U.S. NUCLEAR REGULATORY COMMISSION REGION III

Report No. 50-373/93011(DRP); 50-374/93011(DRP)

Docket Nos. 50-373; 50-374

License Nos. NPF-11; NPF-18

Licensee: Commonwealth Edison Company Executive Towers West III 1400 Opus Place Suite 300 Downers Grove, IL 60515

Facility Name: LaSalle County Station, Units 1 and 2

Inspection At: LaSalle Site, Marseilles, Illinois

Inspection Conducted: March 16 through April 26, 1953

Inspectors: D. Hills

C. Phillips

J. Roman, Illinois Department of Nuclear Safety

Approved By:

L. Hague Chief

Reactor Projects Section 1C

4/30/93

Inspection Summary

Inspection from March 16 through April 26, 1993 (Reports No. 50-373/93011 (DRP); 50-374/93011(DRP)).

<u>Areas Inspected:</u> A routine, unannounced safety inspection was conducted by the resident inspectors and an Illinois Department of Nuclear Safety inspector. The inspection included followup on previously identified items and licensee event reports; review of operational safety, monthly maintenance, and surveillance activities; safety assessment and quality verification; and report review.

<u>Results:</u> No cited violations were identified during the inspection. One noncited violation was identified regarding inadequate supervisory review of a surveillance procedure change discussed in paragraph 5.b. Two unresolved items were identified regarding the safety analysis performed for operating a Unit 2 high pressure feedwater heater with the emergency drain isolated, discussed in paragraph 4.a.(1) and the requirement to proceduralize the closing of the feedwater isolation valve during an accident discussed in paragraph 7.b..

Plant Operations

Performance remained steady in this area. Operator response to a loss of annunciators was good. However, clarification through operator training regarding potential for emergency classification on an inverter loss was warranted.

Maintenance/Surveillance

Performance remained steady in this area. A review of diagnostic maintenance programs showed mixed performance, however the capabilities of the performance monitoring group could be under utilized. Problems continued with attention to detail during maintenance activities as demonstrated by an inadvertent half-scram during the rod block functional surveillance and the auto start of a diesel generator cooling water pump while returning the pump to service after maintenance. The licensee identified a surveillance procedure containing inadequate acceptance criteria.

Safety Assessment/Quality Verification

Performance remained steady in this area. The licensee demonstrated through several examples a failure to initially deal with problems aggressively. The number of quality assurance (QA) observations and findings decreased significantly due to the onsite QA organization staffing cuts. The significance of this decrease will be reviewed in future inspections. DETAILS

1. Persons Contacted

- W. Murphy, Site Vice President
- *G. Spedl, Station Manager
- *J. Gieseker, Site Engineering and Construction Manager
- *J. Schmeltz, Operations Manager
- C. Sargent, Support Services Director
- *M. Reed, Technical Services Superintendent
- *J. Lockwood, Regulatory Assurance Supervisor
- *M. Santic, Maintenance Superintendent
- R. Crawford, Work Planning Assistant Superintendent

*Denotes those attending the exit interview conducted on April 26, 1993.

The inspectors also talked with and interviewed several other licensee employees during the course of the inspection.

2. Licensee Action on Previously Identified Items (92701 and 92702)

(Closed) Violation (373/92027-01;374/92027-01(DRP)): Several examples of failing to follow procedure due to inattention to detail. Further followup of corrective actions is being tracked by violation 50-373/93007-02 (DRP). Therefore, this item is considered closed.

(Closed) Open Item (373/92008-02(DRP)): Review of a controlled memorandum to describe performance expectations to site system engineers. The controlled memorandum was a good start toward clarifying system engineer expectations. In addition, the licensee initiated a system certification program and created a system engineer mentor position. Although the program was implemented, it was too early to determine its effectiveness. This item is closed.

(Closed) Open Item (373/93004-02(DRP)): Review of the root cause of a failed reactor core isolation cooling (RCIC) turbine governor ramp generator signal converter. The inspectors reviewed the licensee's root cause analysis of the circuit card failure and found it to be satisfactory. This item is closed.

