because the submission of PI program data by the licensee is voluntary and not required by any code or regulation, the inspectors determined that the procedure compliance weaknesses documented in this finding did not constitute any violations of regulatory requirements. Similarly, because the licensee had followed the established FAQ process with respect to this issue, the inspectors determined that there were no violations of regulatory requirements associated with the accuracy of information provided to the NRC via the PI data submission program.

These issues were entered into the licensee's corrective action program as Issue Reports 337953, 380383, 381372, 385828, and 385831. Corrective actions by the licensee include the planned completion of an overall RCE to identify problems, evaluate root causes, and determine corrective actions relative to this White PI. (FIN 5000374/2005012-01)

b. Level of detail of the root cause evaluation.

The four root cause evaluations were performed in accordance with LS-AA-125-1001, "Root Cause Investigation Report Content and Format," and were found to contain sufficient level of detail for the issues evaluated.

c. Consideration of prior occurrences of the problem and knowledge of prior operating experience.

The licensee's root cause evaluations all included discussions of Operating Experience (OE) and prior plant events. The events included were appropriate for the scope of the evaluations. However, because SLNHR were not specifically considered, OE appropriate for crossing the White threshold for this PI was not included.

d. Consideration of potential common cause(s) and extent of condition of the problem.

One programmatic weakness was identified. The licensee did not perform a common cause or overall root cause analysis for the events which caused the Scrams With Loss of Normal Heat Removal performance indicator to cross the Green/White threshold. Because of this, the licensee missed an opportunity to evaluate these three events for common vulnerabilities which might increase the chances of a LNHR and address whether actions taken since the events had been effective in reducing the probability of future SLNHR events.

02.03 Corrective Actions

a. Appropriateness of corrective action(s).

The inspectors reviewed the root cause evaluations and other corrective actions associated with these events. In most cases, the corrective actions were clearly described and were entered into the licensee's tracking system. The established corrective actions were determined to appropriately address the root causes and contributing causes of the events and if properly implemented would address the problem identified within each of the root cause evaluations.

One programmatic weakness was identified. Because an evaluation of LNHR had not been specifically conducted, corrective actions from these events did not address all concerns related to LNHR. Specifically, the vulnerability of the feedwater system to the loss of a single power supply was not programmatically addressed by the CAP. However, inspectors determined that separate actions taken by the licensee to install a digital feedwater control system effectively addressed this vulnerability.

b. Prioritization of corrective actions.

Prioritization of the corrective actions from the root cause evaluations were not directly based on risk perspectives or analysis, but on a deterministic approach considering the significance of the identified problem.

The inspectors reviewed the prioritization of the corrective actions and verified that actions of a generally higher priority were scheduled for completion ahead of those with a lower priority.

One programmatic weakness was identified. Inspectors determined that the overall response of the licensee to the crossing of a White PI threshold was not as rigorous as or congruent with actions taken by the licensee to address similar White PI threshold events. Specifically, Issue Report 337953 characterizes this issue with a significance level 3 instead of a 2 and did not initially call for an evaluation until prompted by inspectors. This is discussed in detail under the procedural compliance issues in Section 02.02.a. In contrast to this, Issue Report 53835, which is related to another White PI in June 2001, assigns a significance level 2 to the issue and calls for at least an apparent cause evaluation. In this case, both a common cause analysis and an aggregate root cause were performed. Also, despite having four years to prepare and verify the data for presentation to the FAQ panel, inspectors noted during the meeting that key data was in error. This issue is discussed in further detail under the procedural compliance issues in Section 02.01.a. Inspectors questioned how the licensee could have adequately identified problems, evaluated causes, and determined sufficient corrective actions to address this White PI when the only CAP actions initially assigned consisted of an update to NRC PI data and a communication package to PI data stewards.

c. Establishment of schedule for implementing and completing the corrective actions.

The licensee's corrective action program was effective in assigning and tracking completion times for corrective actions for root and contributing causes identified per their evaluations. No concerns were identified.

d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence.

For items identified as root causes in their evaluations, the licensee established an effectiveness review to validate the effectiveness of Corrective Actions to Prevent Reoccurrence (CAPRs). In general, effectiveness reviews were scheduled and completed per the licensee's program. However, the inspectors noted that an effectiveness review for CAPRs as a result of the September 2001 event (Issue Report 075014, Action No. 11) was not scheduled until June 2011. The reason for this ten year delay appears to be related to the schedule to complete installation of a bus Potential Transformer (PT) drawer modification in various electrical buses. Inspectors noted that since the function of each PT drawer modification is essentially the same, a review of

the effectiveness of this modification could be performed in a more timely manner by reviewing the PT drawer modifications already completed in 2002, 2003, and 2004. The inspectors noted that the value of an effectiveness review may greatly diminish if it is scheduled well beyond ten years from the determination of corrective actions.