(Closed) Open Item (373/92016-01(DRP)): Review of root cause and 10 CFR 50.21 evaluation of the mechanical binding on the Unit 1 RCIC governor valve stem. The licensee's overhaul of the Unit 1 RCIC turbine during the previous refueling outage (L1R05) revealed several root causes for the corrosion that resulted in the binding of the governor valve stem. Therefore, the inspectors agreed with the licensee's determination that a 10 CFR 50.21 report was not applicable. This item is closed.

No violations or deviations were identified in this area.

3. Licensee Event Reports Followup (92700)

The following licensee event reports were reviewed to ensure that reportability requirements were met, and that corrective actions, both immediate and to prevent recurrence, were accomplished or planned in accordance with the technical specifications:

(Closed) LER 373/93005-00 High Radiation Door Violation Due to Security Computer Problems

(Closed) LER 373/93004-00 Unit 1 Reactor Core Isolation Cooling Inoperable Due to the Inboard Isolation Valve Failure Due to a Breaker Trip on Thermal Overloads

(Closed) LER 373/93007-00 Unit 1 Reactor Core Isolation Cooling Inoperable Due to the Inboard Isolation Valve Failure Due to a Breaker Trip on Thermal Overloads

(Closed) LER 373/93008-00 Inadvertent Group 8 Isolation During Return to Service Due to a Reactor Core Isolation Cooling System Division 2 Isolation

(Closed) LER 373/93003-00 Reactor Core Isolation Cooling System Barometric Condenser Condensate Pump Failure and Discharge Flow and Turbine Speed Problems

(Closed) LER 374/93002-00 Insufficient Flow of the Reactor Core Isolation System During Quarterly Surveillance

(Closed) LER 374/93001-00 Reactor Core Isolation Cooling High Flow Isolation Static-O-Ring Failure Due to a Torn Diaphragm

(Closed) LER 373/93006-00 Group I Isolation During Shutdown Due to a Procedure Deficiency

In addition, recent deviation reports (DVRs) were reviewed in order to monitor conditions related to plant or personnel performance and to detect potential development of trends. Appropriate generation and disposition of DVRs, in accordance with the Quality Assurance Manual, were also reviewed.

No violations or deviations were identified in this area.

4. Operational Safety Verification (60710 and 71707)

The inspectors reviewed the facility for conformance with the license and regulatory requirements.

a. On a sampling basis the inspectors observed control room activities for proper control room staffing; coordination of plant activities; adherence to procedures or technical specifications; operator cognizance of plant parameters and alarms; electrical power configuration; and the frequency of plant and control room visits by station managers. Various logs and surveillance records were reviewed for accuracy and completeness.

Significant observations were:

(1) The licensee may have performed an inadequate safety evaluation which may have resulted in an unreviewed safety question. On March 12, 1992, the licensee manually isolated and placed out of service 2HD059B, the emergency drain valve (EDV) from the 26B high pressure feedwater heater on Unit 2. The licensee, after isolating the EDV, changed the annunciator procedure (LOA-2-PM03J-B101, Rev.12) for the high pressure heater high level alarm. The safety evaluation for this procedure change stated that the action taken was not a change to the facility. The manual isolation of the EDV and the decision to operate the feedwater heater in that configuration until the next unit shutdown appears to have met the criteria in manual chapter part 9800 for a change to the facility.

The EDV provides an automatic dump capability to the condenser. This is a design feature of the feedwater heater described in the updated final safety analysis report (UFSAR page 10.4-22, paragraph 10.4.7.5). The function of the EDV is to open at the high level point (+2 inches) to prevent the level from getting higher and reaching the high-high level point (+4 inches) at which the normal drain valve closes and the extraction steam to the heater isolates. The loss of a feedwater heater is an analyzed transient in Chapter 15 of the UFSAR. The inability of the EDV to open at the high level point may increase the probability of the level reaching the high-high level point resulting in the loss of a feedwater heater. Therefore, an unreviewed safety question may exist. This is an unresolved item (374/93011-01(DRP)).

(2) Operator and maintenance personnel response to the loss of a control room annunciator system inverter on March 30, 1993, was good and in accordance with procedure. The number of annunciators lost was insufficient to dictate declaration of an emergency classification. However, inspector conversations with other operating crews indicated a misconception regarding the potential for such a declaration at LaSalle. Several operators believed inverter redundancy prevented sufficient loss of annunciators to declare an emergency. However, upon review of the associated electrical schematics with the system engineer, the inspectors determined this to be a possibility, depending upon the specific inverter lost. Although training had been given regarding industry events involving loss of annunciator and emergency declaration, training was unclear regarding this particular aspect.

- b. On a routine basis the inspectors toured accessible areas of the facility to assess worker adherence to radiation controls and the site security plan, housekeeping or cleanliness, and control of field activities in progress. Housekeeping remained good.
- c. Walkdowns of select engineered safety features (ESF) were performed. The ESFs were reviewed for proper valve and electrical alignments. Components were inspected for leakage, lubrication, abnormal corrosion, ventilation and cooling water supply availability. Tagouts and jumper records were reviewed for accuracy where appropriate.

No violations or deviations were identified in this area.

5. Monthly Maintenance Observation (62703)

Station maintenance activities affecting the safety-related and important to safety systems and components listed below were observed or reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards, and did not conflict with technical specifications.

The following maintenance activities were observed and reviewed:

- WR L21597 Repair Reactor Building North Hydraulic Control Unit Area Radiation Monitor
- WR L21922 Reactor Core Isolation Cooling Room Area Radiation Monitor Goes Down Scale Frequently
- WR L22091 The Computer Point Reading and the Control Room Gauge for Total Core Flow Do Not Agree
- WR L44638 Standby Gas Treatment System Modification to Eliminate Automatic Process Radiation Monitoring of the System Discharge Flow By Equipment Which is No Longer Needed
- WR L22132 Slipping Anti-Rotation Device on Valve 1HG002A, Hydrogen Recombiner System Outboard Containment Isolation Valve
- WR L21536 Replace Reactor Water Level 8 Injection Valve Closure Rosemount Transmitter

Significant observations included:

a. The inspectors considered the performance of the diagnostic maintenance programs under the control of the technical staff performance monitoring group to be mixed. Examples were identified where the analyses identified and corrected the source of mechanical problems, especially in balance of plant equipment. For instance, vibration analysis identified bearing and motor rotor problems with the motor driven reactor feed pump. However, the group leader believed that the capabilities of the performance monitoring group were <u>under utilized</u>. This could have been due to a lack of appreciation by the system engineers as to how the group could help them. The inspectors also noted that while electric motor megger and polarization index data was periodically taken and compared against acceptance criteria, no trending of this data was done.

b.

- Two failures of the same motor operated valve indicated a weakness in the licensee's root cause analysis. Unit 1 was shutdown following failure of the reactor core isolation cooling (RCIC) steam line inboard containment isolation valve to open on February 10, 1993. On the basis of the as-found condition, the licensee ruled out several possible causes of the failure in favor of loose torque switch set screws. As this suspected cause was not certain, the licensee performed additional testing on February 26, 1993 following restart. The valve again failed during the testing, necessitating another unit shutdown. More extensive evaluation by the licensee confirmed the cause was hydraulic locking as the valve internals and actuator had recently been replaced with a new design. In view of industry experience with valve hydraulic locking including at LaSalle, and the susceptibility of the new type valve to this phenomenon, this cause was too easily ruled out following the first failure. However, as this cause did not affect the valve's safety function ability to close, and testing was performed to confirm the previous determined cause, the safety significance of the initial decision was minimal.
- c. Another example of inattention to detail during maintenance occurred on April 7, 1993, when returning the 2A diesel generator cooling water pump to service. The pump auto started when the control power fuses were installed. The control switch had been replaced. When the old switch was removed the escutcheon plate (green target) showed the switch in the off position. The new switch was installed in the on position and the escutcheon plate was not changed to reflect this. This was another example of inattention to detail during maintenance. This concern was addressed by a notice of violation in inspection report 373/93007. The licensee has not yet responded to the previous violation.