03 Management Meetings

Exit Meeting Summary

On October 13, 2005, the inspectors presented the inspection results to the Site Vice-President, Ms. S. Landahl, and other members of licensee management. The licensee acknowledged the programmatic weaknesses and the finding presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Landahl, Site Vice-President
D. Enright, Plant Manager
R. Bassett, Emergency Preparedness Manager
T. Connor, Maintenance Director
L. Coyle, Operations Director
D. Czufin, Site Engineering Director
R. Ebright, Site Training Director
F. Gogliotti, System Engineering Manager
B. Kapellas, Radiation Protection Manager
S. Marik, Shift Operations Superintendent
J. Rappeport, Nuclear Oversight Manager (Acting)
D. Rhodes, Work Management Director
T. Simpkin, Regulatory Assurance Manager
C. Wilson, Station Security Manager

Nuclear Regulatory Commission

B. Burgess, Chief, Reactor Projects Branch 2

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000374/2005012-01	FIN	Weaknesses in Corrective Action Program and NRC Performance Indicator Procedure Implementation and Use (Section 2.0.1.b)

Closed

05000374/2005012-01	FIN	Weaknesses in Corrective Action Program and NRC Performance Indicator Procedure Implementation and Use (Section 2.0.1.b)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

Engineering Documents:
- DG-99-000487; LaSalle County Station Reactor Water Level Control System Review of Upgrade Options; 5/05/1999

Issue Reports:
- 001063; The Bailey Control System Design is Weak in the Fact that it is not a “Fault Tolerant” System; 11/25/1998
- 039916; LaSalle unit 2 Automatic Reactor Scram and Main Turbine Trip Caused by High Reactor Water Lever due to Human Performance, Design Deficiency, and Material Condition; 12/01/2000
- 049049; Automatic Actuation (SCRAM) due to Main Turbine Trip on High Vessel Level because of Blown Fuse in Feedwater System Logic During Maintenance; 5/02/2001
- 053835; Ten Reactor Scrams since Restart of Unit 2 from L2R07 due to a Number of Organizational and Management Issues; 11/20/2001
- 075014-12; Bus 241Y Potential Transformer Primary Side Failed Fuses; 9/20/2001
- 075014-20; Operating Response to U2 Scram Document event Response by Operations to U2 Scram; 11/16/2001
- 075014-33; Evaluate Closure of MSIV’s at 73 Inches; 3/01/2002
- 075014-43; PT drawers to be Replaced During the Currently Scheduled Bus Outages (Bus 142Y and 152); 12/20/2002
- 088345; PI Classification of April 6, 2001 Scram; 12/28/2001
- 109759; Ineffective CAPR identified in EFR (Maint. Risk); 5/29/2002
- 141585; Potential Power Supply Failure may Cause Transient; ⅛/2003
- 166562; LaSalle Unit 2 Scram due to Main Power Transformer (MPT) B Phase Disconnect Switch Failure; 7/08/2003
- 167166; Post Review of SCRAM per LAP-200-7; 7/11/2003
- 174327; Digital FW Gateway Computers Vulnerable to Blaster Virus; 9/04/2003
- 287541; Root Cause Report RCR - To Investigate 1C Circ Water Pump Tripped; 2/07/2005
- 296984; Fault on Two Non-Production Risk Sys Could Affect Production; 2/02/2005
- 337953; NRC ROP PI FAQ Appeal Denied for Unit 2 Scram on 4/6/01; 5/24/2005
- 380383; Incorrect Information given to NRC regarding ROP PI FAQ 27.3; 9/30/2005
- 381372; NRC Feedback from IP 950001 Inspection on Historical White PI; 10/03/2005
- 383173; Incomplete NRC EP DEP PI Documentation SEP LORT Simulator; 10/07/2005
- 385828; Procedure Deficiencies Identified during PI 95001 Inspection; 10/13/2005
- 385831; Weakness Identified in Risk Assessment for 4/2001 SCRAM RCR; 10/13/2005
- 385838; ROP PI Data Completeness; 10/13/2005

NEI 99-02; Nuclear Energy Institute Regulatory Assessment Performance Indicator Guideline; Revision 3

Procedures:
- LOP-FW-04; Startup of Turbine Driven Reactor Feed Pump (TDRFP); Revision 32
- LS-AA-120; Issue Identification and Screening Process; Revision 3

- LS-AA-125-1001; Root Cause Investigation Report Content and Format; Revisions 4 & 8
- LS-AA-125-1004; Effectiveness Review Manual; Revision 2
- LS-AA-2010; Monthly Data Elements for NRC/WANO Unit/Reactor Shutdown Occurrences; Revisions 3 & 4
- LS-AA-2020; Monthly Performance Indicator (PI) Data Elements for Unplanned Scrams with Loss of Normal Heat Removal; Revision 3
- MA-AA-716-100; Maintenance Alterations Process; Revision 6
- MA-AA-716-010; Maintenance Planning; Revision 7
- MA-MW-1001; Maintenance Risk Assessment; Revision 3
- WC-AA-106; Work Screening and Processing; Revision 3

LIST OF ACRONYMS

CAP	Corrective Action Program
CAPR	Corrective Actions to Prevent Reoccurrence
CFR	Code of Federal Regulations
CW	Circulating Water
DRP	Division of Reactor Projects
FAQ	Frequently Asked Questions
HPCS	High Pressure Core Spray
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report or Issue Report
LNHR	Loss of the Normal Heat Removal
MDRFD	Motor-Driven Reactor Feedwater Pump
MPT	Main Power Transformer
MSIV	Main Steam Isolation Valve
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OE	Operating Experience
PARS	Publically Available Records
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PT	Potential Transformer
RCE	Root Cause Evaluation
RCIC	Reactor Core Isolation Cooling
RCR	Root Cause Report
ROP	Reactor Oversight Program
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
SDP	Significance Determination Process
SLNHR	Scram with Loss of Normal Heat Removal
TDRFP	Turbine Driven Reactor Feed Pump