No violations or deviations were identified in this area.

6. Monthly Surveillance Observation (61726)

Surveillance testing required by technical specifications, the safety analysis report, maintenance activities, or modification activities were observed or reviewed. Areas of consideration while performing observations were procedure adherence, calibration of test equipment, identification of test deficiencies, and personnel qualification. Areas of consideration while reviewing surveillance records were completeness, proper authorization and review signatures, test results properly dispositioned, and independent verification documented. The following activities were observed or reviewed:

LaSalle Technical Surveillance (LTS) 200-5, "Main Capability Test"

LaSalle Instrument Procedure (LIP)-AR-501, "Unit 1 Area Radiation Monitor Source Calibration"

LaSalle Instrument Surveillance (LIS)-LP-202, "Unit 2 Low Pressure Core Spray Minimum Flow Bypass Quarterly Calibration"

LIS-NR-405, "Unit 2 Rod Block Monitor Functional Test"

LIS-HP-210, "Unit 2 Reactor Vessel High Water Level 8 High Pressure Core Spray Channels A and B Calibration"

LaSalle Operating Surveillance (LOS)-DG-M2, "2A Diesel Generator Operability Test"

LOS-RI-Q5, "Reactor Core Isolation Cooling (RCIC) System Pump Operability, Valve Inservice Test in Conditions 1, 2, and 3, and Cold Quick Start"

LOS-DG-M3, "1B Diesel Generator Operability Test"

Significant observations included:

- On April 7, 1993 while performing LaSalle Instrument Surveillance a. (LIS)-NR-405, "Unit 2 Rod Block Monitor Functional Test", step F.46, the technician operated a channel "D" average power range monitor (APRM) switch instead of a channel "B" rod block monitor (RBM) switch as required. The result was an unplanned half-scram as the "D" APRM was taken out of "operate". The root cause was inattention to detail by the technician. The physical layout of the APRM and RBM instrument drawers contributed to the error. In one cabinet the RBM channel is under the APRM channel. In the other cabinet the RBM channel is on top. The physical layout problem was compounded by the technicians taking a break between performance of the procedure on the "A" channel and the "B" channel. This was another example of a failure to follow procedure due to lack of attention to detail. This concern was addressed by a notice of violation in inspection report 373/93007. The licensee has not yet responded to the previous violation.
- b. On April 12, 1993, the licensee identified that LaSalle Operating Surveillance (LOS)-RI-Q5, "Reactor Core Isolation Cooling (RCIC) System Pump Operability, Valve Inservice Tests In Conditions 1,2, and 3, and Cold Quick Start", did not specify the discharge pressure of the pump when testing the operability of the RCIC

system. The surveillance failed to specify that the discharge pressure of the RCIC pump while in the test mode must be 70 psig above reactor pressure for Unit 1 and 85 psig for Unit 2 to assure the system would inject to the reactor vessel if needed. As a result of the review of completed surveillances, the licensee found that during the surveillance performed on Unit 2 on February 24, 1993, the discharge pressure of the RCIC system was not greater than 85 psig above reactor pressure. The Unit 2 RCIC system was tested satisfactorily soon after the procedural problem was discovered. Licensee personnel performed an evaluation using the data from the surveillance performed on February 24, 1993, and concluded the system was capable of achieving the appropriate discharge pressure and that the pump was operating as designed. This evaluation was reviewed by the inspectors and found to be satisfactorily.

The procedural problems were not identified during the on-site review of a procedure change. In July 1992, LOS-RI-Q5 was developed to combine the RCIC cold quick start and the inservice test surveillances. The procedure was revised to include the proper discharge pressure criteria and was in the on-site review process and expected to be approved for use prior to May 4, 1993. Failure to provide instructions appropriate to the circumstances is a violation of 10 CFR 50, Appendix B, Criterion V. This was a Severity Level V violation identified by the licensee and was not cited because the criteria specified in section VII.B of the "General Statement of Policy and Procedures for NRC Enforcement Actions," (Enforcement Policy, 10 CFR Part 2, Appendix C (1993)) were satisfied.

One non-cited violation and no deviations were identified in this area.

7. Safety Assessment and Quality Verification (40500)

The licensee demonstrated the ability to effectively and a. eventually address recurring problems. However, several examples existed where the licensee failed to initially deal with problems The licensee frequently initially responded in the aggressively. most convenient but acceptable manner, and waited for multiple occurrences or other pressures to take more extensive actions. Examples of equipment problems in this category included the RCIC governor valve and RCIC vacuum breaker isolation valve failures and spurious control room emergency ventilation actuations described in inspection reports 50-373/92027; 50-374/92027, spurious reactor water cleanup system isolations described in inspection reports 50-373/92011 and 50-374/92011, and the RCIC inboard containment isolation valve described in this report. Other areas were marked by knowledge of problems but failures to seriously address them until subjected to outside pressures, including the NRC. Examples included the slowness in extensively addressing the adverse personnel error trend and the inadequate reactor water cleanup system return valve local leak rate testing

described in inspection reports 50-373/92027; 50-374/92027, the excessive number and age of temporary system changes, and numerous problems regarding the steam seal evaporator described in inspection reports 50-373/92008; 50-374/92008; 50-373/91023 and 50-374/91023. Still other areas were marked by the inability to view findings or events in aggregate to identify overall weaknesses. Examples included operators' failures to understand procedural adherence expectations described in inspection report 50-373/92008; 50-374/92008 and a lack of aggressiveness in fire protection program risk minimization.

- b. LaSalle Updated Safety Analysis Report (UFSAR) 6.2.4.-2.1 indicated in addition to inboard and outboard check valves, a motor operated gate valve provided long-term containment leakage protection for the feedwater system. This valve was to be closed upon determination that continued makeup from the feedwater system was unavailable or unnecessary. NUREG-0519, "LaSalle Safety Evaluation Report (SER)," Section 6.2.3.1 reflected this statement and included procedural controls on this valve as the NRC basis for acceptability of the feedwater containment isolation design. The inspectors could not identify any current procedures that provided this control. This was considered an unresolved item (50-373/93011-02(DRP)) pending a review of corresponding operator training and historical procedures, as well as determination of safety consequences.
- c. The inspectors compiled data to compare onsite station quality verification (QV) findings prior to and after the extensive reorganization. The quality assurance (QA) staffing portion of the QV onsite organization was reduced by approximately 75 percent. The sample data took into account both outage and nonoutage time periods. Field monitoring reports were reduced by approximately 70 percent and identification of deficiencies and marginal attributes by QA was reduced by 63 percent. This indicated a substantial reduction in QA observed plant activities and resulting findings due to the reorganization. Insufficient information regarding the reduced number of observations has been collected to draw a conclusion on the affects of licensee performance.

Manpower utilization for audits indicated only a slight decrease for 1993 as compared to 1992. There was a slightly heavier reliance on manpower other than onsite QV members to complete the 1993 audits. It was not clear whether the current QV organization could continue to provide the planned manpower support.

No violations or deviations were identified in this area.

8. Report Review (90713)

During the inspection, the inspector reviewed selected licensee reports and determined that the information was technically adequate, and that it satisfied the reporting requirements of the license, technical specifications, and 10 CFR as appropriate.

No violations or deviations were identified in this area.

9. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Unresolved items disclosed during the inspection are discussed in paragraphs 4.a.(1) and 7.b..

10. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) during the inspection period and at the conclusion of the inspection period on April 26, 1993. The inspectors summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the information and did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.